Michael Weingert

Mechatronics Engineer, Computer Scientist, Mathematician

www.michaelweingert.com
mpweingert@gmail.com
519-673-7870

Technical Skills

Artificial Intelligence: Machine Learning, Game Theory, Human Computation, Multiagent Systems, Probabilistic models

Mobile: Android, iOS, Windows 8, Touch Gesture, Embedded Web Applications

Graphics: 3D rendering, parallel processing, image processing, image filtering, image transformations

Strong software engineering background:
Languages: C, C++, C#, Java, Objective-C, CSS, HTML, MySQL, Javascript, OpenGL, OpenCL, GLSL
Tools: Linux, OS X, Windows, Git, Visual Studio, XCode, Perforce

Work Experience

Microsoft
Kinect 2 R&D Engineer
Redmond, WA
May 2013 - Aug 2013

- Worked on machine learning with the Kinect 2 skeleton tracking pipeline
- Generated machine learning pipelines for tagging and curating large amounts of data
- Collaborated with first party game publishing partners to create solutions that are technically strong and improve user experience

University of Waterloo
Research Assistant
Waterloo, ON
Jan 2013 - May 2013

- Developed and implemented image segmentation algorithms for semi-autonomous prostate cancer detection
- Aided in ground truth detection for cancerous tissue
- Helped productize research for use in radiology clinics

Microsoft
Mobile Software Engineer
Redmond, WA
Sept 2012 - Dec 2012

- Created native applications for iOS and Windows 8 on Microsoft CRM team
- Constructed a communication and authentication framework between web-based code and native code
- Assumed responsibility as creator, sole developer, and tester of the applications

Ubisoft
AI Game Programmer
Toronto, ON
Jan 2012 - May 2012

- Extended the current Bayesian hierarchical state machine to respond to environmental factors
- Collaborated across several teams to create an efficient and effective AI response with polished user experience
- End-to-end owner of project from conception to completion

Sunnybrook Hospital
Data Visualization Engineer
Toronto, ON
Sept 2010 - Sept 2011

- Created a new application in C# to acquire and display frames of data from a 3D ICE catheter in real time
- Utilized OpenGL for image rendering, OpenCL, and GLSL for image processing
- Produced a low-level data pipeline to aid in real-time filtering

Personal Projects

TrailView
May 2013 - Current

- Developing a gamified mobile app where users can submit hiking photographs to compete and earn rewards
- Aiming to recreate Google StreetViews for hiking trails

Gesture Recognition
Oct 2012 – Current

- Researching different methods of classifying touch gestures on mobile devices
- Examining shape matching (image moments) as well as machine learning algorithms

Chess AI
Feb 2012 – May 2012

- Investigated reinforcement learning and genetic algorithms to train a linear regression function
- Designed and implemented a 3D application to interface with human players
- The AI played over 4000 training games against itself and won all 6 games played against human volunteers at a design symposium
- Increased search efficiency by alpha-beta pruning the minimax/decision tree and utilizing multithreading

Sudoku AI
Jan 2012 – Feb 2012

- Employed constrained and backtracking search algorithms to solve a Sudoku puzzle

Java Games
Jan 2010 – Sept 2011

- Created several games in Java including minesweeper, tic tac toe, checkers, asteroids

Education

University of Waterloo
Sept 2009 – May 2014 (expected)

- **Major:** Mechatronics Engineering
- **Minors:** Pure Math, Computer Science
- **GPA:** 3.96 (out of 4.0)
- **Relevant Coursework:** Introduction to Artificial Intelligence, Real Time Operating Systems, Embedded programming, Parallel and Concurrent Programming, Pattern Recognition

Stanford Univ. (online)
Aug 2012 – March 2013

- Introduction to Machine Learning, Probabilistic Graphical Models, Compilers, Game Theory

Awards

University of Waterloo
Sept 2009 – May 2014 (expected)

- President's Research Scholarship (2013, 2x)
- Dean's Honour List (2010-2012)
- Professor's Choice, Waterloo Student Design Competition (2012)
- President's Scholarship of Distinction (2009)
- 3rd Place Waterloo Engineering Competition Jr. Design Competition (2009)

Professional Honours

- Microsoft Hackathon Winner, Microsoft (2013)
- ThinkWeek Finalist, Microsoft (2013)
- NSERC Research Grant, Colibri Technology (2010)

Activities

Sports: Soccer, tennis, running, gym enthusiast

Volunteering: First year mentor at University of Waterloo, orientation week leader

Exploring: Foodie, hiking, travelling, learning languages

Consuming Media: Reading, romantic movies, television