

Jethro K.C. Ma

University of Waterloo
Joint Honours Computer Science & Actuarial Science
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Highlight of Skills

- **Financial Theory:** Derivative pricing, hedging, interest rate theory, CAPM, Monte Carlo methods, loss modeling, statistical regression/forecasting
 - **Actuarial Exams:** 1/Probability, 2/Financial Mathematics, 3/Life Contingencies, 4/Construction & Eval. of Actuarial Models
 - **C/C++** (Multithreading, TCP/IP, Win32, MFC)
 - **Java**, Visual Basic, **R**, **MATLAB**, Python
 - Worked with genetic algorithms, machine learning, online neural networks, machine vision
 - Distributed computing, kernel, network, and embedded programming
 - OS: Microsoft Windows, Linux, Unix
 - PHP, SQL, HTML, CSS, JavaScript, Flash
 - Fluency in Chinese (Cantonese, Mandarin)
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Awards and Accomplishments

- GPA of 4.0/4.0 (97.4%) in University
- Cecil and Edna Cotton Scholarship '09, University of Waterloo President's Scholarship, Dean's Honour List

Work Experience

Research Assistant — Univ. of Waterloo under Prof. Yuying Li (*Waterloo, ON*) May 2010 - Present

- Project Objectives: Evaluate performance of technical signals and investigate possibility of combining them using optimization techniques, such as genetic programming and reinforcement learning to generate profitable trading rules

Software Engineer — Google Inc. (*Mountain View, California*) Sep 2009 - Dec 2009

- Responsible for performance analysis & optimization of Google's renowned MapReduce framework
- Identified overheads, pipeline inefficiencies, and improvements to inform next generation design decisions
- As a personal project, created visualization tools to mine MapReduce job statistics and display in timeline format
- Achieved **Outstanding** for performance evaluation

Software Engineer — Electronic Arts (*Vancouver, BC*) Sep 2008 - Dec 2008

- Worked with large C++ codebase to develop EA Tennis for Xbox360, Wii and Playstation 3 platforms
- Designed and implemented a probabilistic opponent scheduling algorithm
- Responsible for rendering and integration of in-game display elements and backend state logic

Freelance Lead Developer — Robofactors (*Detroit, Michigan*) Mar 2008 - Aug 2008

- Developed a light-weight embedded real-time operating system on 8-bit AVR architecture for a hobbyist robot controller
- Designed an all-in-one robot controller with servos, infrared, RS-232, and gyroscope interfaces.

Platform Engineer — Google Inc (*Mountain View, California*) Jan 2008 - Apr 2008

- Used machine clusters for performance analysis and optimization of Google's Remote Procedure Call layer
- Demonstrated a 52% performance increase and 40% latency reduction, using various software and processor-level code/kernel modifications, for the single-threaded case

Nanodevices R&D — Advanced Micro-/Nano-Devices Lab (*Waterloo, ON*) Jan 2007 - Dec 2007

- **Nanotechnology-based biomedical sensor:** developed an ultra-low current sensing device and software suite for detection of current changes through nanobiosensors.
- **Image Recognition:** used Canny Edge Detection (C++) via Intel OpenCV in combination with a neural network for micro-object tracking

Education

- **Candidate for Bachelor of Mathematics, Joint Honours Computer Science and Actuarial Science - 2006**
 - Present
 - Cumulative GPA: 97.4%
 - Scholarships awarded: Cecil and Edna Cotton Scholarship, University of Waterloo President's Scholarship, Queen Elizabeth II's Aiming for the Top Scholarship
- **Society of Actuaries / CAS**
 - Exam credits: 1/P - Probability, 2/FM - Financial Mathematics, 3/MLC - Actuarial Models: Life Contingencies, 4/C - Construction and Evaluation of Actuarial Models
- **Candidate for BASC in Nanotechnology Engineering - 2006 - 2008**
 - Ranked 2nd in class of 119 students
 - Switched program of study into BMath Computer Science and Actuarial Science
- **Unionville High School OSSD - 2002 - 2006**
 - Canadian Association of Principals Leadership Award

Extracurricular Activities

- **Waterloo Investment Research Exchange Club Member** (*Jan 2009 - Present*)
 - Participate in weekly market research and compete in trading simulation competition among fellow members
- **Co-founder and Lead developer, diPoll** (*Aug 2009 - Present*)
 - Co-founded a social voting platform and datamining project with fellow university students
 - Oversee development efforts of the diPoll web application, including user system, database, social networking site integration, etc. using web technologies such as PHP, MySQL, and Ajax.
- **Interactive Brokers College Trading Olympiad 2009 Participant** (*Jan 2009*)
 - Developed a C++ MFC program to automate trades using real-time market data from the IB API based on crossing of various moving average indicators
 - Produced a 17% return over a period of one month
- **Unionville High School Robotics Team Mentor** (*Jan 2007 - June 2008*)

Other Notable Skills

- Source control software used: Perforce, Subversion, CVS
- Applications used: LabVIEW, MATLAB Simulink, Altium/Protel
- Standard First Aid and AED Certification