2018 Computer Science Capstone Day

9–3:30 May 4, 165 Barrows Hall

9:00 Opening

9:15 Andrew Cramer
(Silvia Nittel)  
*Natural Disaster Application*  
A crowd-sourced natural disaster application, focused on collecting and displaying user feed data.

9:30 Katelyn Manzo
(Silvia Nittel & Sharon Klein)  
*Connecting to Begin a Community Energy Project*  

9:45 Nicolas Ward
(Silvia Nittel)  
*University Tutoring Application*  
An on-demand tutoring application for students to get academic help.

10:00 Aaron Speakman
(Sudarshan Chawathe)  
*A GPS Based Study Group Formation App*  
Connects students looking to study with others from the same courses and refines results based on location.

10:15 Justin Norman
(Torsten Hahmann)  
*Procedural Generation Optimization*  
Measuring the output of procedural generators for comparison and optimization.

10:30 Evan Sampson
(Torsten Hahmann)  
*Common Logic Editor*  
A lightweight IDE for Common Logic (CL), built on the Macleod ontology development environment.

10:45 BREAK

11:00 John San Diego
(Richard Corey)  
*VR Sculpting App*  
A sculpting app built for VR which has the basic tools for beginners, along with a goal-based tutorial system.

11:15 Edmond Xiao
(Roy Turner)  
*Budget and Loan Manager*  
Android application to help young adults with financial bookkeeping and planning.

11:30 Nathan Mathis
(Roy Turner)  
*Bear Bucks on the Blockchain*  
A web-based wallet and API that is capable of storing and transferring cryptocurrency asset tokens (such as Black Bear Bucks) distributed through universities.

11:45 Eddie Abbondanzio
(James Fastook)  
*Voxelated*  
Multiplayer voxel terrain engine implemented within Unity that allows players to join together to build worlds comprised of blocks.

12:00 Timothy Bruce
(James Fastook)  
*Geometer’s Planetarium*  
VR/Leap Motion simulation of the solar system for educational purposes.

12:15 Liz Demin
(James Fastook)  
*Optimal Path Search with Procedural Generation in a Video Game*  
A top-down, 2D, Rogue-like exploration game that ensures that a procedurally-generated level can be consistently completed by the player.

12:30 LUNCH
(1:15 Set up posters)

1:30 Poster Session

3:30 Closing
2018 Computer Science Capstone Day

POSTERS

Voxelated
Eddie Abbondanzio (advisor: James Fastook)
Multiplayer voxel terrain engine implemented within Unity that allows players to join together to build worlds comprised of blocks

University Admission Guide: A Web Application
Numan Al Bakir (advisor: Sudarshan Chawathe)
A web application that guides prospective students through the steps of admission to their desired universities by providing information about the universities and a means of communication with their representatives

Job Grader Android App
Paul Arabatzis (advisor: Roy Turner)
Using data scraping and personal information in order to provide an overall grade for a job with suggestions for job opportunities and current employment

Geometer’s Planetarium
Timothy Bruce (advisor: James Fastook)
VR/Leap Motion simulation of the solar system for educational purposes

IoTProfiler
Jake Collupy (advisor: Larry Whitsel)
A system for creating firewall rules for IoT devices

Natural Disaster Application
Andrew Cramer (advisor: Silvia Nittel)
A crowd-sourced natural disaster application, focused on collecting and displaying user feed data

Optimal Path Search with Procedural Generation in a Video Game
Liz Demin (advisor: James Fastook)
A top-down, 2D, Rogue-like exploration game that attempts to ensure that a procedurally generated level can be consistently completed by the player

Green Home Advisor
Connor Gordon (advisor: Silvia Nittel)
A mobile application, driven by real-time sensor data streams that track your home’s temperature, humidity, and electrical consumption

Foot-Fault Detection System
Todd Hawkins (advisor: Silvia Nittel)
Image processing application that detects foot-faults in tennis

Forestry Finance Manager
Jackson Hey (advisor: Silvia Nittel)
A web application for the Forestry Department to track and manage their land owner donations

Athletic Data Aggregator and Meet Manager
Ben Jeffrey (advisor: Silvia Nittel)
Easy-to-use application for managing the data associated with track meets

UMAINE Classroom Finder
Nicholas Levecque (advisor: Kate Beard)
A navigation application for the campus that will give the user directions to their desired classroom
<table>
<thead>
<tr>
<th>Project Title</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connecting to Begin a Community</td>
<td>Social media expansion of the Community Energy US website (<a href="http://www.communityenergyus.net">www.communityenergyus.net</a>)</td>
</tr>
<tr>
<td>Energy Project</td>
<td>Katelyn Manzo (advisors: Silvia Nittel &amp; Sharon Klein)</td>
</tr>
<tr>
<td>Bear Bucks on the Blockchain</td>
<td>A web-based wallet and API that is capable of storing and transferring cryptocurrency asset tokens (such as Black Bear Bucks) distributed through universities</td>
</tr>
<tr>
<td>Nathan Mathis (advisor: Roy Turner)</td>
<td></td>
</tr>
<tr>
<td>NHL Game Predictions with a Neural</td>
<td>A neural network designed to predict the outcome of single NHL games using a wide array of statistics</td>
</tr>
<tr>
<td>Network</td>
<td>Brysen Monahan (advisor: Roy Turner)</td>
</tr>
<tr>
<td>Procedural Generation Optimization</td>
<td>Measuring the output of procedural generators for comparison and optimization</td>
</tr>
<tr>
<td>Justin Norman (advisor: Torsten</td>
<td></td>
</tr>
<tr>
<td>Hahmann)</td>
<td></td>
</tr>
<tr>
<td>Interactive Cell Model</td>
<td>A 3D model of a cell for teaching students and keeping them engaged</td>
</tr>
<tr>
<td>Matthew O’Brien (advisor: Roy</td>
<td></td>
</tr>
<tr>
<td>Turner)</td>
<td></td>
</tr>
<tr>
<td>Broad Phase Collision Detection in</td>
<td>Overarching collision detection algorithm that chooses a broad phase algorithm based on environmental factors, implemented in Unity</td>
</tr>
<tr>
<td>Unity</td>
<td>Henry Owen (advisor: James Fastook)</td>
</tr>
<tr>
<td>iBeacons: A Wandering Solution</td>
<td>Using iBeacons to monitor residents with early dementia and to notify care providers should wandering occur</td>
</tr>
<tr>
<td>Rob Owens (advisor: Richard Corey)</td>
<td></td>
</tr>
<tr>
<td>Movie Library with Recommendations</td>
<td>An application that gathers, streams, and recommends movies</td>
</tr>
<tr>
<td>Zach Papka (advisor: Larry Whitsel)</td>
<td></td>
</tr>
<tr>
<td>Subset-Sum Analysis</td>
<td>Finding characteristics of problems to determine the best algorithm for solving them</td>
</tr>
<tr>
<td>Patrick Pettigrow (advisor: Torsten</td>
<td></td>
</tr>
<tr>
<td>Hahmann)</td>
<td></td>
</tr>
<tr>
<td>LOSSS</td>
<td>A simulation environment for representing a simple security agent</td>
</tr>
<tr>
<td>Noah Ransom (advisor: Torsten</td>
<td></td>
</tr>
<tr>
<td>Hahmann)</td>
<td></td>
</tr>
<tr>
<td>An Evolutionary Approach to Tic</td>
<td>An genetic algorithm that trains a neural network to play Tic Tac Toe using evolution rather than back propagation. The scope of the project was expanded to include a playable point-and-click adventure game</td>
</tr>
<tr>
<td>Tac Toe</td>
<td>Avery Rossow (advisor: Hames Fastook)</td>
</tr>
<tr>
<td>Common Logic Editor</td>
<td>A lightweight IDE for Common Logic (CL), built on the Macleod ontology project</td>
</tr>
<tr>
<td>Evan Sampson (advisor: Torsten</td>
<td></td>
</tr>
<tr>
<td>Hahmann)</td>
<td></td>
</tr>
<tr>
<td>VR Sculpting App</td>
<td>John San Diego (advisor: Richard Corey)</td>
</tr>
</tbody>
</table>
A sculpting app built for VR with basic tools for beginners and a goal-based tutorial system

**Brackme**
Mitchel Smith
Automatic tournament generation and intelligent seeding based on previous results

**Health Manager**
Heejae Shin (advisor: Sudarshan Chawathe)
A mobile application for helping people who need to adapt post-operative lifestyle changes

**A GPS Based Study Group Formation App**
A GPS Based Study Group Formation App
Connects students looking to study with others from the same courses and refines results based on location

**Quantifying Code Quality: AOP vs OOP**
Bren Trusty (advisor: Larry Latour)
Comparing two versions of a virtual machine with software metrics

**Swarm Enemy in Unity**
Denmark Vesey (advisor: Roy Turner)
An enemy for a hypothetical top down 2D shooting game composed of agents that swarm together

**University Tutoring Application**
Nicolas Ward (advisor: Silvia Nittel)
An on-demand tutoring application for students to get academic help

**Multi-Genre Music Generation using Midi**
Brenton Wilson (advisor: Sofian Audry & Roy Turner)
Three algorithms for generating multi-genre music as MIDI files by taking two input MIDI songs and merging them together in interesting ways

**Budget and Loan Manager**
Edmond Xiao (advisor: Roy Turner)
Android application to help young adults with financial bookkeeping and planning

**PropHunt AI**
Steven Zhao (advisor: James Fastook)
A 3D hide and seek video game using the Unity game engine