

Michael Barnathan

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- Objective:** To utilize and refine my unique combination of interests, talents, and vision to perform significant purpose-driven work that changes the world for the better.
- Selected Interests:** Data Mining, Computer Aided Diagnosis, Oncology, Immunology, Education, Data Structures, Software Development, Machine Learning, and Artificial Creativity.

Technical Knowledge

- Programming Languages:** Java, C++, Visual Basic, Perl, Matlab, C#, Prolog, GOLOG.
- Web Development:** (X)HTML, CSS, JavaScript, SQL, Flash, XML, AJAX, some RSS.
- Development Tools:** Visual Studio 2008, Eclipse, KDevelop, Maven, NetBeans, vi, cvs, svn, gdb.
- Database Systems:** MySQL, SQLite, Microsoft Access.
- Operating Systems:** Windows (including Windows 7 Beta), Linux (Gentoo, RedHat/Fedora, Debian, Ubuntu), Mac OS X, DOS, general OS theory, sysadmin experience.
- Productivity Software:** Microsoft Office, Dreamweaver, Photoshop, OpenOffice.
- Scientific Software:** Maple, Matlab, Maxima, LyX, LaTeX, BibTeX.
- Modeling Techniques:** UML, E-R modeling, flowcharts, grammars/FSAs.

Education

Temple University Philadelphia, PA

- Aug. 2006 – Present** **Ph. D. Candidate** in Computer and Information Sciences (**ABD**). **GPA: 3.92**
- Aug. 2006 – Aug. 2007** **Master of Science** in Computer and Information Sciences. **GPA: 3.89**

- Advisor:** Vasileios Megalooikonomou.
- Thesis Topics:** Dissertation: Higher-Order Mining on Complex Medical Imaging Datasets.
Master's Project: Medical Image Data Mining System, published in Proc ISBI 2008.
- Fellowships:** Temple University Fellowship, CST Dean's Scholarship.
- Honor Societies:** Member of the Golden Key International Honor Society.
- Other Activities:** Member of the Temple University ACM and CIS Faculty Selection Committee.

Monmouth University West Long Branch, NJ

GPA: 3.96

- 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,
Dr. Harold Jacobs Scholarship for Excellence in Sci., Tech., or Engineering (twice).
Honor Societies: Phi Eta Sigma, Lambda Sigma Tau, Kappa Mu Epsilon, Omicron Delta Kappa,
National Dean's List (twice). Officer of Lambda Sigma Tau (2005-2006).
Other Activities: President (2005-2006) and Vice President (2004-2005) of the Monmouth
University Association for Computing Machinery (ACM) chapter.
Member of the Science, Technology, and Engineering Advisory Council (2004-2009).

Recent Employment Affiliations

Dec. 2009 – Present **Data Scientist**
Media Six Degrees

Applied machine learning, graph theory, and statistics to explore, analyze, and improve the company's predictive click-through and conversion models, directly contributing to the advertiser's ability to accurately match users with relevant advertising content. Implemented machine learning algorithms using Java, Perl, sh, and MySQL.

Sep. 2008 – May 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.

Aug. 2006 – Present **Research Assistant and System Administrator**
Data Engineering Laboratory (DEnLab), Temple University

Responsible for conducting formal research to advance the fields of data mining and bioinformatics, especially computer-aided diagnosis of biomedical images. Also responsible for administration of the lab's Linux workstations and servers after rapidly recognized for Linux competence.

Sep. 2005 – June 2006 **SCEP (Supply Systems Analyst)**
Ft. Monmouth C4ISR, Logistics and Readiness Center

Provided technical and logistic support to item managers and other Department of Defense personnel using LMP, a multi-tier logistics management SAP application. Ensured the smooth flow of millions of dollars of material through the Army's supply chain by resolving blocked requisitions and supporting item managers.

Selected Publications

14 Total

TWave: High-Order Analysis of Spatiotemporal Data: By Michael Barnathan, et al. Accepted for publication in Proceedings of the Pacific-Asia Conference on Knowledge Discovery and Data Mining 2010.

High-Order Concept Discovery in Functional Brain Imaging: By Michael Barnathan, et al. Accepted for publication in Proceedings of the International Symposium on Biomedical Imaging 2010.

A Representation and Classification Scheme for Tree-like Structures in Medical Images: Analyzing the Branching Pattern of Ductal Trees in X-ray Galactograms: By Vasileios Megalooikonomou, Michael Barnathan, Despina Kontos, Predrag Bakic, and Andrew D.A. Maidment. Published in IEEE Transactions on Medical Imaging (2009), Vol. 28, Issue 4, pp. 487-493. **(Journal paper)**

A Texture-Based Methodology for Identifying Tissue Type in Magnetic Resonance Images: By Michael Barnathan, et al. Published in Proceedings of the International Symposium on Biomedical Imaging (ISBI) 2008, Paris, France, May 14 – 17, 2008.

A High-Level Language for Homeland Security Response Plans: By Richard Scherl and Michael Barnathan. Published in Proceedings of the 2005 AAI Spring Symposium on March 22, 2005.

Relevant Personal Experience

Dec. 2007 – Present **Founding Director and Course Instructor, The Polymath Foundation**

Founded [an educational 501\(c\)\(3\) nonprofit](#) dedicated to establishing an interdisciplinary educational institution. Responsible for initial strategic planning, articulating the vision, designing the website, and recruiting the initial 9 directors, over 50 prospective instructors, and over 500 supporters. Currently leading the organization's outreach and fundraising drives by teaching and marketing [courses](#) in web development and cross-disciplinary reasoning.

Aug. 2006 – Present **Founder, HireGeeks.com / LanceRates.com**

Created [HireGeeks.com](#), a registered small business specializing in providing skilled services through freelance auctions, and [LanceRates.com](#), a companion freelance market rate analysis site. Responsible for all facets of business operation, including registration, accounting, legal research, web design (including development of over 20,000 lines of Perl code), marketing, customer service, dispute resolution, and public relations.

Sep. 1997 – Present **Software Developer, Metasquarer**

Developed, hosted, and supported [Metasquarer](#), an online game, from the age of 12. Promoted the game to a cumulative population of approximately 10,000 users. Developed over 70 revisions of the game, currently 27,596 lines of code in size, while providing documentation and support. Created an $O(n)$ algorithm to find squares within a grid and an AI opponent utilizing alpha-beta pruning from intuition years prior to learning the theory.

Oct. 1994 – Present **Web Developer**

Developed the [metasquared.com](#), [lancerates.com](#), [barnathan.name](#), [projectpolymath.org](#), [polymathlectures.org](#), [hiregeeks.com](#), [ecossaise.com](#), [letscompose.com](#), [ethereallamentations.com](#), [freelancemining.com](#), and [denlab.temple.edu/midms](#) websites, among others, using XHTML, CSS, Perl, MySQL, JavaScript, and Flash. Recently installed a complete “LAMP” hosting environment on a dedicated server from scratch, including Gentoo Linux, BIND, Apache, MySQL, Perl, PHP, Postfix, Dovecot, iptables, and other services. Responsible for timely completion and maintenance of website content, development of server-side scripts, and administration.

January 2000 PlanetSourceCode Superior Coding Contest Winner (of ~50,900 coders, Age 15)

Other Skills:

- Trained in formal logic (propositional, predicate, situation calculus, fuzzy, probabilistic).
- Proficient as a pianist and composer (including concert and music festival experience).
- Mathematical aptitude (tutored and researched in unfamiliar areas of mathematics).
- Experience in photography, poetry, writing, philosophy, and game design.
- Broad, interdisciplinary, motivated, and creative approach to problem solving.