Michael Weingert

Mechatronics Engineer, Computer Scientist, Mathematician

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Technical Skills

Artificial Intelligence: Reinforcement Learning, Machine Learning, Game Theory, Probabilistic models.
(Learned at: Ubisoft, Chess AI, Gesture Recognition project, Stanford)

Mobile: iOS, Windows8, Touch (gestures), embedded Web Applications
(Learned at: Microsoft, Gesture Recognition)

Graphics: 3D rendering, parallel processing, image filtering/transformations
(Learned at: Sunnybrook Hospital, Chess AI)

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

Work Experience

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

- Created applications for iOS and windows8 on Microsoft CRM team
- Constructed a communication and authentication framework between web-based code and native code.
- Assumed responsibility as sole developer and creator of the applications as well as incorporated UX, testing and development.

iOS, Windows8, WinJS, LiveID, Objective-C, Javascript, CSS, HTML, oAuth,

Ubisoft
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 UI.
- End-to-end owner of project from conception to completion.

C++, AI, Cross-team communication, End-end development,

Sunnybrook Hospital
Jr. Software Engineer
Toronto, ON
Sept 2010 - Sept 2011

- Created a new application in C# to acquire / display frames of data from a 3D ICE catheter in real time.
- Used OpenGL for image rendering and OpenCL/GLSL for image processing and manipulation.

C++, MFC, C#, C OpenGL, OpenCL, GLSL, FPGA, Real time programming

University of Waterloo F1 Car Team
Machinist/Business Liaison
Waterloo, ON
Jan 2010 – May 2010

- Created and refined mechanical components including the bellcranks, pinion gear, differential bearing blocks.
- Delineated and presented business proposals for RIM, Spaenaur, Marken Performance, and RapidGear.
- Served as a liaison between mechanical and business teams.

Prepared business presentations, financial reports, Cross team communication

Personal Projects

Touch Gesture Recognition
Oct 2012 – Current

- Investigating different methods of mapping touch gestures to a list of 'known' gestures.
- Examining shape matching as well as training (neural network) algorithms.

C++, Objective-C, OpenCV, iOS

Chess AI
Feb 2012 – May 2012

- Investigated reinforcement learning and genetic algorithms to train a linear regression function.
- Created a 3D application to interface with human players.
- The AI played over 4000 training games against itself and went 6-0 against volunteers at a design symposium.
- Increased search efficiency by alpha-beta pruning the minimax/decision tree and utilizing multithreading.

OpenGL, C++, Objective-C, OS X, Genetic Algorithms, Reinforcement Learning

Sudoku AI
Jan 2012 – Feb 2012

- Used constrained and backtracking search algorithms to solve an arbitrary Sudoku puzzle.

C++, AI, Constrained Searching

Java Games
Jan 2010 – Sept 2011

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

Java, Java2D, Collision Detection

Motivation/Drives

Continuous Improvement

- This applies to life, education, and work. There is always something that can be improved, some flaw, some room for improvement. My goal is to always be bettering myself, and my work.
- There is always more to be done. It is just a matter of identifying, prioritizing, and achieving.

Ambition

- Better to aim for the best, than to be content with mediocre.
- Setting lofty goals forces us to work harder, subconsciously and consciously.

Results

- Ultimately, the most important part of any job is achieving results in a timely manner.
- I pride myself on my work ethic and my ability to learn quickly.
- A solution should aim not to just solve a task at hand, but to solve the unknown tasks of the future.
- A solution should be extensible, flexible, and adaptable.

Education

University of Waterloo
Sept 2009 – May 2014 (expected)

- **Major:** Mechatronics Engineering
- **Minors:** Pure Math, Computer Science
- **GPA:** ~90/100
- Data structures and Algorithms, Real Time Operating Systems, Microprocessors and Interfacing

Stanford Univ. (online)
Aug 2012 – March 2013

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

Awards/Activities

University of Waterloo
Sept 2009 – May 2014 (expected)

- Dean's Honour List (2010-2012)
- President's Scholarship of Distinction (2009)
- 3rd Place Waterloo Engineering Competition Jr. Design Competition (2009)
- First Year Mentor and Orientation Week Leader (2010)

Extracurricular

- NSERC Research Grant, Colibri Technology (2010)
- I enjoy playing soccer, tennis, as well as watching movies