

Dr. Michael Barnathan

PO Box 394 Morganville, NJ 07751 732-328-8268 michael@barnathan.name

Objective: To use my extreme breadth, adaptability, and strategic skill to perform significant purpose-driven work which changes the world for the better.

Selected Interests: STEM Education, Biocomputation, Graph Theory, "Big Data", AI, World-Class Software Development, Computer Vision, Computer Diagnosis, Data Structures.

Technical Knowledge

Programming Languages: Java, C++, C#, Objective-C, Perl, Matlab, Python, PHP, R, Visual Basic, some Ruby.

Web Development: HTML 5, CSS 3, responsive design, JavaScript, SQL, jQuery, AngularJS, Flash, AJAX.

"Big Data": Ph. D. in machine learning: wavelets, SVD, spectral graph theory, computer vision.

"The Cloud": Digital Ocean, Heroku, Titan, Google App Engine, Storm on Demand.

Development Tools: Eclipse, Visual Studio, Maven, vim, Perl, Protocol Buffers, adb, sh, svn, git.

Database Systems: MySQL, PostgreSQL, SQLite, MS SQL Server, Microsoft Access, Hive.

System Administration: "LAMP": Linux, Apache (>50 vhosts), nginx, MySQL, Tomcat, Perl, BIND, SSH, Postfix, Dovecot, amavisd, iptables, cron, syslogd, logrotate, Nagios, Cacti, etc.

Mobile and Desktop: Android, iOS, Windows, Linux (Gentoo, Arch, Ubuntu, Raspbian), Arduino.

Biotechnology: Synthetic biology, genetic engineering, electrophoresis, PCR, spectrophotometry.

Employment and Entrepreneurship

Feb. 20, 2013 – Present **Founder, [Organysm](#)**
Conducting biocomputation research to investigate the theoretical properties of "mitotic" processing elements and algorithms at the intersection of biology, computability, and computational complexity theory. Genetically engineering cells and cellular automata to perform a theoretical study of self-replicating machines.

Oct. 16, 2013 – Dec. 21, 2013 **Head of Mobile, [8coupons](#)**
Jan. 26, 2013 – Oct. 16, 2013 **Founder and CEO, [Clipless](#)** *(acquired by 8coupons)*
Founded Clipless, a contextual Android app (using Java/Tomcat/JAX-RS on the server-side for reuse between frontend and backend) which collects deals from over 2,000 sources and displays notifications when you're at the deal's location. Led the company to huge traction, gaining nearly 10,000 users in two weeks following launch and going from idea to acquisition in a mere 8 months. Bootstrapped as a sole founder + three contractors.

Jan. 1, 2013 – May 15, 2013 **Director of Software Engineering**
Oct. 1, 2012 – Dec. 31, 2012 **Associate Director of Software Engineering**
 Owen Software
Turned around an educational software firm and enabled it to ship a product as head of the company's entire development effort. Redefined software development processes and spearheaded organization-wide changes to remove bureaucracy while recruiting 4 (excellent) software development teams from the ground up. Designed the massive graph algorithm at the heart of the company's new product and communicated it to the teams. Successfully induced a cultural shift from bureaucratic and formal to result-oriented and informal.

June 1, 2012 – Sep. 28, 2012 **Senior Software Engineer**
Sep. 13, 2010 – May 31, 2012 **Software Engineer**
Google

Contributed to Google’s insanely fast and scalable build and CI systems using Java, C++, Shell, Python, Protobuf, and graph theory. Committed ~20,000 peer-reviewed lines per year of large, complex changes across three projects, introducing literally zero bugs during my first year (3 total). Formulated a set of extreme (and repeatable!) software quality and project management principles from the experience. **Extra peer/spot bonuses:**

- Nov. 2010: Fixed blocking issues on a release.
- Feb. 2011: For very high code quality on a complex and critical change.
- Jul. 2011: Enabled another team to meet a major quarterly objective.
- Sep. 2011: A batch -> realtime change which sped two teams up by 5x.
- Dec. 2011: Led a major three team effort to success despite pushback. (**Spot bonus**)
- Feb. 2012: Created a massively parallel release tool, reducing release time from 5h to 5m.
- Mar. 2012: When that tool saved our release!
- Mar. 2012: For a well-received [public tech talk](#).
- Aug. 2012: Swiftly fixed a [class loader deadlock](#) which was bringing tests down Google-wide.

Sep. 26, 2011 – Sep. 28, 2012 **Director of Machine Learning, BioMotion Suite**

End-to-end implementation of BioMotion’s machine learning algorithms and custom electronic patient monitoring devices. Created a smart knee brace which could classify Parkinson’s Disease symptoms with 80% accuracy.

Oct. 4, 2011 – April 15, 2013 **Founder, Living Discoveries**

Developed, commercialized, and pitched [Digital Mammographer](#), a web-based automatic diagnostic system for breast cancer, which yielded above 90% accuracy (higher than an average radiologist) in preliminary studies.

Dec. 7, 2009 – July 30, 2010 **Data Scientist, dstillery (formerly Media6Degrees)**

Applied “big data” to sociographic targeting. Resident expert in spectral graph theory and SVD recommendation. Designed scalable learning algorithms using Hadoop, Java, Spring, Maven, Perl, R, and MySQL. Primary link between data science and development teams. Responsible for production implementation of feature computation.

Sep. 9, 2008 – May 14, 2009 **Adjunct Professor of Computer Science, Monmouth University**

Taught CS305 and CS503, Monmouth University’s undergraduate and graduate courses in data structures and algorithms in Java, during the Fall 2008 (CS503) and Spring 2009 ([CS305/503](#)) semesters.

Dec. 26, 2007 – Present **Founding Director, The Polymath Foundation**

Founded and leading [an educational 501\(c\)\(3\) nonprofit](#) to create an interdisciplinary university (lifelong goal).

Sep. 1, 1997 – Oct. 1, 2008 **Founder, Metasquarer**

Developed, hosted, and supported [Metasquarer](#), an online game, from the age of 12. Supported the game, 27,596 lines of code in size, to a peak population of approximately 10,000 users. Created an O(n) algorithm to find squares within a grid and an alpha-beta pruning AI opponent from intuition years prior to learning the theory. Used the REST paradigm for client/server communication two years before it was officially invented.

Oct. 1, 1994 – Present **Freelance Developer, Alight Software Development Studio**

Developed over 50 websites and apps using HTML 5, CSS 3, JS, Perl, MySQL, AngularJS, and Servlets. Installed replicated “LAMP” environments from scratch on self-managed dedicated and cloud servers.

Education

Temple University
Philadelphia, PA

Aug. 2006 – May 2010
Aug. 2006 – Aug. 2007

Ph. D. in Computer and Information Sciences. **GPA: 3.92 / 4.00**
Master of Science in Computer and Information Sciences. **GPA: 3.89 / 4.00**

Thesis Topics: Dissertation: *Mining Complex High-Order Datasets*, defended April 23, 2010.
Master's Project: *Medical Image Data Mining System*, published at ISBI 2008.
Fellowships: Temple University Fellowship, CST Dean's Scholarship.
Honor Societies: Golden Key International Honor Society.

Monmouth University
West Long Branch, NJ

GPA: 3.96 / 4.00

Sep. 2002 – May 2006

Bachelor of Science *Summa Cum Laude* in Computer Science, Math minor.

Awards: **\$5,000 Academic Achievement Award for the Highest GPA in the Class of 2006, Computer Science Award (2006), Dean's List:** All semesters.
Scholarships: \$6,000/year Monmouth University Scholarship, 2x Dr. Harold Jacobs Scholarship.
Honor Societies: Phi Eta Sigma, Lambda Sigma Tau, Kappa Mu Epsilon, Omicron Delta Kappa.
Other Activities: President (2005-2006) and Vice President (2004-2005) of the MU ACM.
Member of the School of Science Student/Alumni Advisory Council (2004-2009).

Public Speaking

October 2012 [*Recognizing and Nurturing Technical Intuition*](#), GoogleEDU Hangouts on Air
October 2012 [*Recognizing and Nurturing Technical Intuition*](#), Duke University (CS4HS 2012)
June 2012 [*Recognizing and Nurturing Technical Intuition*](#), Kean University (CS4HS 2012)
Spoke to hundreds of high school teachers about a radically different approach to STEM education, founded on intuition of technical presentation and a hands-on curriculum starting as early as age 8. Taught the nontechnical audience pigeonhole sort and maximum variance unfolding to illustrate the approach. Very well received.
September 2012 [*Building Software at Google Scale*](#), Monmouth University (Google Recruiting)
February 2012 [*Building Software at Google Scale*](#), Google NYC
Gave a public Tech Talk to an audience of 300 on how Google creates a wildly fast and scalable build system. Gave the talk again at Monmouth University, recruiting over 50 candidates in a single session.

Other Skills:

- Wide breadth of knowledge <-> consistently recognized as a fast learner, self-motivated.
- Proficient as a pianist, composer ([music portfolio](#)), and semiprofessional photographer ([photography portfolio](#)).
- Electronics inventor and "maker": solar GPS, "working" crystal balls, EEG brain-computer interface, Parkinson's-detecting knee brace, voice-automated home.

Complete portfolio available at <http://michael.barnathan.name>