Michael Maxim

811 Walton Ave #F14 484.459.4631
Bronx, NY 10451 mike.maxim@gmail.com

Education

2007 – 2009 **University of Michigan** Ann Arbor, MI

Master's of Science in Computer Science, Dec 2009

- Program: Artificial Intelligence (Reinforcement Learning group)
- 3.62 GPA

2000 – 2004 **Carnegie Mellon University** Pittsburgh, PA

Bachelor's of Science in Computer Science, May 2004

- 3.58 GPA (3.81 in Major) with University and Research Honors
- Mathematics and Philosophy Minors

Work Experience

2010-Present **OkCupid.com** New York, NY

Lead Software Engineer and Head of Infrastructure, Head of Ad Operations

- Responsible for the core backend systems of OkCupid, including the web servers, service layer, matching system, and databases.
- Designed and implemented the Grand Unified Match (GUM) matching engine to support match search requests, recommendations, and various other backend services on OkCupid. The system is designed to be deployed over a large computing cluster, drawing inspiration from the Map/Reduce architecture. The goals of the system are high availability, high throughput, and flexibility in both deployment and development. GUM has been live for over a year with great success.
- Designed and implemented an improved question asking system that seeks to segment question ordering across different groups of users.
- Responsible for the deployment and maintenance of both network and RTB ads, as well as support for direct deals from the sales team.

2007-2010 **University of Michigan** Ann Arbor, MI

Graduate Student Research Assistant

- Worked in the Reinforcement Learning group (part of the Artificial Intelligence Lab) at the University of Michigan under the supervision of Professor Edmund Durfee and Professor Satinder Singh Baveja.
- Developed a theory and software framework allowing agent programs to ascertain whether or not to seek assistance from a human operator to clarify uncertain parts of the agent's world model. The main algorithm developed in this work, called Expected Myopic Gain (EMG), used Bayesian statistical methods and Monte Carlo sampling techniques in order to determine the question to the human operator whose answer would most improve agent behavior.

2004 – 2007 **Green Hills Software** Santa Barbara, CA

Software Engineer

- Member of the compiler development group which develops tools (compilers, linker, simulators, debug information tools) for the Green Hills Software MULTI IDE used for embedded systems development.
- As lead developer of the CodeFactor link-time whole-program optimization suite, my duties involved improving the size optimization effectiveness of CodeFactor, as well as supporting customers and fixing bugs. The major improvements I have implemented concern vastly improving the size optimization effectiveness, as well as incorporating profile information feedback into the linker optimizations.
- Developed the link-time instrumentation infrastructure for the TraceEdge product, allowing customers to get PC trace data without native support from the CPU for both PowerPC and MIPS.

2001- 2004 **Carnegie Mellon University** Pittsburgh, PA

Teaching Assistant

- Co-taught the course "Fundamental Data Structures and Algorithms" at CMU, a sophomore-level introduction to basic computer science theory with emphasis on OOP in Java. (5 semesters)
- Taught recitation every week and prepared homework assignments. Also gave 5 full class lectures on various course topics.
- Developed and maintained the Web-based software system, *FrontDesk*, which provided grading automation services for course staff and access to rich grading feedback for students.

Relevant Coursework and Knowledge

- **Languages** – C++, Python, Java, C#, MATLAB, Visual Basic, Perl, HTML/CSS/JavaScript.
- **Development** - Emacs, GNU Tools, Visual Studio, Eclipse.
- **OS** - Linux, FreeBSD, Windows, OSX
- **Machine Learning** – Linear regression, classification, graphical models, Bayesian methods, sampling, mixture models and EM, reinforcement learning. Developed an object recognition program in MATLAB to process video and extract and track important artifacts.
- **Probability and Random Processes -** Topics learned include probability axioms, sigma algebras, random vectors, expectation, probability distributions and densities, Poisson and Wiener processes, stationary processes, autocorrelation, spectral density, effects of filtering, linear least-squares estimation, and convergence of random sequences.
- **Operating System Design and Implementation** – Designed a pre-emptive multithreaded operating system kernel with multiple virtual address spaces, a UNIX style file system, and a user thread library.
- **Algorithms** – Linear programming, data structures, graph theory, algorithm analysis.

Publications

- Michael Maxim, Edmund Durfee, Satinder Singh: *Selecting Operator Queries Using Expected Myopic Gain.* AAMAS 2010. Submitted.
- Michael Maxim, Ashish Venugopal: *FrontDesk: An Enterprise Class Web-Based Software System for Programming Assignment Submission, Feedback Dissemination, and Grading Automation***.** ICALT 2004. Based on work done for Senior Research Thesis at CMU.
- Mike Maxim, Ashish Venugopal**:** *Securing Agent Based Architectures* - Published in the EDCIS Software Engineering Conference 2002 in Beijing, China. A paper describing a system for secure acceptance of mobile agent code into large software systems. (May 2002).
- *Windows Programming* **–** An article on Microsoft Windows programming strategies, published in the ACM Crossroads journal for students. Available from: http://xrds.acm.org/article.cfm?aid=333434 (2000)

Undergrad Research Experience

- **Senior Research Thesis** - Investigated system architectures for the flexible and reliable implementation of a Web and .NET based solution for student program submissions and partial instructor grading automation. Submitted work as senior research thesis effort under advisor Professor Bill Scherlis. (2003-2004)
- **Compiler/PCC Research** - Worked with Professor Peter Lee at Carnegie Mellon University to develop a new framework for using Proof Carrying Code (PCC) technology to aid in student compiler development. Research implemented in Fall 2003 offering of 15-411, Carnegie Mellon's compiler course. (May –December 2003)

Awards

- First Year Fellowship, University of Michigan, 2007.
- Senior Leadership Award, Carnegie Mellon University, 2004.
- University and Research Honors, Carnegie Mellon University, 2004.
- University Scholarship, Carnegie Mellon University, 2000.
- All-County First Team Basketball, Chester County, PA, 2000.