

Peter Stechlinski

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Google Scholar Profile
September 23, 2026

ACADEMIC POSITIONS

2022–	Associate Professor, Department of Mathematics and Statistics, University of Maine, Orono ME
2022–	Graduate Coordinator, Department of Mathematics and Statistics, University of Maine, Orono ME
2017–22	Assistant Professor, Department of Mathematics and Statistics, University of Maine, Orono ME
2015–17	Postdoctoral Fellow, Process Systems Engineering Laboratory, Massachusetts Institute of Technology, Cambridge MA

EDUCATION

2014	PhD, Department of Applied Mathematics, University of Waterloo, Waterloo, Canada
2009	M.Math, Department of Applied Mathematics, University of Waterloo, Waterloo, Canada
2007	B.Math, Department of Applied Mathematics, University of Waterloo, Waterloo, Canada

GRANTS, AWARDS, AND FELLOWSHIPS

Awarded 2026-29	National Science Foundation (DMS-Mathematical Biology, #2602256). <i>Collaborative Research: Analysis of Nonsmooth Oscillatory Dynamical Systems with Applications to the Lower Urinary Tract.</i> Role: PI
Awarded 2024-27	National Science Foundation (DMS-AMPS-Algorithms for Modern Power Systems, #2318773). <i>Collaborative Research: AMPS: New Sensitivity and Control Theory and Tools for Systems Exhibiting Extreme Behaviors and Faults with Application to Wind Turbines.</i> Role: PI
Awarded 2022	UMaine (Faculty Summer Research Fund Award). <i>Nonsmooth Neural Networks and Machine Learning Algorithms.</i> Role: PI
Awarded 2021–22	UMaine (Enhanced Mentoring Program with Opportunities for Ways to Excel in Research (EMPOWER) Program). Role: PI
Awarded 2019–20	UMaine (CLAS Pre-Tenure Faculty Research and Creative Activity Fellowship). <i>Analyzing the Qualitative Behavior of Riots Using a Nonsmooth Framework.</i> Role: PI

Awarded 2018	Bangor Savings Bank and Lyndon Paul Lorusso Memorial Faculty Development Fund (Travel Grant).
Awarded 2015–17	National Sciences and Engineering Research Council of Canada (NSERC-Postdoctoral Fellowship).
Awarded 2011–14	Natural Sciences and Engineering Research Council of Canada – Alexander Graham Bell Canada Graduate Scholarship (CGS D).

PUBLICATIONS

Key: author worked on project as * = undergraduate student † = graduate student.

Published/Accepted Journal Articles

- 2026 C. Howell[†] and P. Stechlinski. Parametric sensitivities of a nonsmooth Wilson-Cowan model with a comparison to its smooth counterpart, **Mathematical Biosciences**, 402, 109798 (19 pages).
- 2026 H. Abdelfattah[†], S.A. Eisa, P. Stechlinski and S. Attallah. A novel approach of AI in wind turbines: training via optimal control solutions and real-time execution via machine learning, **Electric Power Systems Research**, 258, 113099 (10 pages).
- 2026 H. Abdelfattah[†], S.A. Eisa and P. Stechlinski. Observability analysis and state estimation of wind turbine power systems: a novel sensitivity-based approach, **IFAC Journal of Systems and Control**, 35, 100370 (10 pages).
- 2025 H. Abdelfattah[†], S.A. Eisa and P. Stechlinski. Observability and state estimation for smooth and nonsmooth differential algebraic equation systems, **IEEE Control Systems Letters (L-CSS)**, 9, 2507-2512. (arxiv:2508.18476)
- 2025 S. Bjorvand[†], J. Jäschke and P. Stechlinski. Generalized derivatives of nonsmooth discrete-time systems, **SIAM Journal on Applied Dynamical Systems**, 24, 1969-2004.
- 2025 P. Stechlinski, S.A. Eisa and H. Abdelfattah[†]. Identifiability and observability of nonsmooth systems via Taylor-like approximations, **IEEE Transactions on Automatic Control (TAC)**, 70, 4178-4185. (arXiv:2403.12930)
- 2025 H. Abdelfattah[†], S.A. Eisa and P. Stechlinski. A new nonsmooth optimal control framework for wind turbine power systems, **Journal of the Franklin Institute**, 365, 107498 (19 pages). (arXiv:2411.09830)
- 2024 H. Abdelfattah[†], P. Stechlinski and S.A. Eisa. Parameter identifiability and reduction for smooth and nonsmooth differential-algebraic equation systems, **IEEE Control Systems Letters (L-CSS)**, 8, 3159-3164.
- 2023 J. Donnelly* and P. Stechlinski. Analyzing the influence of agents in trust networks: applying nonsmooth eigensensitivity theory to a graph centrality problem, **SIAM Journal on Matrix Analysis and Applications**, 44, 1271-1298.
- 2023 C. Butler* and P. Stechlinski. Modeling opioid abuse: a case study of the opioid crisis in New England. **Bulletin of Mathematical Biology**, 85, 45 (28 pages).
- 2023 P. Stechlinski. Dynamic optimization of complementarity systems, **IEEE Transactions on Automatic Control (TAC)**, 68, 1122-1129.

- 2022 P. Stechlinski. Generalized derivatives of eigenvalues of a symmetric matrix, **Linear Algebra and Its Applications** 649, 63-95.
- 2021 M. Ackley[†] and P. Stechlinski. Determining key parameters in riots using lexicographic directional differentiation, **SIAM Journal on Applied Mathematics** 81, 1303-1331.
- 2021 P. Stechlinski. Theory of index-one nonlinear complementarity systems, **Journal of Differential Equations** 285, 99-127.
- 2021 M. Ackley[†] and P. Stechlinski. Lexicographic derivatives of nonsmooth glucose-insulin kinetics under normal and artificial pancreatic responses, **Applied Mathematics and Computation** 395, 125876 (17 pages).
- 2021 S.A. Eisa and P. Stechlinski. Sensitivity analysis of nonsmooth power control systems with an example of wind turbines, **Communications in Nonlinear Science and Numerical Simulation** 95, 105633 (14 pages).
- 2021 P. Stechlinski and P.I. Barton. Nonsmooth Hessenberg differential-algebraic equations. **Journal of Mathematical Analysis and Applications** 495, 124721 (33 pages).
- 2020 P. Stechlinski. Optimization-constrained differential equations with active set changes. **Journal of Optimization Theory and Applications** 187, 266-293.
- 2019 P. Stechlinski, J. Jäschke and P.I. Barton. Generalized sensitivity analysis of nonlinear programs using a sequence of quadratic programs. **Optimization** 68, 485-508.
- 2018 P. Stechlinski, M. Patrascu, and P.I. Barton. Nonsmooth differential-algebraic equations in chemical engineering. **Computers and Chemical Engineering** 114, 52-68.
- 2018 P.I. Barton, K.A. Khan, P. Stechlinski, and H.A.J. Watson[†]. Computationally relevant generalized derivatives: theory, evaluation and application. **Optimization Methods and Software** 33, 1030-1072.
- 2018 P. Stechlinski, K.A. Khan, and P.I. Barton. Generalized sensitivity analysis of nonlinear programs. **SIAM Journal on Optimization** 28, 272-301.
- 2018 X.Z. Liu and P. Stechlinski. Switching and impulsive control algorithms for nonlinear hybrid dynamical systems. **Nonlinear Analysis: Hybrid Systems** 27, 307-322.
- 2017 X.Z. Liu and P. Stechlinski. Switching vaccination schemes for vector-borne diseases with seasonal fluctuations. **Journal of Biological Systems** 25, 441-477.
- 2017 P. Stechlinski and P.I. Barton. Dependence of solutions of nonsmooth differential-algebraic equations on parameters. **Journal of Differential Equations** 262, 2254-2285.
- 2016 P. Stechlinski and P.I. Barton. Generalized derivatives of differential-algebraic equations. **Journal of Optimization Theory and Applications** 171, 1-26.
- 2016 X.Z. Liu and P. Stechlinski[†]. Hybrid stabilization and synchronization of nonlinear systems with unbounded delays. **Applied Mathematics and Computation** 280, 140-161.
- 2015 X.Z. Liu and P. Stechlinski[†]. Application of control strategies to a seasonal model of chikungunya disease. **Applied Mathematical Modelling** 39, 3194-3220.
- 2014 X.Z. Liu and P. Stechlinski[†]. SIS models with switching and pulse control. **Applied Mathematics and Computation** 232, 727-742.
- 2014 X.Z. Liu and P. Stechlinski[†]. Hybrid control of impulsive systems with distributed delays. **Nonlinear Analysis: Hybrid Systems** 11, 57-70.

- 2013 X.Z. Liu and P. Stechliniski[†]. Existence results for a class of hybrid systems with infinite delay. **Dynamics of Continuous, Discrete & Impulsive Systems Series B: Applications & Algorithms** 20, 591-623.
- 2013 X.Z. Liu and P. Stechliniski[†]. Transmission dynamics of a switched multi-city model with transport-related infections. **Nonlinear Analysis: Real World Applications** 14, 264-279.
- 2012 X.Z. Liu and P. Stechliniski[†]. Infectious disease models with time-varying parameters and general nonlinear incidence rate. **Applied Mathematical Modelling** 36, 1974-1994.
- 2012 X.Z. Liu and P. Stechliniski[†]. Control strategies applied to a stochastic disease model with term-time forcing. **Neural, Parallel & Scientific Computations** 20, 37-50.
- 2011 X.Z. Liu and P. Stechliniski[†]. Pulse and constant control schemes for epidemic models with seasonality. **Nonlinear Analysis: Real World Applications** 12, 931-946.
- 2010 X.Z. Liu and P. Stechliniski[†]. Stabilizability of a class of nonlinear systems using hybrid controllers. **The Journal of Nonlinear Sciences and Applications** 3, 203-221.

Research Monographs

- 2017 X.Z. Liu and P. Stechliniski[†]. Infectious Disease Modeling: A Hybrid System Approach. **Springer Series in Nonlinear Systems and Complexity**, Vol. 19. Springer International Publishing, Cham, Switzerland. (271 pages)

Book Chapters

- 2018 P. Stechliniski, M. Patrascu, and P.I. Barton. Nonsmooth DAEs with Applications in Modeling Phase Changes. In: S. Campbell, A. Ilchmann, V. Mehrmann, T. Reis. (eds) **Applications of Differential-Algebraic Equations: Examples and Benchmarks. Differential-Algebraic Equations Forum**. Springer, Cham, Switzerland. (33 pages)

Conference Proceedings

- 2025 H. Abdelfattah[†], A. Elgohary[†], S.A. Eisa and P. Stechliniski. How optimal is extremum seeking control for hovering in flapping insects/MAVs? **IFAC-PapersOnLine**, 59, 644-649.
- 2025 P. Stechliniski, H. Abdelfattah[†], S.A. Eisa, Sensitivity and optimal control theory for linear complementarity systems. In: X. Wang, D.M. Kilgour, R. Makarov, R. Melniks, H. Kunze (eds) Addressing Modern Challenges in the Mathematical, Statistical, and Computational Sciences. Springer Proceedings in Mathematics & Statistics, vol 949. Springer, Cham. **AMMCS 2023. Springer Proceedings in Mathematics & Statistics, vol 494. Springer, Cham.**
- 2016 P. Stechliniski and P.I. Barton. Generalized derivatives of optimal control problems with nonsmooth differential-algebraic equations embedded. **Proceedings of the 55th IEEE Conference on Decision and Control (CDC)**, Las Vegas NV.
- 2016 P. Stechliniski[†] and X.Z. Liu. Robust synchronization of distributed-delay systems via hybrid control. In: J. Bélair, I.A. Frigaard, H. Kunze, R. Makarov, R. Melnik, R.J. Spiteri (eds) Mathematical and Computational Approaches in Advancing Modern Science and Engineering. Springer, Cham. **Proceedings of the International Conference on Applied Mathematics, Modeling and Computer Simulation (AMMCS) 2015**, Waterloo, Canada.

- 2015 P. Stechlin[†] and X.Z. Liu. Stabilization of impulsive systems via open-loop switched control. Springer Proceedings in Mathematics & Statistics: Interdisciplinary Topics in Applied Mathematics, Modeling and Computational Science, vol 117. **Proceedings of the International Conference on Applied Mathematics, Modeling and Computer Simulation (AMMCS) 2013**, Waterloo, Canada.
- 2011 P. Stechlin[†] and X.Z. Liu. Stabilization of a class of nonlinear systems using state-dependent switching control and impulsive control. AIP Conference Proceedings, 1368, 77-80. **Proceedings of the International Conference on Applied Mathematics, Modeling and Computer Simulation (AMMCS) 2011**, Waterloo, Canada.

Corrigenda/Errata

- 2025 M. Ackley[†] and P. Stechlin. Corrigendum to “Lexicographic derivatives of nonsmooth glucose-insulin kinetics under normal and artificial pancreatic responses”, **Applied Mathematics and Computation** 395, 125876 (4 pages).

SEMINARS AND PRESENTATIONS

Conference Presentations

- 2026 Sensitivity-based methods for nonsmooth systems.
International Conference on Applied Mathematics, Modeling and Computational Science (AMMCS), Waterloo, Canada.
- 2026 Parametric sensitivities of a nonsmooth Wilson-Cowan neural mass model.
SIAM Conference on the Life Sciences, Cleveland, OH.
- 2026 Sensitivity-based methods for parametric identifiability, observability, and model reduction of nonsmooth systems.
SIAM Annual Meeting, Cleveland, OH.
- 2025 Sensitivity-based methods for parametric identifiability and model reduction of nonsmooth systems.
Third Joint SIAM/CAIMS Annual Meeting, Montreal, Canada.
- 2024 Generalized derivatives of nonsmooth difference equations.
CAIMS Annual Meeting, Kingston, Canada.
- 2023 Optimal control of nonsmooth dynamical systems via direct methods.
International Conference on Applied Mathematics, Modeling and Computational Science (AMMCS), Waterloo, Canada.
- 2023 Optimal control of nonsmooth dynamical systems via direct methods.
SIAM Conference on Control and Its Applications, Philadelphia, PA.
- 2022 Theory of optimization-constrained ODEs.
Scientific Computation And Differential Equations (SciCADE), Reykjavik, Iceland.
- 2022 Sensitivity analysis for nonsmooth dynamical systems.
AMS Spring Eastern Sectional Meeting, Medford, MA [virtual].
- 2021 Determining influential parameters in nonsmooth models of riots.
SIAM Annual Meeting, Spokane, WA [virtual].
- 2020 Sensitivity analysis for nonsmooth biological models.
Joint Annual Meeting between the Society for Mathematical Biology and the European Society for Mathematical Biology (eSMB 2020), Toronto, Canada [virtual].

- 2020 Sensitivity analysis for nonsmooth models.
Second Joint SIAM/CAIMS Annual Meeting, Toronto, Canada [virtual].
- 2019 Theory of optimization-constrained differential equations.
International Conference on Applied Mathematics, Modeling and Computational Science (AMMCS), Waterloo, Canada.
- 2019 Theory of nonsmooth DAEs with generalized differentiation index one.
Scientific Computation And Differential Equations (SciCADE), Innsbruck, Austria.
- 2018 Sensitivity analysis for dynamical systems with optimization problems embedded.
SIAM Annual Meeting, Portland, OR.
- 2018 Generalized sensitivity analysis of nonlinear programs.
23rd International Symposia on Mathematical Programming (ISMP), Bordeaux, France.
- 2017 Computing generalized derivative elements of nonlinear programs.
XI Int. Conf. on Parametric Optimization & Related Topics (Paraopt), Prague, Czech Republic.
- 2017 Generalized derivatives of nonsmooth dynamical systems.
Scientific Computation And Differential Equations (SciCADE), Bath, England.
- 2017 Generalized derivatives of nonlinear programs for use in model predictive control.
SIAM Conference on Control and Its Applications, Pittsburgh, PA.
- 2017 Generalized derivatives of nonlinear programs.
SIAM Conference on Optimization, Vancouver, Canada.
- 2016 Optimal control of nonsmooth differential-algebraic equations.
55th IEEE Conference on Decision and Control (CDC), Las Vegas, NV.
- 2016 Computing sensitivities for nonsmooth differential-algebraic equations.
AIChE Annual Meeting, San Francisco, CA.
- 2016 Sensitivity analysis of nonsmooth differential-algebraic equations.
SIAM Annual Meeting, Boston, MA.
- 2015 Switching controlled synchronization of nonlinear systems with time-delays.
2015 AMMCS-CAIMS Congress International Conference, Waterloo, Canada.
- 2014 Control strategies applied to a seasonal model of chikungunya disease.
Canadian Mathematical Society (CMS) Winter Meeting, Hamilton, Canada.
- 2013 Recent results on stability of open-loop and closed-loop switched systems.
International Conference on Applied Mathematics, Modeling and Computational Science (AMMCS), Waterloo, Canada.
- 2012 Stabilization of impulsive systems with distributed delays via hybrid control.
8th International Conference on Differential Equations and Dynamical Systems, Waterloo, Canada.
- 2011 Infectious disease models with switching general nonlinear incidence rate.
Canadian Mathematical Society (CMS) Winter Meeting, Toronto, Canada.
- 2011 Stabilization of a class of nonlinear systems using state-dependent switching.
International Conference on Applied Mathematics, Modeling and Computational Science (AMMCS), Waterloo, Canada.
- 2011 Stochastic epidemic models with seasonality.
6th International Conference on Dynamical Systems and Applications, Atlanta, GA.

Other Presentations

- 2026 Nonsmooth systems in mathematical biology.
UMaine Institute of Medicine – MDI Biolab Meeting, MDI Biological Laboratory, Bar Harbor, ME.
- 2024 The mathematics of chaos theory.
Math Club Talk, University of Maine, Orono, ME.
- 2024 Generalized derivatives of nonsmooth dynamical systems.
Applied Mathematics Seminar, University of Waterloo, Waterloo, Canada.
- 2024 Analyzing nonsmooth epidemic models using generalized derivatives.
Mathematical Biology Seminar, Queen's University, Kingston, Canada.
- 2023 Modeling, analysis, simulation, and control of nonsmooth systems.
Mathematics Colloquium, University of Maine, Orono, ME.
- 2023 Analyzing the influence of agents in trust networks.
Math Club Talk, University of Maine, Orono, ME.
- 2022 Nonsmooth analysis.
Mathematics Colloquium, University of Maine, Orono, ME.
- 2020 Modeling diseases using a hybrid system framework. [Canceled due to COVID-19.]
UMaine Medicine Seminar Series, University of Maine, Orono, ME.
- 2017 Nonsmooth differential-algebraic equations.
Department of Chemical Engineering Seminar, NTNU, Trondheim, Norway.
- 2017 Dynamic optimization of nonsmooth systems.
Mathematics Colloquium, University of Maine, Orono, ME.
- 2017 Sensitivity analysis of nonsmooth dynamical systems.
Department of Mathematics & Statistics Seminar, McMaster University, Hamilton, Canada.
- 2017 Hybrid dynamical systems with applications in epidemic modeling.
Department of Mathematics & Statistics Seminar, University of Maine, Orono, ME.
- 2016 Nonsmooth differential-algebraic equations.
MIT-SIAM Student Seminar Series, Cambridge, MA.
- 2014 Infectious disease modelling: a hybrid system approach.
Mathematical Biology Seminar, McMaster University, Hamilton, Canada.
- 2010 Epidemic models with switching.
Workshop on Hybrid Dynamical Systems, Waterloo, Canada.

TEACHING EXPERIENCE AND ACTIVITIES

Teaching Experience (Instructor-of-record at University of Maine)

MAT 126, Calculus I ($\times 1$)

$\hookrightarrow$ Fall '17

MAT 258, Introduction to Differential Equations with Linear Algebra ($\times 9$)

$\hookrightarrow$ Spr '18, Spr '18, Spr '19, Fall '20, Spr '21, Spr '21, Fall '23, Fall '25, Fall '26

MAT 259, Differential Equations ($\times 3$)

$\hookrightarrow$ Fall '19, Fall '21, Fall '24

MAT 329, Problem Seminar II ($\times 3$)

$\hookrightarrow$ Fall '17, Fall '18, Fall '24

MAT 400, Optimization ($\times 1$)

$\hookrightarrow$ Fall '25

MAT 401, Capstone Seminar in Mathematics ($\times 1$)

$\hookrightarrow$ Spr '22

MAT 425, Introduction to Real Analysis I ($\times 2$)

$\hookrightarrow$ Fall '18, Fall '21

MAT 426, Introduction to Real Analysis II ($\times 1$)

$\hookrightarrow$ Spr '19

MAT 451, Dynamical Systems ($\times 2$)

$\hookrightarrow$ Spr '20, Spr '22

MAT 487, Numerical Analysis ($\times 2$)

$\hookrightarrow$ Fall '23, Fall '26

MAT 500, Nonlinear Differential Equations ($\times 2$)

$\hookrightarrow$ Fall '20, Spr '23

MAT 559, Advanced Ordinary Differential Equations ($\times 2$)

$\hookrightarrow$ Spr '25, Spr '26

MAT 590, Graduate Research Seminar ($\times 1$)

$\hookrightarrow$ Fall '24

Teaching Experience (Instructor-of-record at University of Waterloo)

MATH 118, Calculus 2 for Engineering ($\times 2$)

$\hookrightarrow$ Spring '12, Spring '14

Teaching Certificates, Workshops, and Conferences

IUPUI EMPOWER Mentoring Dialogues Workshop, University of Maine

Summer '22

CLAS 8th annual Academic Advising Conference, University of Maine

Fall '19

Mobile Summer Institute (MoSI-UM), University of Maine

Summer '19

Kaufman Teaching Certificate Program (KTCP), Massachusetts Institute of Technology

Winter '16

Thesis Advising

PhD

Theses:

- 2022–26 Hesham Abdelfattah (co-advised), Aerospace Engineering and Engineering Mechanics PhD, University of Cincinnati.
New sensitivity and control theory and tools for nonsmooth systems with application to aerospace engineering.
- 2017–22 Matthew Billingsley (co-advised), Chemical Engineering PhD, MIT.
Sensitivity analysis of discontinuous ordinary differential equations.

**Master's
Theses:**

- 2026– Menelik Mekonen, Mathematics MA, University of Maine.
Reachability theory for nonsmooth differential-algebraic equations.
- 2025– Henry Johnson, Mathematics MA, University of Maine.
Nonsmooth bifurcation theory with applications to rainfall-runoff models.
- 2024–26 Cadi Howell, Mathematics MA, University of Maine.
Analyzing the sensitivity of a nonsmooth Wilson-Cowan network model using generalized derivatives.
- 2020–23 Cameron Morin, Mathematics MA, University of Maine.
Nonsmooth epidemic models with evolutionary game theory.
- 2019–21 Matthew Ackley, Mathematics MA, University of Maine.
Lexicographic sensitivity functions for nonsmooth models in mathematical biology.
- 2017–19 Jaeho Choi, Mathematics MA, University of Maine.
Theory of lexicographic differentiation in the Banach space setting.

**Senior
Theses:**

- 2023–24 Cadi Howell, Honors College thesis (with highest honors), University of Maine.
Analyzing nonsmooth neural mass models.
- 2021–22 Llewellyn Searing, Honors College thesis, University of Maine.
From points to potlucks: an exploration of fixed point theorems with applications to game theory models of successful integration practices.
- 2019–20 Cole Butler, Honors College thesis (with highest honors), University of Maine.
A mathematical model of the opioid epidemic in the state of Maine.

Other Scholarly Supervision

- Menelik Mekonen (Mathematics Major, UMaine) 2025–26
Hybrid control and stability of wind turbine systems.
Supervising UMaine CLAS Undergraduate Research and Creative Activity Fellowship.

- Simen Bjorvand (Chemical Engineering PhD, Norwegian University of Science and Technology) Fall '23
Generalized derivatives of nonsmooth discrete-time systems.
The Norwegian Research Council FRIPRO Project SensPATH. (Visited UMaine for Fall 2023 semester.)
- Cadi Howell (Mathematics BS/Honors College, UMaine) Summer '22
Understanding neural mass models and brain activity using nonsmooth analysis.
Supervised UMaine CLAS Summer Research Fellowship.
- Abram Karam (Mathematics MA non-thesis option, UMaine) 2020–22
Supervised graduate research seminars:
 - *Generalized derivatives of nonsmooth functions, with an application to eigenvalues of a symmetric matrix* (May 2022).
 - *Second-order derivatives of eigenvalues of a symmetric matrix* (Aug. 2022).
- Serge Maalouf (Mathematics MA non-thesis option, UMaine) 2018–22
Supervised graduate research seminars:
 - *Fundamentals of the calculus of variations* (Oct. 2021).
 - *Optimal control theory: Pontryagin's maximum principle* (May 2022).
- Jon Donnelly (Computer Science BS/Honors College, UMaine) 2020–21
Applying nonsmooth eigendata sensitivity theory to graph centrality problems.
Supervised UMaine Center for Undergraduate Research Fellowship.
- Cole Butler (Mathematics BS/Honors College, UMaine) 2019–20
Modeling opioid abuse: a case study of the opioid crisis in New England.
Supervised Margaret Chase Smith Public Affairs Scholarship.
- Abram Karam (Mathematics BA/Civil Engineering BS, UMaine) 2019–20
Second-order derivatives of nonsmooth functions with applications in engineering.
Supervised UMaine Maine Space Grant Consortium Fellowship.

Thesis Committee Membership

- Ines Khiyara, Mechanical Engineering PhD, University of Maine. 2026
- Gideon Ilung, Mathematics MA, University of Maine. 2025
- Soojin Park, Mathematics MA, University of Maine. 2025
- Sameer Pokhrel, Aerospace Engineering and Engineering Mechanics PhD, University of Cincinnati. 2024
- Andi Pina, Physics PhD, University of Maine. 2024
- Tyler Seekins, Chemical Engineering PhD, University of Maine. 2023
- Jon Donnelly, Honors College, University of Maine. 2022
- Basel White, Honors College, University of Maine. 2021
- Katherine Jarvis, Biomedical & Molecular Science M.S., University of Maine. 2021
- Jeremy Juybari, Mathematics MA, University of Maine. 2020
- Stephanie Ayres, Mathematics MA, University of Maine. 2019
- Madeline Dorr, Honors College, University of Maine. 2019
- Ariel Farber, Mathematics MA, University of Maine. 2019

- Tyler Seekins, Chemical Engineering M.S., University of Maine. 2019
- Alice Wise, Mathematics MA, University of Maine. 2018

PROFESSIONAL SERVICES AND ACTIVITIES

Conference and Workshop Organization

- 2026 Minisymposium Co-organizer. Advances in Complex Dynamical Systems and Applications, *International Conference on Applied Mathematics, Modeling and Computer Simulation (AMMCS)*, Waterloo, Canada.
- 2026 Minisymposium Co-organizer. Emerging Mathematical Methods in Life Sciences: From Model-free Optimization and Control to Nonsmooth Sensitivity Techniques, *SIAM Conference on the Life Sciences*, Cleveland, OH.
- 2026 Minisymposium Co-organizer. Recent Progress in Analysis and Methods for Nonsmooth System Dynamics, Control and Optimization, *SIAM Annual Meeting*, Cleveland, OH.
- 2025 Minisymposium Co-organizer. Hybrid Dynamical Systems, Control, and Applications, *Third Joint SIAM/CAIMS Annual Meeting*, Montreal, Canada.
- 2023 Minisymposium Co-organizer. Unconventional Control: Nonsmooth and Geometric Methods, Theory, and Novel Applications, *SIAM Conference on Control and Its Applications*, Philadelphia, PA.
- 2021 Session Chair. Ecology and epidemiology, *SIAM Annual Meeting*, Spokane, WA [virtual].
- 2021 Minisymposium Co-organizer. ODEs with Embedded Optimization Problems, *Scientific Computation And Differential Equations (SciCADE)*, Reykjavik, Iceland [postponed due to COVID-19].
- 2020 Minisymposium Organizer. Nonsmooth Dynamical Systems, *Second Joint SIAM/CAIMS Annual Meeting*, Toronto, Canada [virtual].
- 2019 Special Session Co-chair. Recent Progress in Hybrid and Complex Systems, *AMMCS*, Waterloo, Canada.
- 2019 Minisymposium Co-organizer. Simulation and Sensitivity Analysis of Nonsmooth Dynamical Systems, *Scientific Computation And Differential Equations (SciCADE)*, Innsbruck, Austria.
- 2017 Special Session Co-chair. Sensitivity and Stability, *ParaoptXI*, Prague, Czech Republic.
- 2017 Minisymposium Co-organizer. Nonsmooth Dynamical Systems, *Scientific Computation And Differential Equations (SciCADE)*, Bath, England.
- 2017 Session Chair. Nonlinear Optimization - Part I, *SIAM Conference on Optimization*, Vancouver, Canada.
- 2016 Minisymposium Co-organizer. Sensitivity Analysis and Optimality Conditions for Nonsmooth Problems, *SIAM Annual Meeting*, Boston, MA.
- 2015 Special Session Co-chair. *Modeling, Analysis And Control In Hybrid Systems*, *AMMCS-CAIMS Congress International Conference*, Waterloo, Canada.

Refereeing

- 2026 IEEE Conference on Decision and Control ($\times 1$)
IEEE Transactions on Automatic Control ($\times 1$)
Mathematical Biosciences ($\times 1$)

2025	IEEE Conference on Decision and Control (×1) IEEE Control Systems Letters (×2) IEEE Transactions on Automatic Control (×1) Journal of Applied and Numerical Analysis (×1) 13th IFAC Symposium on Nonlinear Control Systems (Proceedings of NOLCOS 2025) (×1) Quantum Information Processing (×1)
2024	Addressing Modern Challenges in the Mathematical, Statistical, and Computational Sciences (Proceedings of VI AMMCS International Conference 2023) (×1) Mathematical Biosciences and Engineering (×2) Studies in Applied Mathematics (×1)
2023	Linear Algebra and Its Applications (×1)
2022	American Institute of Chemical Engineers (AIChE) Journal (×1) Discrete and Continuous Dynamical Systems Series-B (×1) Heliyon (×1) Journal of Differential Equations (×1) Journal of Mathematical Analysis and Applications (×1) SIAM Journal on Control and Optimization (×1)
2021	Computers & Chemical Engineering (×1) Optimal Control Applications and Methods (×1) Mathematical Biosciences and Engineering (×1)
2020	Complexity (×1) Computers & Chemical Engineering (×1) Discrete and Continuous Dynamical Systems Series-B (×1)
2019	European Journal of Operational Research (×1) IEEE Conference on Decision and Control (×1) Journal of Biological Dynamics (×1) Journal of Biological Systems (×1) Mathematical Modelling and Analysis (×1)
2018	Advances in Difference Equations (×1) Applied Mathematics and Computation (×1) IEEE Conference on Decision and Control (×1) Journal of Computational Methods in Sciences and Engineering (×1) SIAM Journal on Control and Optimization (×1)
2017	Applied Mathematical Modelling (×1)

Grant Reviewing

NSF Review Panel for the MPS Directorate	2026
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Professional Memberships

Society for Industrial and Applied Mathematics (SIAM)

Volunteering and Public Outreach

Volunteer, <i>Maine Science Olympiad</i>	2023, 2025, 2026
Faculty fellow, <i>UMaine Margaret Chase Smith Policy Center</i>	2020
Mentor, <i>NetPals Program (Cambridge MA School Volunteers)</i>	2017