**NICHOLAS A. GIUDICE, PhD**

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**1. EDUCATION AND PROFESSIONAL TRAINING**

2005-2008 Postdoctoral Fellow, Psychological and Brain Sciences: Cognition, Perception, and Cognitive Neuroscience Program. Sponsor: Prof. Jack M. Loomis, University of California, Santa Barbara (UCSB).

1998-2004 Ph.D., Psychology: Cognitive and Brain Sciences Program. Advisors: Prof. Gordon E. Legge and Prof. Herbert L. Pick, University of Minnesota (UMN), Twin Cities, MN.

1993-1997 B.A., (Magna Cum Laude), Psychology and Philosophy. Providence College (PC), Providence, RI.

**2. PROFESSIONAL POSITIONS AND AFFILIATIONS**

2.1 Academic Positions (9):

2021-Present Full Professor, Spatial Computing Program: School of Computing & Information Science (SCIS), UMaine.

2020-Present Chief Research Scientist, Virtual Environments and Multimodal Interaction (VEMI) Laboratory, UMaine. URL: [http://www.umaine.edu/](http://www.vemilab.org/)vemi

2018-2020 Full Professor, Spatial Informatics Program: School of Computing & Information Science (SCIS), UMaine.

2017-2018 Director, National Center for Geographic Information and Analysis (NCGIA), UMaine.

2016-Present Coordinator, Human-Computer Interaction (HCI) minor, UMaine.

2013-2018 Associate Professor, Spatial Informatics Program: School of Computing & Information Science, UMaine.

2011-2013 Assistant Professor, Spatial Informatics Program: School of Computing & Information Science, UMaine.

2008-2019 Founding Director, Virtual Environments and Multimodal Interaction (VEMI) Laboratory, UMaine. URL: [http://www.umaine.edu/](http://www.vemilab.org/)vemi

2008-2011 Assistant Professor, Dept. of Spatial Information Science and Engineering, UMaine.

2.2 Cooperative Appointments and invited positions (4):

2018-Present Ombudsperson for the Clinical training program, Department of Psychology, UMaine.

2017-2019 Faculty Associate, Center on Aging, UMaine.

2009-Present Cooperating Faculty, Department of Psychology, UMaine.

2008-2019 Joint appointment, National Center for Geographic Information and Analysis (NCGIA), UMaine.

2.3 Editorial Positions (4):

2020-2021 Co-editor for Spatial Cognition and Computation special issue on Geographic Information, Human-Computer Interaction, and Navigation.

2017-Present Editorial Board, ACM Transactions on Accessible Computing (TACCESS), the official journal for the ASSETS International Conference and is the premier journal on the latest research, policy, and technology in computing fields relating to accessibility, inclusion, and disability. URL: <https://dl.acm.org/journal/taccess>

2016-Present Editorial Board (Associate Editor) Assistive Technology, the official journal of the Rehabilitation Engineering & Assistive Technology Society of North America (RESNA). URL: <http://www.tandfonline.com/loi/uaty20>

2015 Co-editor for the IEEE Transactions on Haptics, special issue on haptics and accessibility. URL: <http://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=4543165>

2.4 Professional Positions: Directorships and Board Memberships (9):

2018-2022 Invited Member of the National Academies of Science, Transportations Research Board on Autonomous vehicle safety.

2017-Present    Co-founder, President, and Chief Research Officer, Unar Labs, LLC. A start-up company developing multimodal information access technologies promoting universal access to digital information and graphical content without sensory bounds. URL: [www.unarlabs.com](http://www.unarlabs.com/)

2017-Present Scientific advisory board, ClickAndGo Wayfinding Maps LLC. A company promoting “independent mobility for everyone” through the combined use of tactile and narrative maps, real-time location information, and an accessible iOS navigation app. URL: <http://www.clickandgomaps.com/>

2016-Present Board of Directors, The Iris Network. A nonprofit organization advancing policy, research, and training to assist BVI people across the nation in attaining employment, independence, and community integration. URL: <http://www.theiris.org/>

2015-Present Partner, Access Computing Alliance. A national consortium of university and industrial affiliates working to increase the participation of women, people with disabilities, and other underrepresented groups in post-secondary computing fields and STEM careers. URL: <http://www.washington.edu/accesscomputing/>

2015-Present Scientific advisory board, AIRA Tech Corp. A San Diego-based start-up company providing blind and visually impaired (BVI) users with remote real-time information access via the smartphone using trained human agents. URL: <http://www.aira.io/>

2015-Present Board of Directors (chairman 2016-2018), American Council of the Blind (ACB) of Maine. A leading advocacy organization for BVI-related issues. URL: <http://acbmaine.org/>

2015-Present Founder and CEO, Unizign Research LLC.

2015-2018 Board of Directors, Maine Organization for Blind Athletic and Leadership Education (MOBALE). An innovative nonprofit organization providing year-round sports education and leadership opportunities for young BVI athletes around New England. URL: [www.mobale.org/](http://www.mobale.org/)

**3. RESEARCH OVERVIEW**

About Giudice webpage: <https://umaine.edu/vemi/facultystudents/dr-nicholas-giudice/>

VEMI Lab webpage: <http://www.umaine.edu/vemi>

3.1 Research Summary

My research program is both interdisciplinary and translational, combining principles and methodologies from human perception, cognitive neuroscience, and human-computer interaction. I am the founding director of the VEMI lab, a one-of-a-kind educational, research, and development facility built on an innovative operating model combining theory and practice from creative arts, science, and interface design. Our mission is to envision, develop, and evaluate human-inspired nonvisual, enhanced visual, and Multimodal information access technology for improving environmental awareness, spatial learning, and navigation behavior. Our solutions make a difference in people’s lives by providing immediate benefits on the information access needs of blind/visually impaired people (representing 12 million persons in the U.S. and 285 million worldwide), as well as older adults experiencing vision loss (most visual impairment is age-related and the reality is that 70-year-old eyes are not as keen as 20-year-old eyes). Visual impairment need not be physical or permanent, sighted people are also frequently “blind” to their environment. Our research program addresses these scenarios based on solutions for what we call situational blindness (e.g., texting while walking), eyes-free applications (such as performing a secondary task while driving), and when accurate imagination requires more than visual information (such as for understanding the sight/sound characteristics of a new windfarm installation). Current research is also investigating the collaboration of human intelligence (HI) and artificial intelligence (AI) in the design and operation of autonomous vehicles (AVs), especially as relates to usage by older adults and BVI people. My experiences as a congenitally blind person provide me with unrivaled first-hand knowledge about the needs and challenges of this demographic and key insight of what works and doesn’t work for the design of nonvisual information access and navigational technology, something that is often misunderstood by researchers/designers/engineers without this phenomenology.

3.2 Research Interests

* Multimodal Spatial Cognition: Studying how we learn about, represent, and navigate our environment using different sensory modalities (3D sound, touch, vision, and language).
* Multimodal Information Access Technology: Researching and designing multimodal interfaces to improve environmental awareness, navigation, and information access.
* Multimodal Visualization and Interactive Design: Improving human perception, imagination, and interpretation of complex data/information using immersive virtual and augmented reality tools and naturalistic 3D multisensory simulations.
* Trust in fully autonomous vehicles and human-vehicle collaboration (HVC)Multimodal.

**4. COMPETITIVE GRANTS & RESEARCH SUPPORT (PI/Co-PI of $15.1 million)**

Grant values indicated as follows: UMaine grants (Giudice $ Amount / Total Grant award $ Amount) and multi-institution grants (Giudice-UMaine $ Amount / Total Grant award $ Amount) If only one value is in parenthesis, then the full grant amount was under Giudice/UMaine expenditure control.

*Summary Metrics:*

* *PI or Co-PI of over $15 million in grants, contracts and prizes, with direct management of over $7 million to support VEMI’s research program*
* *26 extramural grants and supplements, 13 industrial collaborations, and 20 internal grants*
* *Over 30 national / international collaborators*
* *University leading 29 undergraduate student research awards*

4.1 Extramural Grants (14) ($4,764,176 / $9,863,297):

06/01/2021-05/31/2025 NSF ITEST grant DRL 2048394: “Collaborative Research: Creating and testing data science learning tools for secondary students with disabilities”; ($303,549 / $1,347,175), designing and evaluating information-access technology to support STEM education and data science understanding by high school students (N.A. Giudice, UMaine pi; with J. Gorlewicz, Saint Louis University; D.W. Smith, University of Alabama, Huntsville; and A.M. Stefik, University of Nevada, Las Vegas).

10/01/2021-09/30/2024 NSF HCC-IIS2106393: “Investigating Inclusive Data Science Tools to Overcome Statistics Anxiety”; ($345,615 / $1,301,867), designing and evaluating the Relatable Online Accessible Data Science (ROADS) platform, a tool to improve online data science understanding and accessibility for college students (N.A. Giudice, UMaine pi; with A.M. Stefik, University of Nevada, Las Vegas (PI) & J.L. Gorlewicz, Saint Louis University).

10/01/2019-09/30/2023 National Science Foundation (NSF) grant CHS-1910603, “Improving user trust of autonomous vehicles through human-vehicle collaboration” ($499,898). Development of human-vehicle collaboration profiles to improve user trust, usability, and accessibility of fully autonomous vehicles (N.A. Giudice, PI; with R.R. Corey).

07/01/2018-07/31/2023 NSF grant: IIS-1822800 “A remote multimodal learning environment to increase graphical information access for blind and visually impaired students”; ($660,261 / $747,894), developing an accessible, remotely deployed STEM-learning platform for BVI students (N.A. Giudice, pi; with J.K. Dimmel, UMaine; and S.A. Doore, Bowdoin College).

01/16/2017-12/31/2021 NSF grant ECR DCL Level 2 1644471: “Perceptual and Implementation Strategies for Knowledge Acquisition of Digital Tactile Graphics for Blind and Visually Impaired Students”; ($282,795 / $916,798), designing and evaluating information-access technology to support STEM education by BVI people (N.A. Giudice, UMaine pi; with J. Gorlewicz, Saint Louis University (PI); D.W. Smith, University of Alabama, Huntsville; and A.M. Stefik, University of Nevada, Las Vegas).

01/01/2019-12/31/2020 National Endowment for the Humanities (NEH) grant PR-263888-19, “Accessible Civil Rights Heritage Project” ($89,764 (VEMI) / $277,439). Development and usability testing of an automated tool providing BVI access to films and video (N.A. Giudice, UMaine PI; with R.R. Corey, (UMaine) and M. Williams (PI) and J. Bell, Dartmouth College).

02/01/2015-01/31/2019 NIH grant R01-EY019924-07: "Audio-Haptic Virtual Environments for Large-Scale Navigation in the Blind"; ($140,592 / $433,596), researching behavioral and neuroimaging effects of multimodal interfaces on spatial learning without vision (N.A. Giudice, UMaine PI; with L. Merabet, Harvard (PI); and K. Sathian, Emory).

09/01/2014-08/31/2019 NSF grant CHS-#1425337, “Non-visual Access to Graphical Information Using a Vibro-Audio Display” ($499,853), researching graph/map access using touchscreen-based devices (N.A. Giudice, PI).

10/01/2010-09/30/2016 NSF grant CDI-1028895, “Perception of Indoor Scene Layouts by Machines and Visually Impaired Users" ($700,739 / $1,275,444), studying automated conversion of visual images into a common spatial format suitable for linguistic output (N.A. Giudice, UMaine co-PI; with K. Beard, UMaine (PI); R. Moratz, UMaine; L.J. Latecki, Temple University; and K. Daniilidis, UPenn).

09/15/2009-08/31/2014 NSF grant IIS-0916219, “Information Integration and Human Interaction for Indoor and Outdoor Spaces” ($478,715), researching formal models and user interactions for seamless navigation of OI spaces (N.A. Giudice, Co-PI; with M. Worboys, PI).

09/15/2008-08/31/2013 NSF grant CDI-0835689, “Cyber Enhancement of Spatial Cognition for the Visually Impaired” ($275,998 / $1,171,402), researching a non-visual indoor navigation system (N.A. Giudice, UMaine PI; with K. Daniilidis, UPenn, PI; S. Roumeliotis, UMN; and R. Manduchi, UCSC).

08/01/2009-07/31/2012 NIH grant R01-EY016817, “Multimodally encoded spatial images in sighted and blind” ($269,650 / $602,302), researching functional equivalence and amodal spatial representations (N.A. Giudice, UMaine PI; with J.M. Loomis, UCSB, PI; and R.L. Klatzky, CMU).

04/01/2008-07/31/2009 NSF grant BCS-0745328, “Spatial Images from Vision, Touch and Hearing” ($25,215 / $119,382), researching functional equivalence and amodal spatial representations (N.A. Giudice, UMaine PI; with J.M. Loomis, UCSB, PI; and R.L. Klatzky, CMU).

01/01/2005-12/31/2008 NIH postdoctoral NRSA grant EY-015963, “Spatial Learning with Multiple Sensory Modalities” ($191,532), researching multimodal spatial cognition in blind and sighted (N.A. Giudice, PI).

4.2 Commercial Contracts and Industrial Collaborations (13) ($839,504 / $3,812,090):

09/01/2020-08/31/2022 NIH SBIR Phase I Grant #1R43EY032008-01, Development of a haptic guidance interface for eliminating veering during indoor and outdoor navigation by blind and visually impaired travelers; ($28,999/ $218,583), evaluating a new real-time haptic guidance interface (N.A. Giudice, UMaine pi; with Global Tactile Technologies, LLC (PI)

09/30/2017-09/29/2020 NIH STTR Phase I grant EY-027623, “Roboglasses® electronic travel aid with hands free obstacle avoidance for blind and vision impaired users”; ($132,000 / $210,281), R&D project for real-time head-level obstacle awareness using multimodal feedback (N.A. Giudice, UMaine PI; with Fauxsee Innovations LLC., PI, Little Rock, AR).

02/01/2019-01/31/2020 NSF Phase I grant #1843485, “Development of a Multimodal Interface for improving independence of Blind and Visually-Impaired people” ($61,704 (VEMI) / $225,000). Development and usability testing of automated graphical access software (R.R. Corey, UMaine PI; with H.P. Palani (PI) and N.A. Giudice, Unar Labs).

10/01/2018-07/31/2019 RRF Phase II: MIRTA Technology Accelerator Program, “Customer Discovery and Market Validation of Midlina - a multimodal software solution providing blind and visually-impaired people with access to digital graphical information” ($35,000). Customer needs assessment (N.A. Giudice, PI; with H.P. Palani).

07/01/2018-06/30/2019 MTI grant, “Augmented Reality Standardized Patient Simulator”; ($22,080 / $38,000), developing a real-time AR tool for training and field-based diagnostics (N.A. Giudice, UMaine (co-PI) with R.R. Corey; and Zephyrus Simulation).

11/01/2017-04/30/2019 NSF Icorp 1758174, “Touchscreen-based Graphics for Blind and Visually-impaired people” ($50,000), aimed at market analysis for commercialization of access technology (N.A. Giudice, UMaine (PI) with H.P. Palani, UMaine and V. Buble).

07/01/2015-06/30/2018 NSF Phase II STTR Grant: IIP-1534010, “An Assistive Tool to Locate People and Objects with a Multimodal Thermogram Interface” (subcontract: $225,000 / $749,560), researching accessible smartphone interfaces for detecting people and object locations without vision (N.A. Giudice, UMaine PI, with MOAI Technologies, PI, Minneapolis, MN).

2017 NVDIA Inc. GPU $1000 award to support VEMI Research on AR and computer vision (N.A. Giudice, PI, with J.D. Cole).

01/01/2014-12/31/2014 NSF Phase I STTR Grant: IIP-1346292, “An Assistive Tool to Locate People and Objects with a Multimodal Thermogram Interface” (subcontract: $68,891 / $224,503), researching accessible smartphone interfaces for detecting people and object locations without vision (N.A. Giudice, UMaine PI, with MOAI Technologies, PI, Minneapolis, MN).

11/14/2012-10/31/2016 NIH Phase II SBIR grant: R44EY021412-02, “Vision Impaired Wayfinding with Doppler Velocimeter” (subcontract: $49,009 / $1,473,275), researching new hardware and user interfaces supporting accessible indoor navigation (N.A. Giudice, UMaine PI; with Koronis Biomedical Technologies, PI, Minneapolis, MN).

2012 R&D contract 2907-01 ($78,730), “Using augmented and virtual reality for indoor visualization on mobile devices” (N.A. Giudice, PI; with R.R. Corey, Co-PI; and Majella Global Technologies, Portland, ME).

10/01/2011-09/31/2014 NIDRR Phase II SBIR grant: H133S100049, “Indoor Route Following Tool for the Blind” (Subcontract: $46,640 / $75,000), researching accessible indoor navigation systems (N.A. Giudice, UMaine PI; with Koronis Biomedical Technologies, PI, Minneapolis, MN).

07/01/2009-06/30/2012 NIH Phase II SBIR grant: EY017228-02A2, “Indoor Personal Navigation System for the Blind using Augmented GPS” ($40,451 / $433,158), researching accessible indoor GPS technology (N.A. Giudice, UMaine PI; with Koronis Biomedical Technologies, PI, Minneapolis, MN).

4.3 UMaine and other Internal Grants (20) ($413,489 / $477,816):

2020-2021 UMaine and Northeastern AI Seed grant “Combining Real-Time Deep Learning and Human-Vehicle Collaboration Techniques in Autonomous Vehicles to Assist Older and Visually Impaired Passengers” ($25,000 / $50,000). Studying uses of ML to support accessible human-vehicle interactions in AVs (PI: N.A. Giudice; Co-PIs: R.R. Corey (UMaine); & X. Lin (Northeastern).

2020-2021 UMaine AI Seed grant “Improved Adversarial Attack Detection Toward Robustness of Deep Neural Networks.” ($17,160 / $56,487). Studying AML in context of AVs (PI: S.Y. Sekeh; Co-PIs: N.A. Giudice, R.R. Corey, A. Abedi (UMaine), T. Nowak (Pacific Northwest National Laboratory).

2018-2019 UMaine RRF seed Grant “Gaming Application for Multimodal Skill Acquisition (GAMSA): Improving Navigation and Independence for Blind and Visually Impaired People” ($65,000), developing a new gamification O&M training technique (N.A. Giudice (PI), with Rabih Dow, The Iris Network, Portland ME (Co-PI)).

2018-2019 UMaine RRF seed Grant “Augmented reality respiratory simulators for combined visual and haptic medical training in low-resource settings” ($80,000), developing a low cost, highly effective multimodal medical tool. (N.A. Giudice (Co-PI), with C. Howell (PI)).

2017-2018 UMaine Aging Prototype Proposal “Commercializing Smart Shoe and Smart Cane” ($22,998), developing medical technology for older adults (N.A. Giudice, Co-pi; with A. Abedi (PI)).

2017-2018 UMaine Aging Prototype Proposal “Compensatory Augmentations for Assistive Technology to Commercialize Safe and Efficient Navigation” ($20,000), developing navigation assistance software (N.A. Giudice, Co-pi; with R.R. Corey (PI)).

2017-2018 UMaine Aging Prototype Proposal "Indoor Navigation for Older Adults” ($20,000), developing indoor navigation technology (N.A. Giudice, PI; with R.R. Corey and A. Abedi).

2015-2016 UMaine Aging Research and Technology Seed Grant “Improving navigation and independence in older adults using compensatory augmentations” ($38,000), studying new technology to improve safe and efficient driving and navigation for people over 65 (N.A. Giudice, pi; with R.R. Corey).

2015-2016 UMaine Aging Research and Technology Seed Grant “Indoor multi-input navigation for the aging population using a hybrid wireless system (iMAP)” ($44,000), studying low-cost methods for indoor localization and navigation for older adults (N.A. Giudice, Co-pi; with A. Abedi (PI) and R.R. Corey).

2014-2015 Sustainability Solution Initiative Seed grant “Using Immersive Virtual Reality to Understand the Impacts of Wind Energy Siting” ($58,455), creating 3D VR/AR simulations of new windfarms (N.A. Giudice, PI; with Mario Teisl; Shannon McCoy; and Caroline Noblet).

2011-2012 Temple University Replication Grant ($600), ensuring higher educational opportunity for all UMaine students (N.A. Giudice, collaborator).

2010 UMaine Faculty Research Award 5252980-13 ($12,276), for purchasing augmented reality hardware (N.A. Giudice, PI).

2008 UCSB Brain Imaging Center ($10,000), seed funding for neuroimaging Parahippocampal Place Area (PPA) project (N.A. Giudice, Co-PI; with J.M. Loomis, PI; and T. Wolbers).

2002-2007 Multi-institution NIDRR grant H133A011903, researching indoor/outdoor wayfinding technologies for the blind (Grad Research Assistant and Collaborator).

2002-2003 NIH grant F32-EY015963-01 (Grad Research Assistant).

2002 Center for Cognitive Sciences Mini-Research Grant (Graduate Trainee).

2001-2004 Visual Neuroscience Training Grant 5T32-EY07133 (Grad Research Assistant).

2001 NIH Center for Cognitive Sciences Fellowship T32-HD07151 (Graduate Trainee).

1998-2000 NSF Vision and Motor Control Fellowship GER-9454163 (Graduate Training).

1998 UMN Graduate School Fellowship (Graduate Trainee).

4.4 Project Supplements and Consulting Contracts (12) ($271,581):

2022-2025 REU supplement to NSF HCC-IIS2106393: “Investigating Inclusive Data Science Tools to Overcome Statistics Anxiety”; ($48,000). Designing and evaluating the Relatable Online Accessible Data Science (ROADS) platform, a tool to improve online data science understanding and accessibility for college students (N.A. Giudice, UMaine PI).

2020 REU supplement to NSF grant: CHS-1910603, “Improving user trust of autonomous vehicles through human-vehicle collaboration” ($32,000). Development of human-vehicle collaboration profiles to improve user trust, usability, and accessibility of fully autonomous vehicles (N.A. Giudice, PI; with R.R. Corey).

2020 REU supplement to NSF grant: IIS-1822800 “A remote multimodal learning environment to increase graphical information access for blind and visually impaired students” ($16,000) developing an accessible, remotely deployed STEM-learning platform for BVI students (N.A. Giudice, PI).

2019 REU supplement to NSF grant: IIS-1822800 “A remote multimodal learning environment to increase graphical information access for blind and visually impaired students” ($15,360) developing an accessible, remotely deployed STEM-learning platform for BVI students (N.A. Giudice, PI).

2019 REU supplement to NSF grant ECR DCL Level 2 1644471: “Perceptual and Implementation Strategies for Knowledge Acquisition of Digital Tactile Graphics for Blind and Visually Impaired Students” ($7,680), researching touchscreen interfaces for vibro-audio rendering / perception (N.A. Giudice, PI).

2018 REU supplement to NSF grant ECR DCL Level 2 1644471: “Perceptual and Implementation Strategies for Knowledge Acquisition of Digital Tactile Graphics for Blind and Visually Impaired Students” ($7,680), researching touchscreen interfaces for vibro-audio rendering / perception (N.A. Giudice, PI).

2017      REU supplement to NSF grant CHS-#1425337, “Non-visual Access to Graphical Information Using a Vibro-Audio Display” ($15,360), researching digital beacons to support real-time accessible indoor navigation (N.A. Giudice, PI).

2017      REU supplement to NSF grant ECR DCL Level 2 1644471: “Perceptual and Implementation Strategies for Knowledge Acquisition of Digital Tactile Graphics for Blind and Visually Impaired Students” ($7,680), researching touchscreen interfaces for vibro-audio rendering / perception (N.A. Giudice, PI).

2016-2017  NEH Office of Preservation and Access, tier 1 Research and Development grant: “Semantic Annotation Tool”; ($55,000 VEMI consulting project), developing the UI for an open source video annotation tool providing BVI people access to visually-based media clips (R.R. Corey and N.A. Giudice, UMaine consultants; with M. Williams (pi) and J. Bell, Dartmouth).

2015 REU supplement to NSF grant CHS-#1425337, “Non-visual Access to Graphical Information Using a Vibro-Audio Display” ($15,360), researching real-time access to scene elements using touchscreen-based devices (N.A. Giudice, PI).

2013 REU supplement to NSF grant IIS-0916219, “Information Integration and Human Interaction for Indoor and Outdoor Spaces” ($8,560), researching indoor navigation technology (N.A. Giudice, PI).

2009 NSF CDI-0936008 ($42,901), "Cyber Enhancement" technology supplement (N.A. Giudice, PI).

4.5 Awards and Prizes (2) ($600,000):

2022    U.S. DOT Inclusive Design Challenge (IDC) Finalist prize “The Autonomous Vehicle Assistant (AVA): A Complete Trip Solution for Future accessible Mobility”; ($300,000). Designing new multisensory techniques using NL, CV, and ML algorithms for improving access to autonomous ride sharing (N.A. Giudice (PI), with R.R. Corey (UMaine), S.D. Doore (Colby), and X. Lin (Northeastern).

2021    U.S. DOT Inclusive Design Challenge (IDC) Semifinalist prize “Autonomous Vehicle Assistant (Ava): Ride-hailing and localization for the future of accessible mobility”; ($300,000). Designing new multisensory techniques using NL, CV, and ML algorithms for improving access to autonomous ride sharing (N.A. Giudice (PI), with R.R. Corey (UMaine), S.D. Doore (Colby), and X. Lin (Northeastern).

4.6 Student Awards and Competitive Grants / Fellowships (29) ($99,105):

2018-2019 Brad Butler, Undergraduate Research and Creative Activity CLAS Fellowship “Applying Observational Virtual Reality to Improve Student Learning of Human Musculature” ($1,100), developing a system to improve visualization of internal muscles and their connectivity (N.A. Giudice, PI).

2017-2018 Gene Herrschaft, Undergraduate Research and Creative Activity CLAS Fellowship “Facilitating Meaningful Interpersonal Connections Through a Virtual Space” ($1,000), using VR in social contexts. (N.A. Giudice, PI).

2016-2017 Toni Kaplan, Undergraduate Research and Creative Activity CLAS Fellowship “Development of a Dynamic Multisensory Interface to Provide Accessible Biological Diagrams for Blind and Low Vision Students” ($1,000), haptic-audio smartphone interface supporting STEM education (N.A. Giudice, Pi; with R.R. Corey, Co-PI).

2015-2016 Brenden Peters, Undergraduate Research and Creative Activity CLAS Fellowship “Dynamic Motion Control: Networked Control Software and Expanded Physical Capabilities for Virtual Environment Motion Feedback Devices” ($900), focusing on development of software for the VEMI Lab's six-degrees-of-freedom motion platform (N.A. Giudice, Pi; with R.R. Corey, Co-PI).

2015-2016 Toni Kaplan, Undergraduate Research and Creative Activity CLAS Fellowship “Evaluation of Virtual Reality Simulation as a Supplemental Treatment in Cases of Seasonal Affective Disorder” ($900), comparing traditional and VR-based mitigation for SAD (N.A. Giudice, Pi; with R.R. Corey, Co-PI).

2015-2016 Brenden Peters, Maine Space Grant Consortium (MSGC) fellowship “Dynamic Motion Control: Networked Control Software and Expanded Physical Capabilities for Virtual Environment Motion Feedback Devices” ($1,000), focusing on development of software for the VEMI Lab's six-degrees-of-freedom motion platform (N.A. Giudice, Pi; with R.R. Corey, Co-PI).

2015-2016 Scott Richards, Center for Undergraduate Research fellowship “Virtual Reality Exposure Therapy for Veterans with PTSD” ($1,000), platform for creating situationally-specific simulations for the treatment of PTSD (N.A. Giudice, Pi; with R.R. Corey, Co-PI).

2015 Hengshan Li, Graduate Student Government Grant for purchasing augmented reality hardware ($638) (N.A. Giudice, Advisor).

2015 Chris Bennett, Graduate Student Government Grant for purchasing VR driving simulator equipment ($472) (N.A. Giudice, Advisor).

2015 RJ Perry, Graduate Student Government Grant for purchasing smart devices for augmented reality applications ($353) (N.A. Giudice, Advisor).

2014-2016 Hengshan Li, Waldron UMaine Doctoral Fellowship ($50,000), for the 2014–2016 academic years (N.A. Giudice, advisor).

2014-2015 Sam Gates, Center for Undergraduate Research fellowship “Accelerometer for Fall Detection” ($1,000), technology to prevent falls and support independent living for elders (N.A. Giudice, PI; with R.R. Corey, Co-PI).

2014-2015 Allison Goodridge, Center for Undergraduate Research (CUGR) Fellowship “Dynamic Motion Control: Generating Physical Phenomena for Examination of Spatial Cognition and Impulse Response in Virtual Environments” ($1,000), to jointly create a 6 DOF motion platform for VR simulations (N.A. Giudice, PI; with R.R. Corey, Co-PI).

2014-2015 Meghan Hurlburt, Center for Undergraduate Research Fellowship “Using Radio Frequency Indicator Technology as An Inexpensive and Noninvasive Solution for Aging in Place” ($1,000), home-based tracking system for older adults (N.A. Giudice, PI; with R.R. Corey, Co-PI).

2014-2015 Meghan Hurlburt, Undergraduate Research and Creative Activity CLAS Fellowship “Monitoring Independently Aging Adults with Radio Frequency Indicator Technology: An Inexpensive and Noninvasive Solution for Aging in Place” ($2,167), system for indoor tracking of older adults (N.A. Giudice, PI; with R.R. Corey, Co-PI).

2014-2015 Tim McGrath, Center for Undergraduate Research Fellowship “Development of a Non-Visual Indoor Navigation Assistive Device Using Real-Time Tracking and Multimodal Feedback” ($1,000), to create virtual audio models of indoor spaces (N.A. Giudice, PI; with R.R. Corey, Co-PI).

2014-2015 Brenden Peters, Center for Undergraduate Research Fellowship “A Low-Power Device for Indoor Mapping and Navigation” ($991), RFID-based system for indoor mapping (N.A. Giudice, PI; with R.R. Corey, Co-PI).

2014-2015 Brenden Peters, Undergraduate Research and Creative Activity CLAS Fellowship “Devices for Indoor Mapping and Augmented Navigation” ($2,416), an indoor navigation device based on automated mapping (N.A. Giudice, PI; with R.R. Corey, Co-PI.

2014-2015 Dustin Sleight, Center for Undergraduate Research Fellowship “Dynamic Motion Control: Generating Physical Phenomena for Examination of Spatial Cognition and Impulse Response in Virtual Environments” ($1,000), to jointly create a 6 DOF motion platform for VR simulations (N.A. Giudice, PI; with R.R. Corey, Co-PI).

2013-2014 Sylvia Allain, Center for Undergraduate Research Fellowship “Virtual Modeling of Forest Populations in Maine Given the Introduction of Invasive Plant Species” ($992), virtual simulations of forest competition and growth (N.A. Giudice, PI; with R.R. Corey, Co-PI).

2013-2014 Sylvia Allain, Undergraduate Research and Creative Activity CLAS Fellowship “Virtual Modeling of Forest Populations in Maine” ($2,050), virtual simulations of forest ecosystems (N.A. Giudice, PI; with R.R. Corey, Co-PI).

2013-2014 Jon Cole, UMaine Center for Undergraduate Research Fellowship “Virtual Simulations of Compensatory Techniques for Age-Related Vision Loss” ($2,946), testing compensatory augmentations to assist driving in older adults (N.A. Giudice, PI; with R.R. Corey, Co-PI).

2013-2014 Tim McGrath, Center for Undergraduate Research Fellowship “Non-Visual Indoor Navigation Using Three Dimensional Auditory Displays and Sensory Feedback from Mobile Devices” ($983), smartphone interface to support accessible indoor navigation (N.A. Giudice, PI; with R.R. Corey, Co-PI).

2013-2014 Dustin Sleight, Center for Undergraduate Research Fellowship “A Study in Site-Specific Access to Multimodal Interfaces for Geospatial Navigation” ($956), multimodal interfaces for real-time navigation (N.A. Giudice, PI; with R.R. Corey, Co-PI).

2013-2014 Dustin Sleight, Undergraduate Research and Creative Activity CLAS Fellowship “Mobile mapping applications: Access to Multimodal Interfaces for Geospatial Navigation” ($641), real-time campus map for navigation and accessibility (N.A. Giudice, PI; with R.R. Corey, Co-PI).

2012-2013 Chris Bennett, UMaine Chase Distinguished Research Graduate Assistantship ($14,100), for the 2012-2013 academic year (N.A. Giudice, Advisor).

2012-2013 Jon Cole, UMaine Center for Undergraduate Research Fellowship “Virtual Simulations of Compensatory Techniques for Age-Related Vision Loss” ($2,500), virtual augmentations to assist driving in older adults (N.A. Giudice, PI; with R.R. Corey, Co-PI).

2011-2012 Jon Cole, Undergraduate Research and Creative Activity CLAS Fellowship “Virtual simulations of age-related visual impairment” ($2,500), simulating common forms of visual impairment (N.A. Giudice, PI; with R.R. Corey, Co-PI).

2011-2012 Josh Leger, Undergraduate Research and Creative Activity CLAS Fellowship “Visual Augmentation for Aging and Navigation” ($2,500), using AR to reduce falling in older adults (N.A. Giudice, PI; with R.R. Corey, Co-PI).

4.7 VEMI Gifts and Charitable Giving ($43,505):

2021 $3,560

2020 $15,060

2019 $14,525

2018 $5,500

2017 $2900

2016 $660

2015 $300

2014 $1000

**5. ACADEMIC PRODUCTS / PUBLICATIONS (207)**

VEMI Lab pubs: <https://umaine.edu/vemi/publications/>

Google Scholar Index: <http://scholar.google.com/citations?user=jD95I7EAAAAJ>

[Student co-authors denoted by italics]

*Summary Metrics: 276 products, including:*

* *44 peer-reviewed journal articles / book chapters, 4 essay’s, 1 policy/technical brief, 6 edited books / technical reports, 27 fully refereed conference proceedings, 111 conference presentations, and 15 theses (as 1st advisor).*
* *117 national / international collaborators, with N.A. Giudice lead or senior / corresponding author on ~90% of all products.*
* *16 student research excellence awards*
* *32 student co-authors, with ~59% student led publications*
* *~68% of all products include student collaboration*
  1. Peer-Reviewed Journal Articles (37)
* Ruginski, I.T., Giudice, N.A., Creem-Regehr, S.H., & Ishikawa, T. (2022). Designing mobile spatial navigation systems from an interdisciplinary perspective: An interdisciplinary review. Spatial Cognition & Computation, 22:1-2, 1-29. DOI: [10.1080/13875868.2022.2053382](https://doi-org.wv-o-ursus-proxy02.ursus.maine.edu/10.1080/13875868.2022.2053382)
* Palani, H.P., Fink, P.D.S., & Giudice, N.A. (2022). Comparing Map Learning between Touchscreen-Based Visual and Haptic Displays: A Behavioral Evaluation with Blind and Sighted Users. Multimodal Technologies and Interaction, 6(1):1. DOI: [10.3390/mti6010001](https://www.mdpi.com/2414-4088/6/1/1) (corresponding author).
* Fink, P.D.S., Holz, J.A., & Giudice, N.A. (2021). Fully autonomous vehicles for people with visual impairment: Policy, accessibility, and future directions. ACM Transactions on Accessible Computing (TACCESS) 14, 3, Article 15 (17 pages). DOI: [10.1145/3471934](https://dl.acm.org/doi/abs/10.1145/3471934)
* Herbert, V.M., Perry, R.J., *LeBlanc, C*., Haase, K.N., Corey, R.R., Giudice, N.A., and Howell, C.L. (2021). Developing a smartphone app with augmented reality to support virtual learning of nursing students on heart failure. Clinical Simulation in Nursing. 54 (2021), 77-85. DOI: <https://doi.org/10.1016/j.ecns.2021.02.003>
* Rizzo, J.R.\*, Beheshti, M., Fang, Y., Flanagan, S., & Giudice, N.A.\* (2021). [COVID‐19 and Visual Disability: Can’t Look and Now Don’t Touch](https://umaine.edu/vemi/publication/covid%E2%80%9019-and-visual-disability-cant-look-and-now-dont-touch/). Physical medicine & rehabilitation. (PM&R), 13(2021), 415-421. DOI: 10.1002/pmrj.12541 (\*Equal contribution of authors).
* Giudice, N.A., Guenther, B.A., *Kaplan, T.M*., Anderson, S.M., Knuesel, R.J., & Cioffi, J.F. (2020). [Use of an Indoor navigation system by sighted and blind travelers: Performance Similarities across visual status and age](https://umaine.edu/vemi/publication/use-of-an-indoor-navigation-system-by-sighted-and-blind-travelers-performance-similarities-across-visual-status-and-age/). ACM Transactions on Accessible Computing (TACCESS), 13(3), Article 11 (27 pages). DOI: 10.1145/3407191 (corresponding author)
* Gorlewicz, J.L., *Tennison, J.L*., *Uesbeck, P.M*., Richard, M.E., Palani, H.P., Stefik, A., Smith, D.W., & Giudice, N.A. (2020). [Design Guidelines and Recommendations for Multimodal, Touchscreen-Based Graphics](https://umaine.edu/vemi/publication/design-guidelines-and-recommendations-for-multimodal-touchscreen-based-graphics/). ACM Transactions on Accessible Computing (TACCESS), 13(3), Article 10 (30 pages). DOI: 10.1145/3403933
* *Tennison, J.L., Uesbeck, P.M*., Giudice, N.A., Stefik, A., Smith, D.W., & Gorlewicz, J.L. (2020). [Establishing Vibration-based Tactile Line Profiles for Use in Multimodal Graphics.](https://umaine.edu/vemi/publication/establishing-vibration-based-tactile-line-profiles-for-use-in-multimodal-graphics/) Transactions on Applied Perception, 17(2), 1-14. DOI: 10.1145/3383457
* Palani, H. P., *Fink, P. D*., & Giudice, N. A. (2020). [Design Guidelines for Schematizing and Rendering Haptically Perceivable Graphical Elements on Touchscreen Devices](https://umaine.edu/vemi/publication/design-guidelines-for-schematizing-and-rendering-haptically-perceivable-graphical-elements-on-touchscreen-devices/). *International Journal of Human-Computer Interaction*, 1-22. DOI: 10.1080/10447318.2020.1752464
* Giudice, N.A., Guenther, B.A., *Jensen, N.A.*, & *Haase, K.N*. (2020). [Cognitive mapping without vision: Comparing wayfinding performance after learning from digital touchscreen-based multimodal maps vs. embossed tactile overlays](https://umaine.edu/vemi/publication/cognitive-mapping-without-vision-comparing-wayfinding-performance-after-learning-from-digital-touchscreen-based-multimodal-maps-vs-embossed-tactile-overlays/). Frontiers in Human Neuroscience. 14:87. DOI: 10.3389/fnhum.2020.00087 (corresponding author)
* Giudice, N. A., Whalen, W. E., Riehle, T. H., Anderson, S.M., and *Doore, S.A.* (2019). [Evaluation of an accessible, real-time, and infrastructure-free indoor navigation system by blind users in the Mall of America](https://umaine.edu/vemi/publication/evaluation-of-an-accessible-real-time-and-infrastructure-free-indoor-navigation-system-by-blind-users-in-the-mall-of-america/). *Journal of Visual Impairment and Blindness, 113*(2), 140-155. DOI: 10.1177/0145482X19840918. (corresponding author)
* Teisl, M.F., Noblet, C.L., Corey, R.R., and Giudice, N.A. (2018). [Seeing clearly in a virtual reality: Tourist reactions to an offshore wind project](https://umaine.edu/vemi/publication/seeing-clearly-in-a-virtual-reality-tourist-reactions-to-an-offshore-wind-project/). *Energy policy, 122*(2018), 601-611. DOI: 10.1016/j.enpol.2018.08.018
* *Tennison, J.L*., Carril, Z.S., Giudice, N.A., and Gorlewicz, J.L. (2018). [Comparing Graphical Pattern Matching on Tablets and Phones: Large Screens are Not Necessarily Better](https://umaine.edu/vemi/publication/comparing-haptic-pattern-matching-on-tablets-and-phones-large-screens-are-not-necessarily-better/). *Optometry and Vision Science, 95*(9), 720-726. DOI: 10.1097/OPX.0000000000001274.
* *Li, H.* and Giudice, N.A. (2018) [Assessment of between-floor structural and topological properties on cognitive map development in multi-level built environments](https://umaine.edu/vemi/publication/assessment-floor-structural-topological-properties-cognitive-map-development-multilevel-built-environments/). *Spatial Cognition & Computation, 18*(3), 138-172. DOI: 10.1080/13875868.2017.1384829 (corresponding author).
* *Bennett, C.R*., Klatzky, R.L., Loomis, J.M., and Giudice, N.A. (2017). [Spatial Updating of Multiple Targets: Comparison of younger and older adults](https://umaine.edu/vemi/publication/spatial-updating-multiple-targets-comparison-younger-older-adults/). *Memory and Cognition, 45*(7), 1240-1251. DOI:10.3758/s13421-017-0725-0 (corresponding author).
* Giudice, N.A., *Bennett, C.R*., Klatzky, R.L., and Loomis, J.M. (2017). [Spatial Updating of haptic arrays across the lifespan](https://umaine.edu/vemi/publication/1296/). *Experimental Aging Research, 43*(3), 274-290. DOI: 10.1080/0361073X.2017.1298958 (corresponding author).
* *Palani, H.* and Giudice, N.A. (2017). [Principles for designing large-format refreshable haptic graphics using touchscreen devices: An evaluation of nonvisual panning methods](https://umaine.edu/vemi/publication/principles-designing-large-format-refreshable-haptic-graphics-using-touchscreen-devices-evaluation-nonvisual-panning-methods/). *ACM Transactions on accessible Computing (TACCESS), 9*(3). Article 9 (25 pages). DOI: 10.1145/3035537 (corresponding author).
* Gies, T., Boucherie, S., Narup, T., Wise, A., & Giudice, N.A. (2016). [What goes unseen in accessible publishing: Good practice and remaining gaps](https://umaine.edu/vemi/publication/goes-unseen-accessible-publishing-good-practice-remaining-gaps/). *Journal of European Science Editing, 42*(3), 66-69. DOI: 10.20316/ESE.2016.42.015
* Gershon, P., Klatzky, R. L., *Palani, H.,* & Giudice, N. A. (2016). [Visual, tangible, and touch-screen: Comparison of platforms for displaying simple graphics.](https://umaine.edu/vemi/publication/visual-tangible-touch-screen-comparison-platforms-displaying-simple-graphics/) *Assistive Technology, 28*(1), 1-6. DOI: 10.1080/10400435.2015.1054566
* O‘Modhrain, S., Giudice, N. A., Gardner, J. A., & Legge, G. E. (2015). [Designing media for visually-impaired users of refreshable touch displays: Possibilities and pitfalls](https://umaine.edu/vemi/publication/1267/). *Transactions on Haptics, 8*(3), 248-257. DOI: 10.1109/TOH.2015.2466231
* Pawluk, D.T., Bourbakis, N., Giudice, N.A., Hayward, V., & Heller, M. (2015). [Haptic assistive technology for individuals who are visually impaired.](https://umaine.edu/vemi/publication/haptic-assistive-technology-individuals-visually-impaired/) *Transactions on Haptics, 8*(3), 245-247. DOI: 10.1109/TOH.2015.2476735
* Klatzky, R.L., Giudice, N.A., *Bennett, C.R*., & Loomis, J.M. (2014). [Touch-screen technology for the dynamic display of 2D spatial information without vision: Promise and progress](https://umaine.edu/vemi/publication/touch-screen-technology-dynamic-display-2d-spatial-information-without-vision-promise-progress/). *Multisensory Research, 27*(5-6), 359-378. DOI: 10.1163/22134808-00002447
* Klatzky, R.L. & Giudice, N.A. (2013). [The planar mosaic fails to account for spatially directed action](https://umaine.edu/vemi/publication/planar-mosaic-fails-account-spatially-directed-action/). *Behavioral and Brain Sciences (commentary), 36*(5), 554-555. DOI: 10.1017/S0140525X13000435
* Giudice, N.A., & *Li, H.* (2013). [Vertical color maps: A data independent alternative to floor plan maps](https://umaine.edu/vemi/publication/vertical-color-maps-data-independent-alternative-floor-plan-maps/). *Cartographica, 48*(3), 225-236. DOI: 10.1353/car.2013.0028
* Giudice, N.A., Klatzky, R.L., *Bennett, C.R*., & Loomis, J.M. (2013). [Combining locations from working memory and long-term memory into a common spatial image](https://umaine.edu/vemi/publication/combining-locations-working-memory-long-term-memory-common-spatial-image/). *Spatial Cognition and Computation, 13*(2), 103-128. DOI: 10.1080/13875868.2012.678522 (corresponding author)
* Giudice, N.A., Klatzky, R.L., *Bennett, C.R.,* & Loomis, J.M. (2013). [Perception of 3-D location based on vision, touch, and extended touch](https://umaine.edu/vemi/publication/perception-3-d-location-based-vision-touch-extended-touch/). *Experimental Brain Research, 224*(1), 141-153. DOI: 10.1007/s00221-012-3295-1 (corresponding author)
* Loomis, J. M., Klatzky, R. L., McHugh, B., & Giudice, N. A. (2012). [Spatial working memory for locations specified by vision and audition: Testing the amodality hypothesis](https://umaine.edu/vemi/publication/spatial-working-memory-locations-specified-vision-audition-testing-amodality-hypothesis/). *Attention, Perception, & Psychophysics,74*(6), 1260-1267. DOI:10.3758/s13414-012-0311-2
* Kelly, J.W., Avraamides, M.N., & Giudice, N.A. (2011). [Haptic experiences influence visual memories: Reference frames during multimodal spatial learning.](https://umaine.edu/vemi/publication/haptic-experiences-influence-visual-memories-reference-frames-multimodal-spatial-learning/) *Psychonomic Bulletin & Review, 18*(6), 1119-1125. DOI: 10.3758/s13423-011-0162-1
* Wolbers, T.\*, Loomis, J.M., Klatzky, R.L., Wutte, M., & Giudice, N.A.\* (2011). [Modality independent coding of spatial layout in the human brain.](https://umaine.edu/vemi/publication/modality-independent-coding-spatial-layout-human-brain/) *Current Biology, 21*(11), 984-989. DOI: 10.1016/j.cub.2011.04.038 (\* Equal contribution of authors & corresponding author).
* Giudice, N.A., *Betty, M.R.,* & Loomis, J.M. (2011). individuals. Journal *of Experimental Psychology: Learning, Memory, and Cognition, 37*(3), 621-634. DOI: 10.1037/a0022331 (corresponding author).
* Wolbers, T., Zahorik, P., & Giudice, N.A. (2011). [Decoding the direction of auditory motion in blind humans.](https://umaine.edu/vemi/publication/decoding-direction-auditory-motion-blind-humans/) *Neuroimage,* special issue on Multivariate Decoding & Brain Reading, *56*(2), 681-687. DOI: 10.1016/j.neuroimage.2010.04.266 (corresponding author).
* Giudice, N.A., *Bakdash, J.Z.,* Legge, G. E., & Roy, R. (2010). [Spatial learning and navigation using a virtual verbal display.](https://umaine.edu/vemi/publication/spatial-learning-navigation-using-virtual-verbal-display/) *ACM Transactions on Applied Perception, 7*(1), 3:1-3:22 (Article 3). DOI: 10.1145/1658349.1658352 (corresponding author).
* Giudice, N.A., Klatzky, R. L., & Loomis, J.M. (2009). [Evidence for amodal representations after bimodal learning: Integration of haptic-visual layouts into a common spatial image](https://umaine.edu/vemi/publication/evidence-amodal-representations-bimodal-learning-integration-haptic-visual-layouts-common-spatial-image/). *Spatial Cognition & Computation, 9*(4), 287-304. DOI: 10.1080/13875860903305664 (corresponding author).
* Kalia, A., Legge, G.E., & Giudice, N.A. (2008). [Learning building layouts with non-geometric visual information: The effects of visual impairment and age](https://umaine.edu/vemi/publication/learning-building-layouts-non-geometric-visual-information-effects-visual-impairment-age/). *Perception, 37*(11). DOI: 1677-1699. 10.1068/p5915
* Klatzky, R.L., Giudice, N.A., Tietz, J., Marston, J.R., Golledge, R.G., & Loomis, J.M. (2008). [An n-back task using vibrotactile stimulation with comparison to an auditory analogue.](https://umaine.edu/vemi/publication/n-back-task-using-vibrotactile-stimulation-comparison-auditory-analogue-2/) *Behavior Research Methods, 40*(1), 367-372. DOI: 10.3758/BRM.40.1.367
* Giudice, N.A., *Bakdash, J.Z.,* & Legge, G.E. (2007). [Wayfinding with words: Spatial learning and navigation using dynamically-updated verbal descriptions](https://umaine.edu/vemi/publication/wayfinding-words-spatial-learning-navigation-using-dynamically-updated-verbal-descriptions/). *Psychological Research, 71*(3), 347-358. DOI: 10.1007/s00426-006-0089-8 (corresponding author).
* Klatzky, R.L., Marston, J.R., Giudice, N.A., Golledge, R.G., & Loomis, J.M. (2006). [Cognitive load of navigating without vision when guided by virtual sound versus spatial language.](https://umaine.edu/vemi/publication/cognitive-load-navigating-without-vision-guided-virtual-sound-versus-spatial-language/) *Journal of Experimental Psychology: Applied, 12*(4), 223-232. DOI: 10.1037/1076-898X.12.4.223

5.2 Essays, Op-Eds, and Perspectives (4):

* Giudice, N.A. (2022). One vote for me, many votes for Mainekind. Medium. Retreived from <https://medium.com/@nicholas.giudice/one-vote-for-me-many-votes-for-mainekind-5a49cefe87f>
* Giudice, N.A. (2022). Disability rights advocates improved remote voting for all. Bangor Daily News. Retrieved from <https://www.bangordailynews.com/2022/11/15/opinion/opinion-contributor/disability-rights-advocates-improved-remote-voting-for-all/>
* Giudice, N. A. (2020). 08–07–1997: The day I almost died and related tales. Medium. Retrieved from <https://medium.com/@nicholas.giudice/08-07-1997-the-day-i-almost-died-and-related-tales-fafd50fd07e7>
* Giudice, N. A. (2020). COVID-19 and blindness: Why the new touchless, physically-distant world sucks for people with visual impairment. Medium. Retrieved from <https://medium.com/@nicholas.giudice/covid-19-and-blindness-why-the-new-touchless-physically-distant-world-sucks-for-people-with-2c8dbd21de63>

5.3 Policy and Technical Briefs (1):

* Fink, P.D.S. & Giudice, N.A. (2021). Federal Accessibility Standards for Fully Autonomous Vehicles. Policy Brief for the Day-One science and technology policy accelerator*, Federation of American Scientists, IT & Technology Policy.* [*https://www.dayoneproject.org/post/federal-accessibility-standards-for-fully-autonomous-vehicles*](https://www.dayoneproject.org/post/federal-accessibility-standards-for-fully-autonomous-vehicles)
  1. Book Chapters (7):
* Giudice, N.A. & Long, R.G. (in press). Establishing and maintaining orientation: Tools, techniques, and technologies. In Foundations of Orientation and Mobility, 4th Edition (Vol. 1, Ch. 2. (corresponding author).
* Gorlewicz, J. L., *Tennison, J. L.,* Palani, H. P., & Giudice, N. A. (2018). [The Graphical Access Challenge for People with Visual Impairments: Positions and Pathways Forward.](https://umaine.edu/vemi/publication/the-graphical-access-challenge-for-people-with-visual-impairments-positions-and-pathways-forward/) In D. Cvetkovic (ed), Interactive Multimedia - Multimedia Production and Digital Storytelling (pp. 109-125). IntechOpen. DOI: 10.5772/intechopen.82289. (corresponding author).
* Giudice, N.A. (2018). [Navigating without vision: Principles of Blind Spatial Cognition](https://umaine.edu/vemi/publication/navigating-without-vision-principles-blind-spatial-cognition/). In D.R. Montello (ed.), *Handbook of Behavioral and Cognitive Geography*: Edward Elgar Publishing. Chapter 15, (pp. 260-288). Cheltenham, UK; Northampton, MA. (corresponding author).
* Loomis, J.M., Klatzky, R.L., & Giudice, N.A. (2013). [Representing 3D Space in working memory: Spatial images from vision, hearing, touch, and language](https://umaine.edu/vemi/publication/representing-3d-space-working-memory-spatial-images-vision-hearing-touch-language/). In S. Lacey & R. Lawson (Eds). *Multisensory Imagery: Theory & Applications* (pp. 131-156). New York: Springer.
* Loomis, J.M., Klatzky, R.L., & Giudice, N.A. (2012). [Sensory substitution of vision: Importance of perceptual and cognitive processing](https://umaine.edu/vemi/publication/sensory-substitution-vision/). In R. Manduchi & S. Kurniawan (Eds). *Assistive Technology for Blindness and Low Vision* (pp. 162-191). Boca Raton, FL: CRC Press.
* Long, R.G.\*, & Giudice, N.A.\* (2010). [Establishing and maintaining orientation for orientation and mobility](https://umaine.edu/vemi/publication/establishing-maintaining-orientation-mobility/). In B.B. Blasch, W.R. Wiener, & R.W. Welsh (Eds.), *Foundations of Orientation and Mobility 3rd Edition* (Vol. 1, pp. 45-62). New York: American Foundation for the Blind (\* equal contribution of authors & corresponding author).
* Giudice, N.A., & Legge, G.E. (2008). [Blind navigation and the role of technology](https://umaine.edu/vemi/publication/blind-navigation-role-technology/). In A. Helal, M. Mokhtari, & B. Abdulrazak (Eds.), *Engineering Handbook of Smart Technology for Aging, Disability, and Independence* (pp. 479-500): John Wiley & Sons (corresponding author).

5.5 Books and Edited Volumes (1):

* M.J. Egenhofer, N.A. Giudice, R. Moratz and M.F. Worboys (Eds.) (2011). Spatial information theory: Proceedings of COSIT ‘11. Lecture Notes in Computer Science. Vol. 6899. Springer, Berlin. ISBN: 978-3-642-23195-7

5.6 Technical Reports (5):

* *Cole, J.D., Perry, R.J., Kaplan, T.M., Palani, H.P.,* and Giudice, N.A. (2017). VEMI Lab Technical Evaluation #0717: Status of the Navatar project. Conducted by VEMI lab on behalf of the Reader's Digest Partners for Sight Foundation.
* Legge, G.E., Downey, C., Giudice, N.A. & Tjan, B.S. (2016). [Indoor Airport Wayfinding for Blind and Visually Impaired Travelers](https://umaine.edu/vemi/publication/indoor-airport-wayfinding-blind-visually-impaired-travelers/). Report to the Federal Aviation Administration, No. DOT/Faa/TC-TN16/54. http://www.airporttech.tc.faa.gov/Download/Airport-Safety-Papers-Publications-Detail/dt/Detail/ItemID/572/Indoor-Airport-Wayfinding-for-Blind-and-Visually-Impaired-Travelers
* Noblet, C., Teisl, M.F., Kashkooli, M., Teisl, B., Corey, R.R., & Giudice, N.A. (2016). Potential tourism impacts of an offshore wind farm near Monhegan island. Technical Report for the University of Maine’s School of Economics and the Senator George J. Mitchell Center for Sustainability Solutions (corresponding author)
* *C. Graf,* N.A. Giudice, & F. Schmid (Eds.) (2012). Proceedings of the international workshop on spatial knowledge acquisition with limited information displays (SKALID’12), Vol. 888, August 31. Monastery Seeon, Germany. urn:nbn:de:0074-888-1
* R. Moratz & N.A. Giudice. (Eds.) (2011). Extended poster abstracts from the conference on spatial information theory (COSIT 2011). Belfast, ME.

5.7 Fully Refereed Conference Proceedings (27):

*Conference papers with external review and full manuscript appearing in a published proceeding*

* Fink, P. D. S.**,**Allaban, A. A., Atekha, O., Perry, R. J., Sumner, E. S., Corey, R. R., Dimitrov, V., & Giudice, N. A. (Accepted). Expanded Situational Awareness Without Vision: A Novel Haptic Interface for Use in Fully Autonomous Vehicles. To appear in the proceedings of the *ACM/IEEE International Conference on Human-Robot Interaction (HRI) ‘23.*(Acceptance rate 25.2%).
* Tennison J.L., Goswami S., Hairston J.R., Smith D.W., Giudice N.A., Stefik A., and Gorlewicz J.L. (2022). Comparison of Traditional Methods to Emerging Technologies. Presented at the 2022 AERBVI International Conference, St. Louis, MO, 2022.
* Doore, S.A., Dimmel, J.K., Xi, R., & Giudice, N.A. (2021). Embedding expert knowledge: a case study on developing an accessible diagrammatic interface. In D. Olanoff, K. Johnson, & S. Spitzer (Eds.), Proceedings of the forty-third annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education(pp. 1759 – 1763). Philadelphia, PA
* Doore, S.A., *Sarrazin, A.C*., and Giudice, N.A. (2019). [Natural-Language Scene Descriptions for Accessible Non-Visual Museum Exhibit Exploration and Engagement.](https://umaine.edu/vemi/publication/2230/) Stock, K., Jones, C., & Tenbrink, T. (Eds.) In the Proceedings of Workshops and Posters at the 14th International Conference on Spatial Information Theory (COSIT 2019). Regensburg, Germany, Springer International Publishing, (Pp. 91-100).
* Palani, H.P., *Tennison, J.L*., Giudice, G.B., & Giudice, N.A. (2018). [Touchscreen-based](https://umaine.edu/vemi/publication/touchscreen-based-haptic-information-access-assisting-blind-visually-impaired-users-perceptual-parameters-design-guidelines/)

[haptic information access for assisting blind and visually-impaired users: Perceptual parameters and design guidelines](https://umaine.edu/vemi/publication/touchscreen-based-haptic-information-access-assisting-blind-visually-impaired-users-perceptual-parameters-design-guidelines/). In: Ahram T., Falcão C. (eds.) Advances in Usability, User Experience and Assistive Technology, part of the International Conference on Applied Human Factors and Ergonomics (AHFE’18). Advances in Intelligent Systems and Computing, vol 798, (Pp. 837-847). Springer, Cham (corresponding author).

* Palani, H.P., Giudice, G.B., and Giudice, N.A. (2018). [Haptic Information Access on Touchscreen devices: Guidelines for accurate perception and judgment of line orientation](https://umaine.edu/vemi/publication/haptic-information-access-using-touchscreen-devices-design-guidelines-accurate-perception-angular-magnitude-line-orientation/). Proceedings of the 20th annual conference on Human-Computer Interaction (HCI International’18). Las Vegas, NV. July 15-18 (corresponding author).
* *Doore, S.A.*, Beard, K., and Giudice, N.A. (2017). [Spatial prepositions in natural-language descriptions of indoor scenes.](https://umaine.edu/vemi/publication/spatial-prepositions-natural-language-descriptions-indoor-scenes/) In P Fogliaroni, A Ballatore and E Clementini (eds.) Proceedings of the 13th International Conference on Spatial Information Theory (COSIT’17). Lecture Notes in Geoinformation and Cartography, (pp. 255-260). Springer.
* *Bennett, C.R*. and Giudice, N.A. (2017). [Evaluating age-related cognitive Map decay using a Novel time-delayed testing paradigm](https://umaine.edu/vemi/publication/evaluating-age-related-cognitive-map-decay-using-novel-time-delayed-testing-paradigm/). In: Barkowsky, T., Burte, H., Hölscher, C., & Schultheis, H. (Eds.). Spatial Cognition X (part of Spatial Cognition 2016). Lecture Notes in Computer Science, vol. 10523, Pp. 69-85. Springer, Cham. (corresponding author)
* *Bennett, C.R*., Corey, R.R., Giudice, U., and Giudice, N.A. (2016). [Immersive virtual reality simulation as a tool for aging and driving research](https://umaine.edu/vemi/publication/immersive-virtual-reality-simulation-tool-aging-driving-research/). In J. Zhou & G. Salvendy (Eds.), Proceedings of the Second International Conference of Human Aspects of IT for the Aged Population (ITAP), Part of HCI International 2016. Toronto, CA. July 17-22 (pp. 377-385). Springer International. (corresponding author)
* *Palani, H.P*., Giudice, U., and Giudice, N.A. (2016). [Evaluation of non-visual zooming operations on touchscreen devices](https://umaine.edu/vemi/publication/evaluation-non-visual-panning-operations-using-touch-screen-devices/). In M. Antona & C. Stephanidis (Eds.), Proceedings of the 10th International Conference of Universal Access in Human-Computer Interaction (UAHCI), Part of HCI International 2016. Toronto, CA. July 17-22 (pp. 162-174). Springer International. (corresponding author)
* *Li, H.,* Corey, R.R., Giudice, U., and Giudice, N.A. (2016). [Assessment of visualization interfaces for assisting the development of multi-level cognitive maps](https://umaine.edu/vemi/publication/1261/). In D.D. Schmorrow & M.C. Fidopiastis (Eds.), Proceedings of the 10th International Conference of Foundations of Augmented Cognition, Part of HCI International. Toronto, CA. July 17-22 (pp. 308-321). Springer International. (corresponding author)
* Fusco, G., Tekin, E., Giudice, N.A. and Coughlan, J.M. (2015). [Appliance displays: Accessibility challenges and proposed solutions](https://umaine.edu/vemi/publication/appliance-displays-accessibility-challenges-proposed-solutions/). Proceedings of the 17th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS 2015). pp. 405-406. ACM New York, NY, USA.
* *Palani, H*. & Giudice, N.A. (2014). [Evaluation of non-visual panning operations using touch-screen devices](https://umaine.edu/vemi/publication/evaluation-non-visual-panning-operations-using-touch-screen-devices-2/). Proceedings of the 16th international ACM SIGACCESS conference on Computers & accessibility (ASSETS’14). pp. 293-294. ACM New York, NY, USA. (corresponding author)
* *Li, H.* & Giudice, N.A. (2013). [The effects of 2D and 3D maps on learning virtual multi- level indoor environments](https://umaine.edu/vemi/publication/effects-2d-3d-maps-learning-virtual-multi-level-indoor-environments/). Proceedings of the 1st ACM SIGSPATIAL International Workshop on Map Interaction (MapInteract’13). pp. 7–12. ACM, Orlando, FL, USA. (corresponding author)
* *Li, H*. & Giudice, N.A. (2013). [The effects of immersion and body-based rotation on learning multi-level indoor virtual environments](https://umaine.edu/vemi/publication/effects-immersion-body-based-rotation-learning-multi-level-indoor-virtual-environments/). Proceedings of the 5th ACM SIGSPATIAL International Workshop on Indoor Spatial Awareness (ISA 2013). pp. 8-15. ACM New York, NY, USA. (corresponding author)
* Riehle, T. H., Anderson, S. M., Lichter, P. A., Whalen, W.E., & Giudice, N. A. (2013). [Indoor inertial waypoint navigation for the blind](https://umaine.edu/vemi/publication/indoor-inertial-waypoint-navigation-blind-2/). Proceedings of the 35th annual IEEE Engineering in Medicine and Biology Conference (EMBC’13, Vol. 2013, pp. 5187-5190).
* *Kesavan, S.* & Giudice, N.A. (2012). [Indoor scene knowledge acquisition using a natural language interface](https://umaine.edu/vemi/publication/indoor-scene-knowledge-acquisition-using-natural-language-interface/). In C. Graf, N.A. Giudice, & F. Schmid (Eds.) Proceedings of the international Workshop on Spatial Knowledge Acquisition with Limited Information Displays (SKALID'12). pp. 1-6. August, Monastery Seeon, Germany. (corresponding author)
* *Li, H*. & Giudice, N.A. (2012). [Using mobile 3D visualization techniques to facilitate multi-level cognitive map development of complex indoor spaces](https://umaine.edu/vemi/publication/using-mobile-3d-visualization-techniques-facilitate-multi-level-cognitive-map-development-complex-indoor-spaces/). In C. Graf, N.A. Giudice, & F. Schmid (Eds.) Proceedings of the International Workshop on Spatial Knowledge Acquisition with Limited Information Displays (SKALID'12). pp. 31-36. August, Monastery Seeon, Germany. (corresponding author)
* Giudice, N.A., *Palani, H.,* Brenner, E., & Kramer, K.M., (2012). [Learning non-visual graphical information using a touch-based vibro-audio interface](https://umaine.edu/vemi/publication/learning-non-visual-graphical-information-using-touch-based-vibro-audio-interface/). Proceedings of the 14th International ACM SIGACCESS Conference on Computers and Accessibility (Assets'12). pp. 103-110. ACM New York, NY, USA. (corresponding author)
* Riehle, T. H., Anderson, S. M., Lichter, P. A., Giudice, N. A., Sheikh, S.I., Knuesel, R. J., & Kollmann, D.T. (2012). [Indoor magnetic navigation for the blind](https://umaine.edu/vemi/publication/indoor-magnetic-navigation-blind/). Proceedings of the 34th annual IEEE Engineering in Medicine and Biology Conference (EMBC’12, Vol. 2012, pp. 1972-1975).
* Giudice, N. A., & *Li, H.* (2012). [The effects of visual granularity on indoor spatial learning assisted by mobile 3D information displays](https://umaine.edu/vemi/publication/effects-visual-granularity-indoor-spatial-learning-assisted-mobile-3d-information-displays/). In C. Stachniss, K. Schill, and D. Uttal (Eds.). Proceedings of Spatial Cognition VIII: Lecture Notes in Computer Science (Vol. 7463, pp. 163-172). Berlin: Springer-Verlag. (corresponding author).
* Jacobson, K.E., Giudice, N.A., & Moratz R. (2011). [Towards a theory of spatial assistance from a phenomenological perspective: Technical and social factors for blind navigation](https://umaine.edu/vemi/publication/towards-theory-spatial-assistance-phenomenological-perspective/). In R. Moratz & N.A. Giudice. (Eds.) Extended Poster Abstracts from the Conference on Spatial Information Theory (COSIT 2011). pp. 33-36. Belfast, ME. (corresponding author)
* Giudice, N.A., Walton, L.A., & Worboys, M. (2010). [The informatics of indoor and outdoor space: A research agenda](https://umaine.edu/vemi/publication/informatics-indoor-outdoor-space-research-agenda/). Proceedings of the 2nd ACM SIGSPATIAL International Workshop on Indoor Spatial Awareness (ISA 2010) pp. 47-53. ACM, New York, NY. (corresponding author)
* Giudice, N.A., & Tietz, J. (2008). [Learning with virtual verbal displays: effects of interface fidelity on cognitive map development](https://umaine.edu/vemi/publication/learning-virtual-verbal-displays-effects-interface-fidelity-cognitive-map-development/). In C. Freksa, N. Newcombe, P. Gärdenfors, & S. Wölfl (Eds.), Proceedings of Spatial Cognition VI: Lecture Notes in Artificial Intelligence (Vol. 5248, pp. 121-137). Berlin: Springer. (corresponding author)
* Riehle, T.H., Lichter, P., & Giudice, N.A. (2008). [An indoor navigation system to support the visually impaired](https://umaine.edu/vemi/publication/indoor-navigation-system-support-visually-impaired/). Proceedings of the 30th Annual IEEE Engineering in Medicine and Biology Conference. (Vol. 2008, pp. 4435-4438). (corresponding author)
* Giudice, N.A., Marston, J.R., Klatzky, R.L., Loomis, J.M., & Golledge, R.G. (2008). [Environmental learning without vision: Effects of cognitive load on interface design](https://umaine.edu/vemi/publication/environmental-learning-without-vision-effects-cognitive-load-interface-design/). Proceedings of the 9th International Conference on Low Vision (Vision 08). July, Montreal, Canada. (corresponding author)
* Tjan, B.S., Beckmann, P.J., Roy, R., Giudice, N.A., & Legge, G.E. (2005). [Digital sign system for indoor wayfinding for the visually impaired](https://umaine.edu/vemi/publication/digital-sign-system-indoor-wayfinding-visually-impaired-2/). Proceedings of the 2005 IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR) – Workshops. (Vol. 3, p. 30A). San Diego, CA

5.8 Partially Refereed National / International Conferences (57):

*Partially refereed short papers, extended abstracts, and posters.*

* Fink, P.D.S. & Giudice, N.A. (2021). Vibrotactile maps for promoting spatial understanding in autonomous vehicles. Talk: 8th International Conference on Spatial Cognition (ICSC 2021). Sept. 13-17, Rome, Italy (virtual).
* Gorlewicz, J. L., Tennison, J. L., Uesbeck, P. M., Richard, M. E., Palani, H. P., Stefik, A., Smith, D. W., & Giudice, N. A. (2020). Design Guidelines and Recommendations for Multimodal, Touchscreen-based Graphics. Talk: 22nd International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS). October (remote conference).
* *Tennison, J.L., Uesbeck, P.M*., Smith, D.W., Giudice, N.A., Stefik, A., & Gorlewicz, J.L. (2019). Seeing through touch: Multisensory graphics for students with visual impairments. Poster: The Coalition for National Science Foundation Exhibition. April, Wash. D.C.
* *Bennett, C.R.* and Giudice, N.A. (2018). Aging and Cognitive Map Decay: Effectiveness of Compensatory Augmentations. Poster: 2nd biannual Interdisciplinary Navigation Symposium (iNav 2018). June 25-29, Quartier Tremblant, CANADA.
* *Doore, S.A.,* Beard, K., and Giudice, N.A. (2018). Natural-language spatial cues for learning and navigating indoor environments. Talk: 2nd biannual Interdisciplinary Navigation Symposium (iNav 2018). June 25-29, Quartier Tremblant, CANADA.
* *Jensen, N.A., Rasmussen, W.E.O.,* Doore, S.A., and Giudice, N.A. (2018). Comparing Vibrotactile Smartphone Interfaces for Supporting Nonvisual Navigation of Virtual Environments. Poster: 2nd biannual Interdisciplinary Navigation Symposium (iNav 2018). June 25-29, Quartier Tremblant, CANADA.
* *Kaplan, T.M., Jensen, N.A., Haase, K.N*., Guenther, B.A., and Giudice, N.A. (2018). A Multimodal Thermographic Interface to Aid Nonvisual Navigation. Poster: 2nd biannual Interdisciplinary Navigation Symposium (iNav 2018). June 25-29, Quartier Tremblant, CANADA.
* *Haase, K.N.,* Perry, R.J., and Giudice, N.A. (2018). Immersive 3D Haptics for Navigating Virtual Space. Poster: 7th International Conference on Spatial Cognition (ICSC 2018). Sept. 10-14, Rome, Italy.
* Guenther, B.A., *Jensen, N.A., Butler, B., Haase, K.N.,* *Kaplan, T.M*., and Giudice, N.A. (2018). Comparison of Learning with Vibro-audio Maps vs. Traditional Tactile Maps. Poster: 7th International Conference on Spatial Cognition (ICSC 2018). Sept. 10-14, Rome, Italy.
* Doore, S.A., Beard, K., and Giudice, N.A. (2018). Conceptual structure and object salience in indoor scene descriptions. Talk: 7th International Conference on Spatial Cognition (ICSC 2018). Sept. 10-14, Rome, Italy.
* *Palani, H.P.* and Giudice, N.A. (2017). Principles for Designing Large-Format Refreshable Haptic Graphics Using Touchscreen Devices: An Evaluation of Nonvisual Panning methods. Talk: The 19th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS’17). Oct 30 to Nov 1, Baltimore MD, USA.
* *Kaplan, T.P.* and Giudice, N.A. (2017). Evaluation of Multimodal Scene Access Interfaces Supporting Spatial learning and Navigation. Poster: The Association of American Geographers Annual Meeting (AAG’17). April 2-5, Boston, MA.
* *Kaplan, T.M., Fortier-Brown, A., Bennett, C.R.*, & Giudice, N.A. (2016). Evaluation of Virtual Reality Simulation as a Supplemental Treatment in Cases of Seasonal Affective and Anxiety Disorders. Poster: 57th Annual Psychonomics Society Meeting. November 17-20, Boston, MA.
* *Richards, S.M., Bennett, C.R.,* & Giudice, N.A. (2016). Virtual Reality Exposure Therapy for Veterans with PTSD. Poster: 57th Annual Psychonomics Society Meeting. November 17-20

Boston, MA.

* *Doore, S.A*., Beard, K., and Giudice, N.A. (2016). Spatial preposition use in indoor scene descriptions. Talk: The Ninth International Conference on Geographic Information Science (GI Science ’16). Sept. 27-30, Montreal, CA.
* *Doore, S.A.,* Beard, K., and Giudice, N.A. (2016). A room with a (verbal) view: Spatial linguistic structures supporting indoor scene descriptions. Talk: Spatial Cognition 2016 conference. Aug. 2-5, Philadelphia, PA, USA.
* *Bennett, C.R*. and Giudice, N.A. (2016). Cognitive map decay in older adults: Evaluating use of virtual reality driving simulations. Poster: Spatial Cognition 2016 conference. Aug 2-5, Philadelphia, PA, USA.
* *Li, H.* and Giudice, N.A. (2016). Assessment of multi-level structural and topological properties on cognitive map development in multi-level built environments. Poster: Spatial Cognition 2016 conference. Aug. 2-5, Philadelphia, PA, USA.
* Teisl, M.F., Noblet, C.L., Corey, R.R., and Giudice, N.A. (2016). Using VR Technology to assess tourist reactions to an offshore windfarm. Talk: Northeastern Agricultural and Resource Economics Association Annual Workshop. June 22-23, Bar Harbor, ME.
* *Palani, H.P*., and Giudice, N.A. (2016). Usability parameters for touchscreen-based haptic perception. Talk: Work in progress paper presented at the IEEE Haptics Symposium. April, Philadelphia PA, USA. (corresponding author)
* *Bennett, C.R.* and Giudice, N.A. (2015). Developing compensatory augmentations for aging and navigation. Poster: 6th International Conference on Spatial Cognition: “Space and Situated Cognition”. Sept., Rome, Italy.
* *Bennett, C.R*., Giudice, N.A., Klatzky, R.L. & Loomis, J.M. (2013). Spatial aging and memory load on the updating of multiple target arrays. Poster: 54th Annual Psychonomics Society Meeting. November, Toronto, Canada.
* *Li, H*. & Giudice, N.A. (2012). Details-on-demand mobile visual interface for facilitating indoor wayfinding. 7th Annual GIScience Conference. September, Columbus, OH
* *Bennett, C.R*., Loomis, J.M., Klatzky, R.L., & Giudice, N.A. (2012). Minimal effects of memory load on the updating of multiple target arrays. Poster: 53rd Annual Psychonomics Society Meeting. November, Minneapolis, MN.
* Giudice, N.A., *Bennett, C.R*., Klatzky, R.L., & Loomis, J.M. (2012). Haptic spatial updating across the lifespan. Poster: 53rd Annual Psychonomics Society Meeting. November, Minneapolis, MN.
* *Bennett, C.R.,* & Giudice, N.A. (2012). The effects of life span development on spatial updating of haptic arrays. Poster: Spatial Cognition 2012. September, Monastery Seeon, Germany.
* *Kesavan, S*., & Giudice, N. A. (2012). Automated natural language description of indoor spaces. Poster: Spatial Cognition 2012. September, Monastery Seeon, Germany.
* *Jain, S.* & Giudice, N.A. (2012). Assessment of spatial audio interfaces for blind and low vision users. Talk: Think Tank Consortium, in conjunction with the International Conference on Auditory Displays (ICAD2012). June, Atlanta, Georgia.
* *Jain, S.* & Giudice, N.A. (2012). Evaluating hand motion based spatial audio for indoor navigation. Talk: Think Tank Consortium, in conjunction with the International Conference on Auditory Displays (ICAD2012). June, Atlanta, Georgia.
* *Jain, S*. & Giudice, N.A. (2012). Navigating indoor spaces with spatial audio. Poster: Association of American Geographers Annual Meeting (AAG2012). February, New York.
* *Li, H*. & Giudice, N.A. (2012). Assessing the optimal visual granularity level for assisting indoor navigation. Poster: Association of American Geographers Annual Meeting (AAG2012). February, New York.
* *Palani, H*. and Giudice, N.A. (2012). A Vibro-Audio Interface for Accessing Graphical Information using Touch-Based Devices. Poster: The 14th International ACM SIGACCESS Conference on Computer and Accessibility (Assets ’12). Boulder, CO, USA.
* *Bennett, C.R*., Giudice, N.A., Klatzky, R.L., & Loomis, J.M. (2011). Spatial images developed through extended touch: Comparing updating performance between haptic and visual learning. Poster: 52nd Annual Psychonomics Society Meeting. November, Seattle, WA.
* *Jain, S*. & Giudice, N.A. (2011). Assessing audio interfaces for use in an indoor navigation system. Poster: Conference on Spatial Information Theory (COSIT 2011). September, Belfast, ME.
* *Kesavan, S*. & Giudice, N.A. (2011). Automated natural language description of indoor spaces. Poster: Conference on Spatial Information Theory (COSIT 2011). September, Belfast, ME.
* *Li, H*. & Giudice, N.A. (2011). Finding the optimal visual interface for assisting navigation. Poster: Conference on Spatial Information Theory (COSIT 2011). September, Belfast, ME.
* *Raja, M.K*. & Giudice, N.A. (2011). Haptic spatial learning of indoor spaces using touchscreen enabled smartphone devices. Poster: Conference on Spatial Information Theory (COSIT 2011). September, Belfast, ME.
* *Bennett, C.R*. & Giudice, N.A. (2011). Spatial images developed through extended touch: Comparing updating performance between haptic and visual learning. Poster: Conference on Spatial Information Theory (COSIT 2011). September, Belfast, ME. (Won doctoral presentation award
* *Cuddy, K.M*. & Giudice, N.A. (2010). Spatialized audio for remembering auditory target azimuths. Poster: Spatial Cognition 2010 Conference. August, Ft. Hood, OR.
* Wolbers, T., Wutte, M., Klatzky, R.L., Loomis, J.M., & Giudice, N.A. (2010). Modality independent coding of 3D layout: fMRI evidence for PPA involvement of haptic and visual scenes. Poster: 16th Annual Meeting of the Organization for Human Brain Mapping. June, Barcelona, Spain.
* Wolbers, T., Wutte, M., Klatzky, R.L., Loomis, J.M., & Giudice, N.A. (2010). Modality independent coding of 3D layout: fMRI evidence for PPA involvement of haptic and visual scenes. Poster: Meeting of the German Society of Experimental Psychologists. March, Saarbrücken, Germany.
* Giudice, N.A., Wutte, M., Klatzky, R.L., Loomis, J.M., & Wolbers, T. (2009). Modality independent coding of 3D layout: fMRI evidence for PPA involvement of haptic and visual scenes by sighted and blind participants. Poster: 50th Annual Psychonomics Society Meeting. November, Boston, MA.
* Marston, J.R., Klatzky, R.L., Giudice, N.A., Loomis, J.M., & Golledge R.G. (2007). Measuring cognitive load of non-visual navigation interfaces. Poster: Association of American Geographers (AAG) 104th Annual Meeting. April, San Francisco, CA.
* May, M., Giudice, N.A., LaPierre, C., & Ponchillia, P. (2007). Results from 5-Year NIDRR

wayfinding grant and future prospects. Talk: 22nd Annual CSUN International Conference, Technology and Persons with Disabilities. March, Los Angeles, CA.

* Giudice, N.A., Betty, M.R., & Loomis, J.M. (2006). Orientation specificity with vision and touch: Map learning, haptic updating, and functional equivalence. Poster: Vision Sciences Society (VSS’06) conference, Journal of Vision. 6(6), p. 178a.
* Kalia, A., Legge, G.E., & Giudice, N.A. (2006). Learning virtual building layouts: The effects of age on the usefulness of geometric and nongeometric visual information. Poster: Vision Sciences Society (VSS’06) conference, Journal of Vision. 6(6), p. 140a.
* Giudice, N.A. (2006). Wayfinding without vision: Learning real and virtual environments using dynamically-updated verbal descriptions. Talk: Conference on Assistive Technologies for Vision and Hearing Impairment. July, Kufstein, Austria.
* Kalia, A., Giudice, N.A., & Legge, G.E. (2005). Learning building layouts with low vision: Do realistic details help or hinder? Talk: Vision 2005 Conference. April, London, UK.
* Kalia, A., Giudice, N.A., & Legge, G.E. (2004). Learning building layouts: The effects of visual information on developing global knowledge. Talk: Object Perception, Attention, and Memory Conference. November, Minneapolis, MN.
* Giudice, N.A. & Legge, G.E. (2004). Comparing verbal and visual information displays for learning building layouts. Poster: Vision Sciences Society (VSS’04) conference, Journal of Vision. 4(8), p. 889a.
* Giudice, N.A., Legge, G.E., & Bakdash, J.Z. (2003). Navigating without vision: A role for spatial language? Poster: Vision Sciences Society (VSS’03) conference, Journal of Vision. 3(9), p. 489a.
* Legge, G.E., Mason, S.J., Brady, M., Giudice, N.A., & Schlicht, E.J. (2003). Maplets: Local geometrical components of human cognitive maps. Talk: Vision Sciences Society (VSS’03) conference, Journal of Vision. 3(9), p. 136a.
* Giudice, N.A. (2002). Tactile vision: Brain-reorganization in the blind: Implications for learning and adaptive technology. Talk: Seventeenth Annual CSUN International Conference on Technology and Persons with Disabilities. March, Los Angeles, CA.
* Giudice, N.A., Mason, S.J., & Legge, G.E. (2002). The relation of vision and touch: spatial learning of small-scale layouts. Poster: Vision Sciences Society (VSS’02) conference, Journal of Vision. 2(7), p. 522a.
* Schlicht, E.J., Legge, G.E., Stankiewicz, B.J., & Giudice, N.A. (2001). Are visual landmarks necessary for effective transfer of navigational knowledge between real and virtual buildings? Poster: Annual Meeting of the Association of Research in Vision and Ophthalmology. Fort Lauderdale, FL.
* Giudice, N.A., Madison, C.M., Zhuang, J.C., Costello, P.A., Legge, G.E., Hu, X., & He, S. (2000). Tactile vision in the blind: An fMRI experiment on pattern recognition and brain plasticity. Poster: Annual Meeting of the Association for Research in Vision and Ophthalmology. Supp. IOVS, 40, S49, Fort Lauderdale, FL.
* Bruggeman, H., Giudice, N.A., Stankiewicz, B.J., & Legge, G.E. (2000). Distal target localization by the blind. Poster: Annual Meeting of the Association for Research in Vision and Ophthalmology. Supp. IOVS, 40, S431, Fort Lauderdale, FL.

5.9 UMaine & Local Conferences (54), 16 student research excellence awards):

* Herbert, V.M., Perry, R.J., *LeBlanc, C*., Haase, K.N., Corey, R.R., Giudice, N.A., and Howell, C.L. (2021). Developing a smartphone app with augmented reality to support virtual learning of nursing students on heart failure. Poster: 1st UMS Nursing Research Symposium, October, Portland, ME.
* *Holz, J.A*., Haase, K.N., & Giudice, N.A. (2020). Increasing Access to Graphical Information for Blind and Visually Impaired People: Evaluating the usability of two haptic feedback methods using a touchscreen-based system. Abstract: UMaine Student Research Symposium, April.
* *Fink, P.D.S*. & Giudice, N.A. (2020). Learning to Trust Autonomous Vehicles. Abstract: UMaine Student Research Symposium, October.
* *Palani, H.P.* and Giudice, N.A. (2018). Perceptual Parameters and Design Guidelines for rendering Graphical materials on Touchscreen devices to support Blind and Visually-Impaired Users. Talk: UMaine Student Research Symposium, April, Cross Insurance Center, Bangor, ME.
* *Herrschaft, G.* and Giudice, N.A. (2018). Facilitating Meaningful Interpersonal Interactions Through a Virtual Space. Talk: UMaine Student Research Symposium, April, Cross Insurance Center, Bangor, ME.
* *Haase, K.N.,* Perry, R.J., and Giudice, N.A. (2018). 3D Haptics for Nonvisual Spatial Learning and Navigation. Poster: UMaine Student Research Symposium, April, Cross Insurance Center, Bangor, ME.
* *Jensen, N.A.* and Giudice, N.A. (2018). Comparing Visual Augmentations for Navigation of Indoor Spaces. Poster: UMaine Student Research Symposium, April, Cross Insurance Center, Bangor, ME.
* *Rasmussen, W.E.O., Jensen, N.A*., Doore, S.A. and Giudice, N.A. (2018). Comparing Vibrotactile Smartphone Interfaces for Nonvisual Navigation of Indoor Routes. Talk: UMaine Student Research Symposium, April, Cross Insurance Center, Bangor, ME.
* *Palani, H.P*. & Giudice, N.A. (2017). Principles and Guidelines for Advancement of Touchscreen-Based Graphic Screen Readers. Poster: UMaine Student Research Symposium, April, Cross Insurance Center, Bangor, ME. [Winner of the 2017 Innovation award]
* *Kaplan, T.M*. & Giudice, N.A. (2017). Development of a Dynamic Multisensory Interface to Provide Accessible Scientific Diagrams for Blind and Low Vision Students. Poster: UMaine Student Research Symposium, April, Cross Insurance Center, Bangor, ME. [Awarded best project in the undergraduate education category]
* *Palani, H.P.* and Giudice, N.A. (2016). Multimodal access to graphical information for blind and visually-impaired people using touchscreen-based devices. Poster: UMaine Student Research Symposium, April, Cross Insurance Center, Bangor, ME. [Awarded 1st prize for posters]
* *Bennett, C.R*. and Giudice, N.A. (2016). Do cognitive maps decay with age? Talk: UMaine Student Research Symposium, April, Cross Insurance Center, Bangor, ME. [Honorable mention for talks]
* *Kaplan, T.M., Fortier-Brown, A.* & Giudice, N.A. (2016). Evaluation of Virtual Reality Simulation as a Supplemental Treatment in Cases of Seasonal Affective Disorder. Interactive exhibition: UMaine Student Research Symposium, April, Cross Insurance Center, Bangor, ME.
* *Peters, B.M*., Corey, R.R., & Giudice, N.A. (2016). Dynamic Motion Control: Networked Control Software and Expanded Physical Capabilities for Virtual Environment Motion Feedback Devices. Talk: UMaine Student Research Symposium, April, Cross Insurance Center, Bangor, ME.
* *Richards, S.M., Bennett, C.R.,* and Giudice, N.A. (2016). Virtual Reality Exposure Therapy for Veterans with PTSD. Poster: UMaine Student Research Symposium, April, Cross Insurance Center, Bangor, ME.
* *Gates, S.C.P*., Corey, R.R., & Giudice, N.A. (2015). Multi-Tag Radio Frequency Indication for use in Indoor Positional Tracking Systems. Interactive Exhibition: Center for Undergraduate Research (CUGR) Showcase, April, University of Maine, Orono, ME. [Jointly awarded 1st prize for demos]
* *McGrath, T.C*., Corey, R.R., & Giudice, N.A. (2015). Development of a Non-Visual Indoor Navigation Assistive Device Using Real-Time Tracking and Multimodal Feedback. Interactive Exhibition: Center for Undergraduate Research (CUGR) Showcase, April, University of Maine, Orono, ME.
* *Peters, B.M*., Corey, R.R., & Giudice, N.A. (2015). Low-Power Device for Indoor Mapping and Navigation. Interactive Exhibition: Center for Undergraduate Research (CUGR) Showcase, April, University of Maine, Orono, ME.
* *Hurlburt, M.T*., Corey, R.R., & Giudice, N.A. (2015). Monitoring Independently Aging Adults with Radio Frequency Indicator Technology: An Inexpensive and Noninvasive Solution for Aging in Place. Interactive Exhibition: Center for Undergraduate Research (CUGR) Showcase, April, University of Maine, Orono, ME. [Jointly awarded 1st prize for demos]
* *Sleight, D.A*., Corey, R.R., & Giudice, N.A. (2015). Dynamic Motion Control: Developing a 6 DOF Motion Platform for use in Virtual Environments. Interactive Exhibition: Center for Undergraduate Research (CUGR) Showcase, April, University of Maine, Orono, ME.
* *Bennett, C.R*. & Giudice, N.A. (2015). Improving Spatial Aging through the Use of Compensatory Augmentations. Talk: University of Maine Graduate Exposition. April, Orono, ME. [Awarded 1st prize by the UMaine Graduate School]
* *Li, H.* & Giudice, N.A. (2015). Effects of Basic Multi-level Properties on Indoor Wayfinding. Talk: University of Maine Graduate Exposition. April, Orono ME. [Awarded 3rd prize by the UMaine Graduate School]
* *Bennett, C.R*. & Giudice, N.A. (2014). Exploring Effects of Age on Driving through Virtual Simulation. Poster: UMaine Graduate Exposition, April, University of Maine, Orono, ME.
* *Palani, H.P.* & Giudice, N.A. (2014). Towards a Better Understanding of Non-Visual Spatial Representation. Poster: UMaine Graduate Exposition, April, University of Maine, Orono, ME. [Awarded 1st prize by the UMaine Graduate School]
* *Palani, H.P*. & Giudice, N.A. (2014). Touch to see. Video presentation: UMaine Graduate Exposition, April, University of Maine, Orono, ME. [Awarded 1st prize by the UMaine Graduate School]
* *Perry, R.J.,* Corey, R.R., & Giudice, N.A. (2014). Poster: UMaine Graduate Exposition, April, University of Maine, Orono, ME.
* *McGrath, T.C*., Corey, R.R., & Giudice, N.A. (2014). Non-visual indoor navigation using three-dimensional auditory displays and sensory feedback from Mobile devices. Interactive Exhibition: Center for Undergraduate Research (CUGR) Showcase, April, University of Maine, Orono, ME. [Awarded 1st prize for demos]
* *Sleight, D.A*., Corey, R.R., & Giudice, N.A. (2014). Mobile Mapping Applications: Developing site-specific access to multimodal interfaces for geospatial navigation. Interactive Exhibition: Center for Undergraduate Research (CUGR) Showcase, April, University of Maine, Orono, ME.
* *Cole, J.D*., Corey, R.R., & Giudice, N.A. (2014). Virtual simulations of compensatory techniques for age-related vision loss. Interactive Exhibition: Center for Undergraduate Research (CUGR) Showcase, April, University of Maine, Orono, ME.
* *Allain, S*., Corey, R.R., & Giudice, N.A. (2014). Virtual modeling of forest populations in Maine given the introduction of invasive plant species. Poster: Center for Undergraduate Research (CUGR) Showcase, April, University of Maine, Orono, ME.
* *Hurlburt, M.T*., Corey, R.R., & Giudice, N.A. (2014). Using virtual reality to model offshore wind turbines. Poster: Center for Undergraduate Research (CUGR) Showcase, April, University of Maine, Orono, ME.
* *Bennett, C.R*. & Giudice, N.A. (2014). Research topics in spatial navigation and aging. Talk: 5th Annual Mainely Data Conference. May, Univ. of Maine, Orono, ME.
* *Li, H*. & Giudice, N.A. (2014). Multi-level cognitive maps for supporting indoor wayfinding. Talk: 5th Annual Mainely Data Conference. May, Univ. of Maine, Orono, ME.
* *Palani, H.* & Giudice, N.A. (2014). Perception & representation of spatial information by visually-impaired users. Poster: 5th Annual Mainely Data Conference. May, Univ. of Maine, Orono, ME.
* *Li, H.* & Giudice, N.A. (2013). Determining the Optimal Visual Interface Supporting Multi-level Indoor Wayfinding, Talk: International Spatial Cognition Summer Institute (ISCSI), August, Santa Barbara, CA.
* *Cole, J.D*., Corey, R.R & Giudice, N.A. (2013). Virtual simulation of driving scenarios with age-related vision loss. Interactive Exhibition: Center for Undergraduate Research (CUGR) Showcase, April, UMaine.
* *Kesavan, S*. & Giudice, N.A. (2012). Translating photos of indoor scenes into natural language descriptions. Talk: CINACS Summer School Workshop on Multimodal Information Processing. September, University of Hamburg, Germany.
* *Bennett, C.R.*, & Giudice, N.A. (2012). The Spatial Image: Multiple Research Studies. Talk: 3rd Annual Mainely Data Conference. June, Colby College, Waterville, ME.
* *Kesavan, S*. & Giudice, N.A. (2012). Translating Photos of Indoor Scenes into Natural Language Descriptions. Talk: UMaine Graduate Exposition, April, University of Maine. [Awarded 2nd prize by the UMaine Graduate School]
* *Palani, H.P.* & Giudice, N.A. (2012). Navigation assistance for visually impaired persons using touch based devices. Poster: UMaine Graduate Exposition, April, University of Maine. [Awarded 2nd prize by the UMaine Graduate School and also received a Commercialization Award]
* *Bennett, C.R*. & Giudice, N.A. (2012). The Spatial Image: A Look through Multiple Research Studies. Talk: UMaine Graduate Exposition, April, University of Maine. [Awarded 3rd prize by the UMaine Graduate School]
* *Bennett, C.R*. & Giudice, N.A. (2012). The effects of life span development on spatial updating of haptic arrays. Poster: UMaine Graduate Exposition, April, University of Maine. [Awarded 3rd prize by the UMaine Graduate School]
* *Jain, S*. & Giudice, N.A. (2012). Comparing head versus hand motion based spatial audio interfaces for indoor navigation. Poster: UMaine Graduate Exposition, April, University of Maine.
* *Li, H.* & Giudice, N.A. (2012). Assessing the visual granularity of 3D indoor maps. Poster: UMaine Graduate Exposition, April, University of Maine.
* *Cole, J.D*., Corey, R.R, & Giudice, N.A. (2012). Age Related Vision Loss in the Context of Driving. Interactive Exhibition: 2012 Center for Undergraduate Research (CUGR) Showcase, April, UMaine.
* *Leger, J.R.*, Corey, R.R, & Giudice, N.A. (2012). Visual Augmentation for Aging and Navigation. Interactive exhibition: 2012 Center for Undergraduate Research (CUGR) Showcase, April, UMaine.
* *Raja, M.K*. & Giudice, N.A. (2011). Indoor Navigation for Low-Vision and Blind Users. Poster: UMaine Graduate Exposition, April, University of Maine. [Selected by the UMaine Graduate School as the Best Student Poster Award of 2011]
* *Bennett, C.R*. & Giudice, N.A. (2011). Development of Spatial Images through Extended Touch: Comparing Updating Performance against Haptic Inspection and Vision. Poster: UMaine Graduate Exposition, April, University of Maine.
* *Li, H.* & Giudice, N.A. (2011). Finding the Minimal Information Set for Assisting Navigation in Multilevel Indoor Spaces. Poster: UMaine Graduate Exposition, April, University of Maine.
* *Jain, S*. & Giudice, N.A. (2011). Assessing Audio Interfaces for use in an Indoor Navigation System. Poster: UMaine Graduate Exposition, April, University of Maine
* *Kesavan, S*. & Giudice, N.A. (2011). Automated natural language descriptions of indoor spaces. Poster: UMaine Graduate Exposition, April, University of Maine.
* *McGrath, T*., Corey, R.R., & Giudice, N.A. (2010). 3D Viewshed Creation for Virtual Reality Applications. Poster: NSF SuperMe REU 2010 Symposium, August, UMaine.
* *Raja, M.K*. & Giudice, N.A. (2010). Indoor Positioning and Indoor Location-Based Services. Poster: UMaine Graduate Exposition, April, University of Maine.
* *Cuddy, K.M*. & Giudice, N.A. (2009). Information Requirements for Indoor Navigation. Poster: UMaine Graduate Exposition. April, University of Maine.

5.10 Theses and Unpublished Works (15):

* Palani, H.P. (2018). Principles and Guidelines for Advancement of Touchscreen-Based Non-visual Access to 2D Spatial Information. Unpublished Doctoral Dissertation, Apr. 2018, UMaine. (N.A. Giudice: thesis advisor).
* Herrschaft, G, (2018). Facilitating meaningful interpersonal connections through a virtual space. Unpublished Undergraduate Honors Thesis, Apr. 2018, UMaine. (N.A. Giudice: thesis advisor).
* Cole, J.D. (2017). Kino: A Software and Hardware Platform to Empower Research with Wearable Augmented Reality Devices. Unpublished Masters thesis project, Dec. 2017, UMaine. (N.A. Giudice: thesis advisor).
* Perry, R.J. (2017). Conveying Topographic Information with 3D Printed Models and Tactile Maps. Unpublished Masters Thesis, May 2017, UMaine. (N.A. Giudice: thesis advisor).
* Bennett, C.R. (2017). Spatial Cognitive Aging: Cognitive Map Decay and Compensatory Augmentations for Older Adults. Unpublished doctoral dissertation, February 2017, University of Maine. (N.A. Giudice: thesis advisor)
* Li, H. (2016). Evaluation of multi-level cognitive maps for supporting between-floor spatial behavior in complex indoor environments. Unpublished doctoral dissertation, May 2016, University of Maine. (N.A. Giudice: thesis advisor)
* Graf, C. (2013). Schematization in Hard-copy Tactile Orientation Maps. Unpublished doctoral dissertation, Dec. 2013, University of Bremen, Germany. (N.A. Giudice: thesis co-advisor)
* Palani, H. (2013). Making Graphical Information Accessible Without Vision Using Touch-Based Devices. Unpublished Master’s Thesis, Nov. 2013, UMaine. (N.A. Giudice: thesis advisor).
* Kesavan, S. (2013). Indoor Scene Knowledge Acquisition Using Natural Language Descriptions. Unpublished Master’s Thesis, May 2013, UMaine. (N.A. Giudice: thesis advisor)
* Jain, S. (2012). Assessment of Audio Interfaces for Use in Smartphone Based Spatial Learning Systems for the Blind. Unpublished Master’s Thesis, Dec. 2012, UMaine. (N.A. Giudice: thesis advisor)
* Ramos, R.M. (2012). Improving Assistive Technology Through Phenomenology: A Comparative Analysis of Research Methods. Unpublished Undergraduate Honors Thesis, May 2012, UMaine. (N.A. Giudice: thesis advisor)
* Raja, M.K. (2011). The development and validation of a new smartphone based non-visual spatial interface for learning indoor layouts. Unpublished Master’s Thesis, Dec. 2011, UMaine. (N.A. Giudice: thesis advisor)
* Cuddy, K.M. (2010). The Efficacy of Virtual Spatialized Audio for Perceiving and Remembering Azimuths of Auditory Targets. Unpublished Master’s Thesis Project, May 2010, UMaine. (N.A. Giudice: thesis advisor)
* Giudice, N.A. (2004). Navigating Novel Environments: A Comparison of Verbal and Visual Learning. Unpublished doctoral dissertation, Dec. 2004, UMN.
* Giudice, N.A. (1999). Advances in Personal Navigation Systems for the Blind: A Review and Proposal for Tomorrow's Technology. Unpublished whitepaper. UMN

**6. INVITED PRESENTATIONS (71)**

Given by N.A. Giudice unless otherwise indicated

*Summary Metrics:*

* 46 invited talks/workshops
* 10 keynote talks
* 14 lectures/panel talks

6.1 Talks and Keynotes (53):

2022 (July 15) Accessibility silos: Considerations for bridging the information-access fragmentation divide. Invited keynote talk at the ICCHP-AAATE joint International Conference on Digital Inclusion, Assistive Technology and Accessibility. Lecco, Italy.

2022 (May 3) Improving accessibility of graphical information: Promoting inclusion through multisensory visualizations. Invited Keynote talk at the Center for Spatial and Textual Analysis, Stanford University (virtual).

2022 (Mar. 24)   AI Personas for Blind and Sighted User Trust Across the Complete Trip of Driving. Co-presenter with P. D. S. Fink (lead). *2nd International Conference on Embodied Intelligence,* Cambridge, UK (virtual).

2022 (Mar.15) Improving inclusion in STEM fields: It’s time for information visualizations to move beyond vision. Invited Keynote talk at the National Academies of Sciences, Engineering, and Medicine Conversation series on Improving Accessibility and Inclusion in Field, Laboratory, and Computational Science. Washington D.C. (Virtual).

2022 (Feb. 14)   Blind navigation indoors and out: Grand challenges and promising solutions. Invited talk at the Bartiméus low vision and blindness expertise center, the Netherlands (Virtual).

2022 (Jan. 24)    AVA: An Accessible Ride-hailing, Mobility, and Navigation Tool for Fully Autonomous Vehicles. Co-presenters: Giudice, N.A., Corey, R. R., & Allen, A. *Inclusive Design Challenge Showcase and Design Challenge*, Washington D.C. (virtual).

2021 (Nov. 9)    The future of FAVs for BVI people: Accessibility, safety, and policy considerations. Co-presenter with P.D.S. Fink: Workshop on Autonomous vehicles, Braille Institute, Santa Barbara, CA (virtual).

2021 (July 21) Help Drive the Future of Driving. Co-presented with P.D.S. Fink: American Council of the Blind 60th Annual Conference and Convention. ACB, Alexandria, VA (virtual).

2021 (May 13) Federal Accessibility Standards for Autonomous Vehicles. Co-presenter with P.D.S. Fink: *Day One Technology Policy Accelerator Showcase.* Day One Project, Washington D.C. (virtual).

2021 (Jan. 14) Grand challenges in blindness research: The role of multimodal, bio-inspired technology solutions of the future. Keynote talk: *AccessComputing+CREATE* undergraduates with disabilities research workshop, U. Washington, WA, (virtual conference).

2020 (Oct. 23) COVID-19 and blindness- Impacts on environmental perception and interaction during travel. Invited talk at the State of the Science on Rehabilitation Technology in Blindness and Low Vision. Smith-Kettlewell Eye Research Institute (virtual conference).

2020 (Feb. 14) The Grand Challenges of Blind Spatial Cognition: What is Needed for Solutions in 2020 and Beyond. Invited talk: UCSB Cognition, Perception, and Cognitive Neuroscience lecture series. Santa Barbara CA.

2019 (Oct.) Access technology for 2020 and beyond: The role of Autonomous vehicles in BVI independence. Keynote talk: Beyond 2020 Conference: Innovations in emerging technologies, services, and programs for blindness and low vision. Cambridge Innovation Center, Cambridge MA.

2019 (July) Unar Labs and information access. Invited talk (with H. Palani): Guide Dog Users Inc. (GDUI) national convention. Rochester, NY, USA.

2019 (July) Multimodal information access: Why the best visualizations transcend vision. Invited talk: Gordon Research Conference, Visualization in Science, and Education Section, Bates College, ME.

2019 (Mar.) Blinded by vision: What the brain tells us about technology development. Invited “Genius talk”: 4th annual Maine science Festival, Bangor, Maine.

2018 (Dec.) Challenges with VR and AR technology as a research tool: It’s time to shit or get off the pot! Invited Talk: School of Computing and Information Science’s Research Colloquium, UMaine.

2018 (Nov.) Promoting inclusion through information-access technologies: Where we are and where we need to go. Invited talk: Equity, Access and Inclusion conference, A World Usability Day event, UMaine.

2018 (Oct.) The keys to independence. Keynote Grand marshal talk: White Cane Day, The Iris Network. Portland ME.

2018 (July) Aira: Accessing visual information when and where you need it. Invited talk: Guide Dog Users Inc. (GDUI) national convention. St. Louis, MO, USA.

2018 (Mar.) Touchscreen-based information access: Psychophysically-inspired usability evaluations. Keynote talk: Smith-Kettlewell Eye Research Institute Haptics Symposium, in honor of Val Morash, San Francisco, USA.

2017 (Sept.) Indoor Navigation without Vision: Promise and Progress. Invited talk: Indoor Positioning and Indoor Navigation Conference. Sapporo, Japan.

2016 (Dec.)      A vision for MIST as a catalyst for facilitating geo-spatial industry-academic partnerships, workforce development, research initiatives, and educational opportunities in Maine and beyond. Invited talk: Maine Institute for Spatial Technologies (MIST) conference. Freeport ME, USA.

2016 (June) The importance of sports education for understanding biomechanics and building confidence in young blind athletes. Keynote talk: Maine Organization of Blind Athletic and Leadership Education (MOBALE) 1st annual Summer camp. Waterville ME, USA.

2016 (June) Multimodal spatial cognition: Relevance to spatial technologies. Invited talk: iNav, 1st biannual Interdisciplinary Navigation Symposium. Bad Gastein, Austria.

2015 (July) Improving Nonvisual Environmental Awareness Using Multimodal Information Access Technology. Invited Talk: PRISM Lecture Series, City College of New York (CUNY), New York, USA.

2015 (June) Improving Navigation and Independence in Older Adults Using Compensatory Augmentation. Invited Pecha Kucha Talk: UMaine Aging Initiative Workshop. Orono Me, USA.

2015 (May) Technology for Aging. Invited talk: 10th Annual UMaine Geriatrics Colloquium. Orono ME, USA.

2015 (Mar.) The Science of Aging: Technology Innovation to Aid Older Adults. Invited talk: Maine Science Festival, Panel on Aging. Bangor ME, USA.

2014 (Nov.) Bridging the Gap Between Human-Information Processing and Human-Centered Design Research: Improving the Development of Non-visual Assistive Technology. Invited talk: DUB (HCI & Design) seminar series. University of Washington, Seattle WA, USA.

2014 (Oct.) Using Virtual Reality as a Tool for Improving Wind Energy Visualization. Invited talk: Senator George J. Mitchell Center for Sustainability Solutions. University of Maine, Orono ME, USA.

2014 (Sept.) Linking Behavioral and Neuroimaging Research with Assistive Technology Development: Problems and Progress. Invited talk: symposium on Merging Neuroplasticity, Education, and Rehabilitation in the Blind. Radcliffe Institute, Harvard University, Cambridge MA, USA.

2014 (June) Space is the Common Denominator: From Human Information Processing to Multimodal Interface Design. Keynote talk: Workshop on Empowering Blind Students in Science and Engineering (EBSSE). University of Washington, Seattle WA, USA.

2014 (Mar.) Designing Non-visual Interfaces for Spatial Learning and Navigation: Bridging the Gap Between Basic and Applied Research. Keynote talk: symposium on visual rehabilitation. Emory University School of Medicine. Atlanta GA, USA.

2014 (Mar.) Using Vibro-audio Interfaces for Graphical Access by Blind People. Invited Talk: American Council of the blind (ACB) of Maine. Tele-conference.

2013 (Dec.) Access Technology Through User-Centered Design. Invited talk: Maine Department of blindness and Visual Impairment Annual meeting. Augusta ME, USA.

2013 (Nov.) The Role of Touchscreen Displays for Non-visual Graphical Access. Invited talk: Tactile Research Group Annual Meeting. Toronto, Canada.

2013 (Aug.) Designing Non-visual Displays: Using Human-Centered Computing to Avoid the Engineering Trap. Invited talk: Workshop on Environmental Sensing Technologies for Visual Impairment (ESTVI 2013). Smith-Kettlewell Eye Research Institute, San Francisco CA, USA.

2012 (Sept.) Using Multimodal Information Displays in Spatial Cognition Research. Keynote talk: CINACS Summer School Workshop on Multimodal Information Processing, University of Hamburg, Germany.

2012 (Aug.) Moving Beyond the Vision-only Bottleneck: Using Multimodal Information in Virtual Reality Research. When is Virtual Reality Real Enough? Invited talk: Workshop on Using VR in Spatial Cognition Research. In conjunction with Spatial Cognition 2012, Kloster Seeon, Germany.

2011 (Dec.) Toward Universal Access to Seamless Travel of Indoor and Outdoor Spaces with and Without Vision. Invited talk: Center for Transportation Studies, University of Minnesota, Minneapolis MN, USA.

2009 (Nov.) Multimodal Processing of Spatial Information: The Intersection of Spatial Cognition and Neurocognitive Engineering. Invited talk: Institute for Research in Cognitive Science, University of Pennsylvania, Philadelphia PA, USA.

2009 (July) A Year with Giudice: Research, Development, and Future Directions. Invited talk: The Minnesota Laboratory for Low-Vision Research, University of Minnesota, Minneapolis MN, USA.

2009 (April) Spatial Learning from Different Sensory Modalities: The Intersection of Experimental Psychology and Neurocognitive Engineering. Invited talk: University of Maine Psychology Colloquium, Orono ME, USA.

2008 (Feb.) Spatial Learning in Real and Virtual Environments: Navigation, Cognitive Mapping, and the Development of Multimodal Displays. Invited talk: Department of Psychology, Wichita State University, Wichita KS, USA.

2008 (Feb.) Multimodal Learning: When Different Spatial Displays Lead to the Same Spatial Behavior. Invited talk: Department of Geography, University of Oregon, Eugene OR, USA.

2007 (Dec.) Spatial Learning in Real and Virtual Environments: Development of Mental Representations using Multimodal Displays. Invited talk: Department of Spatial Information Science and Engineering, University of Maine, Orono ME, USA.

2006 (June) What’s Going on in GiudiceLand: Research Past, Present, and Future. Invited talk: The Minnesota Laboratory for Low-Vision Research, University of Minnesota, Minneapolis MN, USA.

2006 (May) Orientation Specificity with Vision and Touch: Map Learning, Haptic Updating, and Functional Equivalence. Invited talk: Cognition, Perception, & Cognitive Neuroscience Colloquium, University of California, Santa Barbara CA, USA.

2005 (Apr.) Wayfinding with Words: The Use of Spatial Language for Navigating Real and Virtual Environments. Invited talk: Cognitive and Perceptual Sciences Colloquium, University of California, Santa Barbara CA, USA.

2004 (Mar.) NIH: National Eye Institute, Scientific Workshop on Blindness, Brain Plasticity, and Spatial Function. Invited participant: Vanderbilt University, Nashville TN, USA.

2002 (Oct.) Universal Design, Adaptive Technology, and Integration. Invited talk: Usability Professionals Association (UPA), Minneapolis MN, USA.

2000 (Jan.) The Relation of Vision and Touch in an Angle Estimation and Production Task. Invited talk: Vision Science Colloquium, University of Minnesota, Minneapolis MN, USA.

6.2 Guest Lectures, Panel Discussions, and Round-Table Talks (18):

2022 (Nov.) How to Select Technology and Design Instruction: Knowledge, Skills and Abilities that Generalize Across Tools and Settings. Perspectives from Higher Education Experts in Orientation and Mobility. Invited webinar Panelist With Robert Wall Emerson and Sarahelizabeth Baguhn. Sponsored by the Center for Innovation, Design, and Digital Learning (CIDDL), the University of Kansas. URL: <https://youtu.be/6q8TBLrHe9s>

2022 (Aug.) Establishing your own research program. Invited panelist and senior mentor at the 2022 BRAINS (Broadening the Representation of Academic Investigators in NeuroScience) Fellows Symposium, Bainbridge island, Seattle WA, USA.

2022 (Aug.) Exploring career paths. Invited panelist and senior mentor at the 2022 BRAINS (Broadening the Representation of Academic Investigators in NeuroScience) Fellows Symposium, Bainbridge island, Seattle WA, USA.

2022 (Aug.) Navigating organizations and tenure. Invited panelist and senior mentor at the 2022 BRAINS (Broadening the Representation of Academic Investigators in NeuroScience) Fellows Symposium, Bainbridge island, Seattle WA, USA.

2021 (Dec.)     Indoor Navigation: Can Inertial Navigation, Computer Vision, and other new technologies Work Where GPS Can't? Panel moderator, with Mike May (Goodmaps), Roberto Manduchi (UC Santa Cruz), and Paul Ruvolo (Olin College); Sight Tech Global (virtual conference) <https://www.youtube.com/watch?v=xEV6MySlewY>

2021 (Apr.) AI in AVs roundtable, VEMI Lab, part of Maine Impact Week.

2021 (Jan.) Researchers with disability: The role of technology, innovation, and self-advocacy. Chair for student break-out panel at the *AccessComputing+CREATE* undergraduates with disabilities research workshop, U. Washington, WA, (virtual conference)

2020 (Dec.) Wayfinding: Finding the mark. Panel participant, with Tim Murdoch and Mike May, Sight Tech Global, a TechCrunch spin-off (virtual). <https://www.youtube.com/watch?v=ogqER8BOCik&feature=youtu.be>

2020 (Dec.) Augmented reality and perception: What’s the best way to get the message across? Panel moderator, with Amos Miller, Ashley Tuan, and Sile O’Modhrain; Sight Tech Global, a TechCrunch spin-off (virtual conference). <https://www.youtube.com/watch?v=C_xCFKzyMTI&feature=youtu.be>

2020 (Sept.) Invited participant in the Creating Accessible Web Map Widgets panel, part of the W3C/OGC Joint Workshop Series on Maps for the Web (virtual conference).

2016 (June) Co-led panel discussion on using VR in studying navigation, part of Spatial Cognition 2016, Philadelphia PA, USA. (With E. Chrastil, S. Creem-Regehr, and T. Wolbers).

2015 (June) Co-led round table discussion on technology and aging, University of Maine, Orono ME, USA. (With A. Abedi).

2015 (May) Co-led panel discussion on using VR in K-12 STEM education, University of Maine, Orono ME, USA. (With R.R. Corey).

2014 (June) Led panel on conducting accessible research in STEM disciplines, University of Washington, Seattle WA, USA.

2013 (Apr.) Computer Science guest lecture “Introduction to HCI,” University of Maine, Orono ME, USA.

2010 (Dec.) IGERT guest lecture “HCI and Sensors: Research and applications,” University of Maine, Orono ME, USA.

2009 (Dec.) IGERT guest lecture “Indoor Navigation: Research and Applications,” University of Maine, Orono ME, USA.

2004 (Mar.) Panel participant at the National Eye Institute Scientific Workshop on Blindness, Brain Plasticity, and Spatial Function. Vanderbilt University, Nashville TN, USA.

**7. CONSULTING AND ADVISORY (16)**

*Summary Metrics: Provided expert input on 16 projects, including:*

* *NSF / NIH/NIDLIRR grants*
* *Phase I and II SBIR / STTR projects*
* *Start-up / commercial scientific advising*

2021-Present Scientific Advisory Board member on NIDLIRR Grant entitled “Precise Customized Navigation for All, Indoors and Outdoors.” (Mike May, PI, GoodMaps INC.).

2021-Present Scientific Advisory Board member on Smart and Connected Community (SCC) Grant entitled Transportation Gaps and Disability-Related Unemployment: Smarter Cities and Wearables combating Commuting Challenges for the Blind.” (JR Rizzo, PI, NYU).

2016-Present Consulting for Click and Go Wayfinding Maps, LLC., providing scientific and technical guidance on multiple projects relating to the development of narrative descriptions for use in wayfinding systems for large commercial properties and transportation venues.

2016-2017 Senior Advisor, University of Maine System (UMS) research re-investment fund (RFF) grant entitled “Revolutionizing Computing Across the University of Maine System” (H. Onsrud, PI).

2015-2017 Consultant on NIH R01 grant studying non-visual access to digital displays (with J. Coughlan (PI), Smith-Kettlewell Eye Research Institute).

2015-2019 Consultant on FAA grant studying airport navigation with visual impairment (with G.E. Legge, UMN (PI); B. Tjan USC; and C. Downey, Architecture for the Blind).

2014-Present Consultant for Fauxsee Innovations, LLC, on Phase I/II SBIR / STTR R&D projects on information access technology for blind/low-vision people.

2012-Present Consultant for MOAI Technologies, LLC, on Phase I/II SBIR / STTR R&D projects on assistive technology for blind/low-vision people.

2012-2015 Collaboration with UMaine’s Climate Change Institute on developing immersive VR and AR simulations of climate science phenomena.

2012-2013 R&D contract with Majella Global Technologies on dynamic spatial visualizations using mobile platforms.

2008-Present Consultant for Advanced Medical Electronics Corporation on Phase I/II SBIR projects on assistive technologies for blind/low-vision information access.

2008-2011 Advisory board for NIH grant 9R44AG033522-02 on indoor navigation (PI: G.E. Legge, UMN, and Advanced Medical Electronics Corporation, Minneapolis, MN).

2007-Present Consultant for Koronis Biomedical Technologies on Phase I/II SBIR projects on blind/low-vision navigation technology.

2007-2011 Advisory board for Kinnexxus Inc., advising on factors affecting age-related vision loss for gerontechnology start-up company, Los Altos, CA.

2006-2007 Efficacy testing of Touch Graphics Talking Tactile Tablet for multimodal navigation research (www.touchgraphics.com).

2003-2006 Usability testing during several Beta cycles with Sendero Group’s accessible GPS navigation system (www.senderogroup.com).

**8. ADVISING, SUPERVISING, AND MENTORING (119)**

*Summary Metrics: 111 students advised/mentored, including:*

* *1st advisor for 5 doctoral students, 10 masters students, 2 undergraduate honors theses, and 4 undergraduate capstone projects.*
* *Supervisor for 2 postdocs, 5 staff, 7 Post-Bachelor students, 68 undergraduate students, 3 internships, 9 high school student research experience / summer internships, and 4 Top Scholar students.*
* *Transdisciplinary focus with VEMI student backgrounds from 22 disciplines (6 current).*
* *98% of graduated VEMI students are employed or enrolled in terminal graduate degrees.*

8.1 Postdocs, Staff, and Other Personnel (7):

2021-2022 Nate Brown, Financial and Research Accessibility Coordinator

2021-Present Adrian Arias-Palomo, Software Engineer

2019-2021 Kaitlyn Haase (MS), VEMI Research Coordinator

2018-Present Grant Beals, VEMI Research Associate and Audio Engineer

2017-Present Raymond (RJ) Perry (MS), VEMI Lab Technical Coordinator

2016-2018 Benjamin Guenther (Ph.D.), Postdoc

2016-Present Emily Blackwood (MS), VEMI Senior Logistics Coordinator and Giudice Executive Assistant

2016-2018 Stacy Doore (Ph.D.), Postdoc and VEMI Research Coordinator

8.2 Doctoral Thesis Research (First Advisor) (5):

2018-Present Paul Fink: Learning to trust in Autonomous Vehicles.

2014–2018 Hari Palani: Vibro-audio Interface Testing and Development

2010–2017 Chris Bennett: Spatial Cognition and Functional Equivalence

2010–2016 Hengshan Li: Spatial Cognition and Indoor Navigation

2011–2013 Christian Graf: Haptic Map Production (co-advised with Christian Freksa, University of Bremen, Germany). Currently: Owner at UXessible, Lead UX Engineer & Interaction Architect: Hamburg, Germany

8.3 Master’s Thesis Research (First Advisor) (10):

2022-Present Justin Brown

2019-Present Matthew Loewen

2017-2018 Kaitlyn Haase: Assistive technology and spatial navigation

2015-2017 Jon Cole: Compensatory Augmentations and Virtual Reality for Information Visualization

2012-2017 Raymond Perry: Augmented and Virtual Reality for Information Visualization

2011-2013 Hari Palani: Indoor Navigation with Vibro-audio Interfaces

2010-2013 Saranya Kesavan: Visual-spatial Image Conversion

2010-2012 Shreyans Jain: Indoor Navigation Spatial Audio Interfaces

2009-2011 Monoj Kumar Raja: Vibro-audio Touchscreen Interfaces for Offline Learning

2008-2010 Kate Cuddy: Virtual Spatialized Audio

8.4 Post-Bachelor Supervising/Mentoring (7):

2018-2019 Christina Leblanc: B.S. Secondary Education and English (Co-mentored with Richard Corey)

2015-2017 Kendra Bird: B.A. Anthropology, MS Quaternary & Climate Studies, University of Maine (Co-mentored with Richard Corey)

2014-2015 Kristin Doherty: B.S. Communications (Co-mentored with Richard Corey)

2010 Joshua Gaylin: B.S. Microbiology

2010 Lin Lin: Masters. Electrical Engineering

2008 Magdalena Wutte: Grad. Neuroscience

2002-2007 Jonathan Bakdash: B.S. Psychology

8.5 Honors Thesis Advising (2):

2018 (April) Gene Herrschaft: New Media, UMaine

2012 (May) Rafael (Mick) Ramos: Psychology/Philosophy, UMaine (Co-Advised with K.E. Jacobson)

8.6 Capstone Advising (4):

2021-2022 Aubree Nygaard: Computer Science

2021-2022 Zane Nygaard: Computer Science

2017-2018 Nicholas Jensen: Psychology

2015-2016 Ethan Porter: Computer Science

8.7 Undergraduate Research Advising 1+ Semesters in Lab (68):

*(Unless otherwise noted, all students jointly supervised with Richard Corey)*

2022-Present Jake Loranger: Biomedical Engineering

2021-Present Henry Kindler: Undeclared

2020-Present Maher Alsamsam: Biomedical Engineering

2020-Present Anthony Caccees: Computer Science (Top Scholar Student)

2020-2022 Zane Nygaard: Computer Science

2020 Adan Lawlor: Psychology

2020 Eric Marshall: Accounting and Finance

2019-Present Roisin Rumsey: Computer Science

2019-Present Theo Erikson: Mechanical Engineering Technology (Top Scholar Student)

2019-2022 Aubree Nygaard: Computer Science

2019-2021 Tian Morrison: Bioengineering (Top Scholar Student)

2019-2020 Jessica Holtz: Communication Science Disorders

2018-2021 Colleen DeMaris: Computer Science (Top Scholar Student)

2018-2021 Isaac Sparks-Willey: Computer Science

2018-2020 Nate Brown: Accounting and Financing

2018-2020 Oisin Biswas: Computer Science

2018-2019 Anna Webber: Bioengineering

2018-2019 Dan Lesko: Bioengineering

2018-2019 Coulter Morrill: Kinesiology

2018 Betelhem Abay: Bioengineering

2018 Justin Hafner: Kinesiology

2018 Timothy Alholm: New Media

2017-2020 Adam Farrington: Computer Science

2017-2020 Maggie Karas: Social Work

2017-2020 Sophia Crockett-Current: New Media

2017-2018 Christina Leblanc: Education and English

2017-2018 Rob Owens: Computer Science

2017 Todd Hawkins: Computer Science

2017 Eddie Abandanzioi: Computer Science

2016-2020 Walter Rasmussen: Mechanical Engineering Technology

2016-2019 Bradley Butler: Bioengineering

2016-2018 Nicholas Jensen: Psychology

2016-2018 John San Diego: Computer Science

2016-2017 Allarie Lever: University Studies

2016 Dakoda Brown: Computer Science

2015-2016 Amy Fortier-Brown: New Media

2015-2016 Ethan Porter: Computer Science

2015-2016 Scott Richards: Computer Science:

2015 Emily Blackwood: Anthropology:

2015 Brian Hodges: Electrical Engineering

2014-2017 Toni Kaplan: New Media Dept

2014-2016 Samuel Gates: Computer Science

2014-2016 Brenden Peters: Computer Science

2014-2015 Peter Coleman: New Media

2014-2015 Jake Lavoie: Studio Arts

2014-2015 Clayton Peterson: Computer Science

2014 Samuel Foster: Physics

2013-2014 Sylvia Allain: Computer Science

2013-2015 Meghan Hurlburt: Computer Science

2012-2015 Dustin Sleight: Mechanical Engineering/Theater

2012-2013 Michelle Beauchemin: Engineering Physics

2011-2012 Joshua Leger: Electrical and Computer Engineering

2011-2012 Ashley Suitter: Psychology

2011-2012 Meghan White: Political Science

2011-2014 Jon Cole: Computer Science

2010-2012 Raymond Perry: Electrical Engineering

2010-2012 Rafael Ramos: Psychology

2010 Undergraduate Advisor: REU Supercomputing Program in ME (Summer)

2009-2015 Tim McGrath: Mechanical Engineering

2009-2010 Tim Baker: Mathematics

2007-2009 Brendan McHugh: Psychology. (N.A. Giudice, advisor)

2007-2008 Kevin Verlatti: Psychology (N.A. Giudice, advisor)

2006-2009 Masaki Miyanohara: Psychology (N.A. Giudice, advisor)

2006-2007 Marina Gorelik: Psychology (N.A. Giudice, advisor)

2006-2007 Marina Nemerovsky: Psychology (N.A. Giudice, advisor)

2005-2009 Maryann Betty: Psychology (N.A. Giudice, advisor)

2005-2006 Brandon Friedman, Psychology (N.A. Giudice, advisor)

2005-2006 Ryan Magnuson: Psychology (N.A. Giudice, advisor)

8.8 Internships (3):

2016 Alex Rizzini: VEMI Lab internship. Graduated, B.A. in English

2012 Alex Salveson Nossum: Ph.D. candidate, Norwegian University of Science & Technology (Fall/Winter)

2011 Samuel Deschamps Berger: VEMI Lab internship, from the National School of Geographic Sciences, France (Summer

8.9 High School Student Research Experiences / Summer Internships (9):

2018-2019 Roisin Rumsey: High School Research Experience

2018-2019 Max Sennett: High School Research Experience

2018 Theo Erickson: Summer internship

2018 Lily Kim: Summer internship

2018 Tyler Delargy: Summer internship

2016 David Lavoie: Summer internship.

2016 Benjamin Allen-Rahill: Summer internship.

2014 Reed Horton: Summer internship

2011 Dylan Lougee: Internship, High School Upward Bound experience (Summer)

**9. GRADUATE AND HONORS COMMITTEE PARTICIPATION (MEMBER) (17)**

*Summary Metrics: Member of 17 student committees, including:*

* *7 doctoral committees (2 current)*
* *8 Masters committees*
* *2 Undergraduate honors committees.*

9.1 Doctoral Committees (7):

2021-Present Meetha James, SIE, UMaine

2021 (May) Jennifer Tennison: Mechanical Engineering, Saint Louis University (external advisor)

2017 (May) Chris Dorr, SIE, UMaine

2017 (May) Stacy Doore: SIE, UMaine

2015 (May) Lisa Walton: SIE, UMaine

2015 (May) Liping Yang: SIE, UMaine

2014 (May) Stephanie Pantelides: Psychology, University of Cyprus

9.2 Master’s Committees (8):

2022 (May) Chamath Amarasinghe, SIE, UMaine

2021 (May) Amie Koontz: Communications and Human Behavior, Northern Vermont University

2018 (July) Greg Kritzman: SIE, UMaine.

2015 (Dec.) Zachery Schiller: SIE, UMaine.

2012 (May) Brendan Oshaughnessy: SIE, UMaine

2011 (Aug.) John Bell: Intermedia, UMaine

2011 (Aug.) Richard Corey: Intermedia, UMaine

2010 (Dec.) Benjamin Weber: SIE, UMaine

9.3 Undergraduate Honors Committees (2):

2017 (May) Heather Cross: Psychology, UMaine

2011 (May) Zev Eisenberg: New Media, UMaine

**10. PUBLIC EDUCATION AND INTERACTIVE EXHIBITIONS (2)**

*VEMI is the University leader in hosting tours and public outreach exhibitions to UMaine*

*students / stakeholders.*

2009-Present More than 350 VEMI public education tours / outreach experiences

2009-Present Over 11, 250 people exposed to our work through interactive demos and experiential learning opportunities

**11. TEACHING**

## 11.1 Teaching and Educational Philosophy.

My primary teaching interests encompass domains in experimental design/research methods and Human-Computer Interaction — the area of study that couples human sensation, perception, cognition, learning, memory, and attention, with interface design, usability evaluation, user experience, and human factors engineering. My background in experimental psychology and cognitive neuroscience, paired with my research interests in spatial cognition, multimodal interface design, and virtual/augmented reality technology, strongly influence the ‘flavor’ of my courses.

The guiding tenet of my pedagogical approach is that teaching is an evolving process, and as my students learn from me, I also learn and adapt in response to their divergent backgrounds, talents, and abilities. I place a high priority on the importance of experiential, student-centric education and emphasize teaching to individual needs and learning capabilities. In addition to my formal classes, this hands-on, experiential spirit is evident in the collaborative culture fostered across graduate and under-graduate students working in the VEMI lab (which I founded and cooperatively run/operate with Dr. Richard Corey). My mentorship in this experiential educational process as a large component of my annual teaching load. My goal to merge classroom learning with lab-based experience led to the development of a new undergraduate minor in Human-Computer Interaction at UMaine (of which I am program coordinator). A hallmark of this innovative program is that students are able to spend multiple semesters in the lab working immersively on collaborative projects with other lab members as part of their degree.

## 11.2 Frequently Taught Courses

Fall SIE 516: Virtual Environment Technology and Research (Annually)

Fall SIE 503: Experimental Design (every other year)

Spring SIE 515: Human-Computer Interaction (Annually)

Summer SIE 598: Research Topics (yearly, as needed)

## 11.3 Other Teaching

Spring SIE Graduate Seminar (2010)

Spring Perceptual Correlates of Low Vision, co-taught, UMN (2001, 2003)

Spring Vision Laboratory, UMN (2001, 2003)

Fall Honors seminar: Navigation and Spatial Development, co-taught, UMN (2002)

Fall Human-Machine Interaction, teaching assistant, UMN (2000)

**12. HONORS AND AWARDS (14)**

2021 Dr. Giudice receives the distinguished Ned E. Freeman Excellence in Writing Award from the American Council of the Blind (ACB) in recognition of his Medium essay “COVID-19 and Blindness,” which describes the challenges of blind people during the pandemic: <https://medium.com/@nicholas.giudice/covid-19-and-blindness-why-the-new-touchless-physically-distant-world-sucks-for-people-with-2c8dbd21de63>

2019 Faculty Mentor Impact Award, UMaine.

2015-Present Member of the UMaine Spatial Informatics Program Designated as a Prestigious National Center of Academic Excellence in Geospatial Sciences by the National Geospatial Intelligence Agency (NGA) and the US Geological Survey (USGS).

2014-2017 Dean-appointed, Center for Undergraduate Research (CUGR) Fellow

2011 Nominee, UMaine Supervisor of the Year Award

2010 Early Career Research Award, UMaine College of Engineering

2000-2003 Recipient of the UMN’s Center for Cognitive Sciences James J. Jenkins Award for Outstanding Contributions to the Center

2000 American Foundation for the Blind Award for Academic Excellence

1998 American Foundation for the Blind Award for Excellent Research Potential

1998 American Council of the Blind Award for Work in Vision Sciences

1998 NSF Facilitation Award for Scientists & Engineers with Disabilities

1997 Inducted into Psychology Honors Society - Psi Chi

1997 Inducted into Philosophy Honors Society - Phi Sigma Tau

**13. PROFESSIONAL SERVICE AND LEADERSHIP (35)**

*Summary Metrics:*

* *12 Chair / co-chair positions*
* *6 corporate and nonprofit committees*
* *17 conference / workshop program committees*

2021 Accessibility co-chair on the organizing committee for the 23rd International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS’21). (Oct., Virtual conference). <https://assets21.sigaccess.org/>

2019 Member of the Invited UMaine team at the Broadening Participation in Computing (BPC) Workshop, U. Illinois, Urbana, IL.

2019-Present Executive Committee, The Iris Network, Portland Maine.

2018-Present Technology, Product, & R&D Advisory Committee, AIRA Tech Corp.

2018-Present Agent and Explorer Advisory Committee, AIRA Tech Corp.

2018 Program committee for the Guide Dog Users Inc. (GDUI) national convention. St. Louis, MO (July).

2018 Program committee for ASSETS’18. Galway, Ireland (October).

2018 Program committee for the Spatial Cognition Conference, Tuebingen, Germany (September).

2017 Member, Executive director search committee, The Iris Network, Portland, ME.

2017 Program committee for the 13th International Conference of Spatial Information Theory (COSIT’17) L’Aquila, Italy (September).

2016-Present Program Services committee, The Iris Network. Portland, ME.

2016 Chair, Organizing / planning committee for the Maine Institute for Spatial Technologies (MIST) Conference, Freeport Maine (December).

2016 Program committee for ASSETS 2016, Reno, NV. (October).

2015-2017 Co-chair of the MOBALE grants and fund-raising committee.

2015 Program Committee, Cognitive Science Society (CogSci’15), Pasadena, CA. (July).

2015 Program committee for the Conference on Spatial Information Theory (COSIT’15), Santa Fe, NM. (October).

2014 Program committee for ASSETS 2014, Rochester, NY. (October).

2014 Co-chair EBSSE Panel on conducting Accessible Research (June)

2014 Program committee for the Spatial Cognition Conference, Bremen, Germany (September).

2013 Program committee for the Conference on Spatial Information Theory (COSIT’13), Scarborough, UK. (September).

2013 Program committee for ASSETS 2013, Seattle, WA. (October).

2012 Workshop general co-chair (with C. GRAF & F. SCHMID), Spatial Knowledge Acquisition Using Low Information Displays (SKALID’12). In conjunction with Spatial Cognition 2012, Kloster Seeon, Germany. (August).

2012 Program Committee, Cognitive Science Society (CogSci’12), Sapporo, JP (August).

2012 Workshop general co-chair (with B. Dara-Abrams), Designing Human-Centered Products and Services for Older Adults. Workshop given in conjunction with the American Society on Aging conference (ASA’12), Washington D.C. (March).

2011 General Co-Chair, Conference on Spatial Information Theory (COSIT’11), Belfast, ME (September).

2011 Program Committee, Workshop on Processes and Events in Spatio-Temporally Distributed Data, with COSIT2011, Belfast, ME (September).

2011 Program Committee, Cognitive Science Society (CogSci2011), Boston, MA (July)

2010 Program Committee, Workshop on Environmental Modeling: Using Space Syntax in Spatial Cognition Research, Mt. Hood, OR (August).

2009 General Chair, Workshop on Virtual Environment Technology for research, UMaine (January).

2006-2008 Chair, monthly interdisciplinary spatial cognition research meeting, UCSB.

2006 Session Chair, Conference on Assistive Technologies for People with Vision and Hearing Impairments, Kufstein, Austria (July).

2000-2003 Chair, Center for Cognitive Sciences external colloquium series, UMN.

2001-2002 Chair, bi-weekly colloquium of vision science lectures, UMN.

1999-2000 Member, Editorial Board, Center for Cognitive Science's Millennium Project, UMN.

1993-1997 Student Congress Representative, Junior Class Vice President, PC.

**14. INSTITUTIONAL SERVICE AND COMMITTEE PARTICIPATION (26)**

*Summary Metrics: Involvement on 26 university committees including:*

* *9 on information technology, inclusion, and accessibility*
* *6 on research and resources*
* *2 on curriculum review*
* *4 on policy development*
* *2 on search committees*
* *1 on award nomination committee*
* *2 on faculty mentorship*

2021-Present Invited member, President's Commission on Excellence and Equity (UMaine 2025), UMaine.

2021-2022 Faculty Mentor to Dr. Caitlin Howell in the Enhanced Mentoring Program with Opportunities for Ways to Excel in Research (EMPOWER) Program.

2021-2022 Invited member, MCECIS planning committee for buildings and resources, UMaine

2019-2022 Chair, Spatial Informatics Faculty Peer Committee, UMaine.

2019-Present Chair, SCIS Interdisciplinary Research Committee, UMaine

2018 Member of the Goldwater Application Review Committee, UMaine

2017-2020 Faculty mentor, Top Scholar Program, UMaine

2017 Member, New Media faculty search committee, UMaine

2017 Chair, Spatial Informatics faculty search committee, UMaine

2016-2020 Interdisciplinary disability studies advisory committee, UMaine

2016-2018 CIS Policy advisory committee, UMaine

2015-2016 Office of Research & Sponsored Projects Communications Committee, UMaine

2014-2018 Information Technology Strategic Council (ITSC), UMaine

2014-2018 Information Technology Accessibility Committee (ITAC), UMaine Systems

2013-Present Chair, CIS committee on research innovation

2013-2014 CIS faculty representative on the UMaine Graduate Board

2011-2017 Information Technology Accessibility Subcommittee for the President's Council on Disabilities, UMaine

2011-2016 Labs and systems committee, CIS, UMaine

2010-2017 President's Council on Disabilities, UMaine

2010-2012 Facilities Management Committee on Pedestrian Access, UMaine

2009-2013 Academic Excellence Committee, UMaine

2008-2011 Accessible Information Committee, UMaine

2003-2004 Student Representative, Center for Cognitive Sciences Governing Council, UMN

1996-1997 Vice Chair, Legislative Affairs Committee, PC

1994-1997 Presidential Appointee, ADA Advisory Committee, PC

1995-1996 Student Representative, Curriculum Review Committee for Providence College Accreditation

**15. PROFESSIONAL MEMBERSHIPS & ORGANIZATIONS (8)**

*Summary Metrics: Present / past affiliation with 8 organizations including:*

* *2 blindness advocacy groups*
* *4 scientific societies*
* *2 special interest groups*

2015-Present Member of the Pine Tree Guide Dog User Group

2013-Present ACB of Maine (member)

2012-2015 Full Member, American Society on Aging

2010 Learning Circle on Universal Design, UMaine

2009-2010 Learning Science Special Interest Group, UMaine

2009-2018 Full Member, Psychonomics Society

2009-2018 Delegate, University Consortium for Geographic Information Science

2002-2006 Member, The Vision Sciences Society

**16. EDITORIAL SERVICE (60)**

*Summary Metrics: 100s of reviews in 60 outlets, including:*

* *45 unique scientific journals and conferences*
* *11 research grants*
* 2 books
* *2 expert commentaries*

16.1 Ad Hoc Journal / Conference Reviewer (45 Outlets):

ACM SIGACCESS Conference on Computers and Accessibility (ASSETS); ACM Transactions on Applied Perception; ACM Transactions on Accessible Computing (TACCESS); ACM SigCHI conference; Assistive Technology; Biology Letters; Canadian Journal of Experimental Psychology; Cartography and Geographic Information Science; Cognition; Cognitive Processing; Cognitive Research: Principles and Implications; Cognitive Science; Cognitive Science Conference; Conference on Spatial Information Theory (COSIT); Euro Haptics; Frontiers in Neuroscience; Gait and Posture; Human-Computer Interaction; IEEE Haptics Symposium; IEEE Transactions on Haptics; IEEE Transactions on Human-Machine Systems; IEEE Transactions on Media; IEEE Transactions on Systems, Man, and Cybernetics; International Journal of Human-Computer Studies, Investigative Ophthalmology & Visual Science (IOV); Journal of Spatial Information Science (JOSIS); Journal of Experimental Psychology- Applied; Journal of Experimental Psychology- Learning, Memory, and Cognition; Journal of Multimodal User Interfaces; Journal of Navigation; Journal of Visualized Experiments; Journal of Visual Impairment and Blindness (JVIB); Memory and Cognition; Neuroscience & Biobehavioral Reviews; Perception; Perception and Psychophysics; PLOS One; Psychonomic Bulletin & Review (PBR); Sensors; Spatial Cognition and Computation; Spatial Cognition conference; Universal Access in the Information Society (UAIS); Transactions on Neural Systems & Rehabilitation; and Visual Impairment Research.

16.2 External Grant Reviewer (8):

2016 ETH Zurich Research Commission research proposal Switzerland; 2013 Austrian Science Fund Research proposal; 2013 NSF, ORA proposal; 2012 University of Wisconsin Research Growth Initiative; 2010 NSF, GSS Early Career Award; 2009 NSF, BCS proposal; 2008 Netherlands Organization for Health Research and Development Grant for In-sight, ZonMw, Netherlands; and 2005 Ophthalmic Research Grant by the Institute of Ophthalmology, UCL, UK.

16.3 Panel Grant Reviewer (3):

2019 National Cooperative Highway Research Program (NCHRP) review panel.

2011 Department of Education, Office of Special Ed., Video Description Program.

2011 Department of Education, Office of Special Ed., Technology & Media Program.

16.4 Book Reviewer (2):

2015 Springer publications

2008 MIT Press, Cambridge, MA.

16.5 Expert Commentary and Analysis (2):

2014 Where Am I. Reviewed documentary on navigation by Bullfrog Films, written and directed by Bruce Mohun.

2007 (April) The Boy Who Sees with Sound. Helped design and run experiments during filming of this BBC and Discovery channel documentary on echolocation.

**17. LEGISLATIVE AND POLICY (2)**

2022-Present Member. Scholars Strategy Network (SSN), Maine Chapter

2021 (Mar.) Fink, P.D.S. and Giudice, N.A. Technology Policy Accelerator Fellow: [Day One Project](https://www.dayoneproject.org/), an initiative of the Federation of American Scientists. 1 of 30 Fellows selected to identify, develop, and publish a set of technology policy ideas that could be implemented by Congress or the Biden-Harris Administration. Our proposal seeks to translate research related to accessible autonomous vehicles into actionable federal policy.

**18. COMMUNITY SERVICE AND OUTREACH (9)**

2019 (March) VEMI Lab workshop at the 5th annual Maine Science Festival. In this workshop, kids were taught how to use Python to derive statistics from a dataset, and how to take statistics from recent Twitter data.

2018 (March) VEMI Lab exhibition at the 4th annual Maine Science Festival. In this drop-in workshop, VEMI ran a demo room where kids had the opportunity to explore cutting-edge research using Vive headsets and iPad tablets and engage in an interactive coding scenario. Cross Insurance Center, Bangor Maine.

2017 (March) VEMI Lab exhibition at the 3nd annual Maine Science Festival. Provided a hands-on seminar on code and 3D modeling for kids. Cross Insurance Center, Bangor Maine.

2016 (March) VEMI Lab exhibition at the 2nd annual Maine Science Festival. Provided interactive demos and presentations of student research to over 2500 members of the community/state from 5 to 80 years of age. Cross Insurance Center, Bangor Maine.

2015 (March) VEMI Lab exhibition at the inaugural Maine Science Festival. Provided interactive demos and presentations of student research to over 4500 members of the community/state from 5 to 80 years of age. Cross Insurance Center, Bangor Maine.

2012-2017 Staff for New England Blind Athletic Association’s Annual Summer Sports Education Camp for Blind and Visually Impaired Youth, UMaine, Orono, ME.

2012-2017 Staff for New England Blind Athletic Association’s Annual Winter Sports Education Camp for Blind and Visually Impaired Youth, Sunday River Ski Resort, Bethel, ME.

2007-2008 Member of the Access Advisory Committee for the City of Santa Barbara, CA.

2007 Volunteer Computer Instructor, Braille Institute, Santa Barbara, CA.

**19. MEDIA, NEWS, AND PUBLIC RELATIONS (****87)**

*Outlets about me, VEMI, or where either are mentioned by name*

*Summary Metrics: 87 media / publicity pieces*

2022 (Sept. 6) Grid “[Autonomous vehicles were supposed to push gas-powered cars off the](https://scienmag.com/app-will-help-visually-impaired-seniors-enjoy-ride-sharing-with-self-driving-cars/)

[road in the future. Will we ever get there?](https://scienmag.com/app-will-help-visually-impaired-seniors-enjoy-ride-sharing-with-self-driving-cars/)” News Piece

2022 (Aug. 26) The New England Council “[UMaine Lab Researching Self-driving Cars and Virtual Reality”](https://www.newenglandcouncil.com/news-article/umaine-lab-researching-self-driving-cars-and-virtual-reality/) News Piece

2022 (Aug. 22) Bangor Daily News “[The cutting edge UMaine lab Researching self-driving cars and virtual reality](https://www.bangordailynews.com/2022/08/22/news/bangor/umaine-lab-self-driving-cars-joam40zk0w/)” News Piece

2022 (Aug. 22) Government Technology “[UMaine Research Lab Expanding Access to Autonomous Vehicles”](https://www.govtech.com/education/higher-ed/umaine-research-lab-expanding-access-to-autonomous-vehicles) News Piece

2022 (Aug. 19) Assistive Technology Update “[DOT Inclusive Design Challenge Winners - 3rd Place - AVA app Project with Nicholas Giudice and Richard Corey of VEMI Lab at the University of Maine](https://www.google.com/search?q=DOT+Inclusive+Design+Challenge+Winners+-+3rd+Place+-+AVA+app+Project+with+Nicholas+Giudice+and+Richard+Corey+of+VEMI+Lab+at+the+University+of+Maine&oq=DOT+Inclusive+Design+Challenge+Winners+-+3rd+Place+-+AVA+app+Project+with+Nicholas+Giudice+and+Richard+Corey+of+VEMI+Lab+at+the+University+of+Maine&aqs=chrome..69i57.375j0j4&sourceid=chrome&ie=UTF-8)” Podcast

2022 (Aug.) Ability Magazine “[Pete Buttigieg — Building a Better & More Accessible America.](https://abilitymagazine.com/pete-buttigieg-building-a-better-more-accessible-america/)” News Piece

2022 (July 27) Bangor Daily News “[VEMI Lab researchers earn federal prize, invite to White House for software that makes self-driving cars more accessible](https://www.bangordailynews.com/2022/07/27/bdn-maine/vemi-lab-researchers-earn-federal-prize-invite-to-white-house-for-software-that-makes-self-driving-cars-more-accessible/)” News Piece

2022 (July 27) UMaine News “[Media features VEMI Lab’s federal prize for self-driving car software](https://umaine.edu/news/blog/2022/07/27/media-features-vemi-labs-federal-prize-for-self-driving-car-software/)” News Piece

2022 (July 27) Mass Transit “[USDOT names three winners of Inclusive Design Challenge](https://www.masstransitmag.com/alt-mobility/autonomous-vehicles/article/21275514/usdot-names-three-winners-of-inclusive-design-challenge)” News Piece

2022 (July 26) U.S. Department of Transportation “[On Anniversary of ADA, USDOT Announces Winners of its First-Ever Inclusive Design Challenge](https://www.transportation.gov/briefing-room/anniversary-ada-usdot-announces-winners-its-first-ever-inclusive-design-challenge)” News Piece

2022 (July 26) News Center Maine “[UMaine researchers create software that will make rideshare inclusive](https://www.newscentermaine.com/article/news/local/umaine-researchers-create-software-that-will-make-rideshare-inclusive-community/97-e429cc64-8983-4bf5-9ab3-603b0fb6f44b#:~:text=The%20VEMI%20Lab%20at%20UMaine,driving%20cars%20for%20ridesharing%20services.)” News Piece

2022 (July 26) Fox Bangor News “[VEMI Labs receives recognition for AVA](https://www.foxbangor.com/news/item/vemi-labs-receives-recognition-for-ava/#:~:text=ORONO%20%E2%80%94%20A%20group%20of%20University,white%20house%20recognition%20ceremony%20virtually.)” News Piece

2022 (July 26) UMaine News “[VEMI Lab researchers earn federal prize, invite to White House for software that makes self-driving cars more accessible](https://umaine.edu/news/blog/2022/07/26/vemi-lab-researchers-earn-federal-prize-invite-to-white-house-for-software-that-makes-self-driving-cars-more-accessible/#:~:text=The%20VEMI%20lab%20at%20the,cars%20for%20ride%2Dsharing%20and)” News Piece

2022 (Jan. 25) Bangor Daily News “[Self-driving vehicles are our future. UMaine is showing us how](https://www.bangordailynews.com/2022/01/25/opinion/opinion-contributor/self-driving-vehicles-are-our-future-umaine-is-showing-how-joam40zk0w/).” News Piece

2021 (Apr. 22) The Maine Question podcast “[How can we get the most out of technology?](https://umaine.edu/podcasts/2021/04/22/s4e9-how-can-we-get-the-most-out-of-technology/)” featuring Dr. Rick Corey, Dr. Caitlin Howell, and Dr. Nicholas Giudice discussing VEMI Lab.

2021 (Mar. 26) Easterseals Crossroads podcast “[ATU513 – AVA App Project with Nicholas Giudice and Richard Corey](https://www.eastersealstech.com/2021/03/26/atu513-ava-app-project-with-nicholas-giudice-and-richard-corey/)”.

2021 (Mar. 15) Inside Autonomous Vehicles “[Smartphone App May Help Seniors, People With Disabilities Enjoy Robo-Taxis](https://insideautonomousvehicles.com/smartphone-app-may-help-seniors-people-with-disabilities-enjoy-robo-taxis/)” News Piece

2021 (Mar. 14) Blind and Beyond radio show "[Making AVs accessible for BVI users](https://www.blindandbeyondradioshow.org/uploads/7/5/2/6/75264243/b_b_sun_03-14-21__hr2_.mp3)”.

2021 (Feb. 2) Bangor Daily News “[App from VEMI Lab group will help people with visual impairments, seniors enjoy ride sharing with self-driving cars](https://bangordailynews.com/2021/02/02/bdn-maine/app-from-vemi-lab-group-will-help-people-with-visual-impairments-seniors-enjoy-ride-sharing-with-self-driving-cars/)” News Piece

2021 (Feb. 1) Fox 22 WFVX “[Self-driving car app is coming to Maine](https://www.foxbangor.com/news/item/a-self-driving-car-app-is-coming-to-maine/)” News Piece

2021 (Jan. 29) News Medical “[Smartphone app will people with disabilities and seniors use autonomous vehicles](https://www.news-medical.net/news/20210129/Smartphone-app-will-people-with-disabilities-and-seniors-use-autonomous-vehicles.aspx)” News Piece

2021 (Jan. 29) Science Magazine “[App Will Help Visually Impaired, Seniors Enjoy Ride-Sharing With Self-Driving Cars](https://scienmag.com/app-will-help-visually-impaired-seniors-enjoy-ride-sharing-with-self-driving-cars/)” News Piece

2021 (Jan. 29) Apple News “[App will help visually impaired, seniors enjoy ride-sharing with self-driving cars](https://apple.news/AH3jNSqm7Tq2Ub_T15AqNrg)”. News Piece

2021 (Jan. 29) UMaine News “[App from VEMI Lab group will help people with visual impairments, seniors enjoy ride-sharing with self-driving cars](https://umaine.edu/news/blog/2021/01/29/app-from-vemi-lab-group-will-help-people-with-visual-impairments-seniors-enjoy-ride-sharing-with-self-driving-cars/)” News Piece

2021 (Jan. 23) Associated Press “[UMaine developing ride hailing tool for older residents](https://apnews.com/article/susan-collins-angus-king-bangor-maine-413190d481d0846e24f6986f20b8ced0)” News Piece.

2021 (Jan. 23) Lewiston Sun Journal “[UMaine developing ride hailing tool for visually impaired and older residents](https://www.sunjournal.com/2021/01/23/umaine-developing-ride-hailing-tool-for-visually-impaired-and-older-residents/)”. News Piece.

2021 (Jan. 23) US News and World Report “[UMaine developing ride hailing tool for older residents](https://www.usnews.com/news/best-states/maine/articles/2021-01-23/umaine-developing-ride-hailing-tool-for-older-residents)”. News Piece.

2021 (Jan. 23) WHDH Tv 7 NEWS Boston “[UMaine developing ride hailing tool for older residents](https://whdh.com/news/umaine-developing-ride-hailing-tool-for-older-residents/)s”. News Piece.

2021 (Jan. 19) Senator Susan Collins “[Senators Collins, King Announce $300,000 to Connect Seniors with Ride-Hailing Services](https://www.collins.senate.gov/newsroom/senators-collins-king-announce-300000-connect-seniors-ride-hailing-services)”. Press Release.

2021 (Jan. 11) Giudice Audio interview on Connecticut’s CRIS Radio Focal Point program discussing COVID-19 and blindness and accessibility research.

2020 (Sept. 9) Dr. Giudice and Dr. Corey discuss autonomous vehicles on the [podcast: In Machines We Trust, episode: AI in the Driver’s Seat](https://podcasts.google.com/feed/aHR0cHM6Ly9mZWVkcy5tZWdhcGhvbmUuZm0vaW5tYWNoaW5lc3dldHJ1c3Q?sa=X&ved=0CAIQ4aUDahcKEwjw_--c49zrAhUAAAAAHQAAAAAQFw&hl=en), hosted by Jennifer Strong and MIT Technology Review.

2020 (July 11) Dr. Giudice discusses VEMI accessibility research and also challenges of navigating with blindness in the COVID-19 environment on the [Pulse (accessibility) podcast](https://www.stitcher.com/podcast/amiaudio/the-pulse-on-amiaudio/e/75589527).

2020 (Apr. 15) Medical Press "[Researchers find efficacy in new digital map in aiding visually impaired](https://medicalxpress.com/news/2020-04-efficacy-digital-aiding-visually-impaired.html)" News Piece.

2020 (Mar 27) News Center Maine "[New app created in Maine aims to reduce opioid deaths](https://www.newscentermaine.com/article/news/health/new-app-created-in-maine-aims-to-reduce-opioid-deaths/97-706250f0-17cd-47b6-b9cb-d14050920263)" News Piece.

2020 (Mar. 26) Central Maine News "[New mobile app is the latest tool to help Mainers fight opioid overdoses](https://www.centralmaine.com/2020/03/26/maine-hopes-new-mobile-app-reduces-opioid-overdose-deaths/)" News Piece.

2020 (Jan. 17) WABI TV "[VEMI lab hosts fifth annual 'Rapid Research Week](https://www.wabi.tv/content/news/VEMI-lab-hosts-fifth-annual-Rapid-Research-Week-567086781.html)" News Piece.

2020 (Jan. 17) Fox 22 WFVX “[University of Maine’s VEMI Lab wraps up Rapid Research Week 2020](https://foxbangor.com/news/item/university-of-maines-venmi-lab-wraps-up-rapid-research-week-2020/)” News Piece.

2019 (Aug. 23) UMaine News “[UMaine research project focuses on improving trust in autonomous vehicles using human-vehicle collaboration](https://umaine.edu/news/blog/2019/08/23/umaine-research-project-on-improving-trust-in-autonomous-vehicles-using-human-vehicle-collaboration/)” News Piece

2019 (July 22) Bowdoin College “[Virtual Reality Opens Up New Worlds at Bowdoin](https://www.bowdoin.edu/news/2019/07/virtual-reality-at-bowdoin.html)” News Piece.

2019 (Feb. 8) UpStart Maine, “[Featured Founder: Creating Digital Media Accessible for the Visually-Impaired](https://www.upstartmaine.org/single-post/2019/02/08/Featured-Founder-Creating-Digital-Media-Accessible-for-the-Visually-Impaired)” Blog post.

2018 (Nov. 28) Bowdoin College “[Expanding Access to STEM](http://bowdoin.edu/news/2018/11/expanding-access-to-stem.html)” News Piece.

2018 (Nov. 15) UMaine News “[Social Media Spotlight: Justin Hafner](https://umaine.edu/news/blog/2018/11/15/social-media-spotlight-justin-hafner/)” News Piece.

2018 (Oct. 24) University of New England Research Seminar “[VEMI Lab: Innovation in Research Education”](https://www.youtube.com/watch?v=Hoy31xWt6hI) Live Stream.

2018 (Aug. 31) The Maine Edge “[UMaine receives National Science Foundation grant](https://www.themaineedge.com/tekk/umaine-receives-national-science-foundation-grant)” News Piece.

2018 (June 3) Washington Times “[Arkansas man invents 'roboglasses' for the blind](https://www.washingtontimes.com/news/2018/jun/3/arkansas-man-invents-roboglasses-for-the-blind/)” News Piece.

2017 (Mar. 08) Blind Abilities Podcast “[Second installment in the Aira series: the visual Interpreter for the blind](https://blindabilities.com/?p=2425)” Podcast.

2017 (Feb. 03) ACB Main Menu weekly accessible technology program, “[The Aira visual interpreter is introduced](https://mainmenu.pinecast.co/episode/f18abc7636dc436b/main-menu-for-fri-03-feb-2017-00-00-00-0500)” Podcast.

2017 (Spring) Maine Alumni Magazine “[Eye-opening Education](https://www.flipsnack.com/UMaineAlumni/spring-2017-maine-alumni-magazine.html)”. Magazine Article.

2016 (May. 6) UMaine Today, [WLBZ reports on sensor technology research to help older adults stay at home](https://umaine.edu/news/blog/2016/05/06/wlbz-reports-sensor-technology-research-help-older-adults-stay-home/). News piece.

2016 (April. 20) VRNews Blog, [Virtual Terrain Simulator is a VR Peripheral that Replicates Ground Surfaces](https://www.vrfocus.com/2016/04/virtual-terrain-simulator-is-a-vr-peripheral-the-replicates-ground-surfaces/). News piece.

2016 (Mar. 23) SCIS News, [SCIS Students Continue STEM Outreach](https://umaine.edu/scis/2016/03/23/scis-students-continue-stem-outreach/). News piece.

2016 (Feb. 15) SCIS News, [VEMI Continues Outreach to Inspire Maine Kids with STEM Education](https://umaine.edu/scis/2016/02/15/vemi-continues-outreach-to-inspire-maine-kids-with-stem-education/). News piece.

2016 (Feb. 11) Lincoln Academy Blog, [Virtual Reality: Our Future World? Teen Science Café.](https://www.lincolnacademy.org/2016/02/virtual-reality-our-future-world-teen-science-cafe/) News piece.

2015 (Dec. 21) Portland Press Herald - [Dartmouth, UMaine aim to help scholars study historic films](https://www.newscentermaine.com/article/news/dartmouth-umaine-aim-to-help-scholars-study-historic-films/97-22227235). News piece.

2015 (Dec. 21) UMaine Today, News - [VEMI Lab cited in Dartmouth News Article](https://umaine.edu/news/blog/2015/12/21/vemi-lab-cited-in-dartmouth-news-article/). News piece.

2015 (Dec. 18) Dartmouth Now - [Mark Williams and Media Ecology Project Receive NEH Grant](https://news.dartmouth.edu/news/2015/12/mark-williams-and-media-ecology-project-receive-neh-grant). News piece.

2015 (Oct. 21) WFVX Fox Bangor - Back to the Future Day. Story

2015 (Aug. 14) WABI TV5 - UMaine Hosts Telehealth Conference. News piece.

2015 (Aug. 14) WVII ABC 7 - [Senator King Calls for More Telemedicine; Asking for Regulatory Change and Broadband Expansion](https://foxbangor.com/news/item/10815-senator-king-calls-for-more-telemedicine-asking-for-regulatory-change-and-broadband-expansion/). News piece.

2015 (Aug. 13) King.Sentate.Gov - At Telehealth Roundtable, King Calls for Increased Investment and Federal Support for Telemedicine. News piece.

2015 (Aug. 13) MPBN - [Sen. King Calls for More Investment in Telemedicine](https://www.mainepublic.org/post/sen-king-calls-more-investment-telemedicine). News piece.

2015 (Aug.) University of Maine: Go Maine - Exploring Frontiers at UMaine. Coverage

2015 (June 26) Bangor Daily News - [Retirees: These gadgets will help you stay in your home longer](https://bangordailynews.com/2015/06/26/next/a-tech-friendly-future-for-seniors-from-smart-homes-to-an-app-that-lets-you-read-to-grandchildren-remotely/). News piece.

2015 (June 19) Portland Monthly - Tomorrowland. [VEMI Lab Igniting imagination](https://www.portlandmonthly.com/portmag/2015/06/tomorrowland/). News piece.

2015 (Mar. 21) WABI-TV 5 - First-Ever Maine Science Festival in Bangor. News piece.

2015 (Mar. 5) WABI-TV 5 - UMaine Undergrads Assembling Technology to Enhance Virtual Reality Programs. News piece.

2015 (Feb. 19) Bangor Daily News - [A Republican and Democrat agree: Strong UMaine strengthens state’s future.](https://bangordailynews.com/2015/02/19/opinion/a-republican-and-democrat-agree-strong-umaine-strengthens-states-future/) News piece.

2014 (Nov. 6) Bangor Daily News - [UMaine showcases cross-disciplinary aging research and technology](https://bangordailynews.com/2014/11/06/living/umaine-showcases-cross-disciplinary-aging-research-and-technology/). News piece.

2014 (Oct.27) UMaine Today, News – [Wind Turbines Unlikely to Chase Tourists Away, Research Shows](https://umaine.edu/mitchellcenter/news/news-2/proposed-wind-turbines-unlikely-to-chase-tourists-away/). News piece.

2014 (Oct. 2) WFVX TV FOX 22 - VEMI Lab Showcases Updated Virtual & Touch Devices. News piece.

2014 (Aug. 1) Maine Department of Labor - [Program That Prepares Students Who Are Blind or Visually Impaired for College Highlights Opportunity, Teaches Independence](https://www.maine.gov/labor/news_events/article.shtml?id=625331). News piece.

2014 (May 19) UMaine Today, News – [High-tech Wind Farm Simulation Awaits Monhegan Island Tourists](https://umaine.edu/mitchellcenter/news/news-2/high-tech-wind-farm-simulation-awaits-mohegan-island-tourists/). News piece.

2014 (Apr. 22) [The Senator George J. Mitchell Center: Sustainability Solutions Initiative](https://umaine.edu/mitchellcenter/2014/05/19/high-tech-wind-farm-simulation-awaits-mohegan-island-tourists/)   
News piece on Wind Farm Simulation by Tamara Field.

2014 (Mar. 24) The Maine Campus - [UMaine VEMI Lab combines research, technology, and friendship](https://digitalcommons.library.umaine.edu/mainecampus/5198/). Story.

2014 (Feb. 13) WABI TV5 - UMaine Students Show off “Virtual Reality”. News piece.

2014 (Feb. 13) WVII ABC TV 7 - VEMI Lab on UMaine Campus Holds Open House. News piece.

2013 (Feb. 8) Bangor Daily News - [UMaine researchers working to shape the future of virtual sight](https://bangordailynews.com/2013/02/08/news/bangor/umaine-researchers-working-to-shape-the-future-of-virtual-sight/). Story.

2013 (Feb. 6) WFVX TV Bangor - Committee Looks to UMaine Students for Workforce Preparedness. Coverage.

2013 (Jan. 6) WZON (AM 620) - Ongoing research in the VEMI Lab. Radio interview.

2012 (Dec.) UMaine Today Winter Magazine- [Space Travel: How can virtual reality inform our navigation of real-world environments](https://umainetoday.umaine.edu/umaine-today-winter-2012/)? News piece.

2012 (April) UMaine College of Liberal Arts and Sciences Look Book annual Magazine  
N.A. Giudice and the VEMI Lab. News piece.

2011 (Nov. 10) The Maine Campus - [Get plugged in: UMaine virtual reality lab creates something from nothing](https://digitalcommons.library.umaine.edu/mainecampus/67/). News piece.

2010 (Dec.) UMaine ORSP Annual Research Highlights on Giudice’s NSF grant No. CDI-0835689.

2010 (Nov.) UMaine News piece on Giudice and collaborator’s NSF Grant No. CDI-1028895.

2009 (Oct.) VEMI Lab featured in news article for the UMaine College of Engineering Magazine.

2009 (April) Featured on the Economic Report, (CNN & Discovery), as part of a news piece on the Maine-based company Intelligent Spatial Technologies.

2007 (March) Checking the Coordinates. Interviewed for Op-Ed piece on the connection between psychology and geography by R. Adelson (March 2007): APA Monitor on Psychology, 38(3), P.16.

**20. OTHER GENERALLY USEFUL SKILLS**

* Big "picture" thinker
* Creative problem solver
* Excellent listener and communicator
* Intellectual stimulator
* Professional dog handler
* Well-developed sense of humor
* World-class hugger

**21. REFERENCES AND REPRINTS AVAILABLE ON REQUEST**

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[www.umaine.edu/vemi](http://www.vemilab.org/)

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