

# Michael Barnathan

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- Objective:** To fully utilize my knowledge of theoretical and applied computer science and continue to acquire new knowledge in an intellectually stimulating environment.
- Selected Interests:** Data Mining, Computer Aided Diagnosis, Oncology, Immunology, Education, Data Structures, Software Development, Artificial Intelligence, 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, KDevelop, NetBeans, vi, cvs, svn, gdb, QT.
- 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.
- Modeling Techniques:** UML, E-R modeling, flowcharts, grammars/FSAs.

## Education

### Temple University Philadelphia, PA

- Aug. 2006 – Present** **Ph. D. Student** 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:** Every semester.

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

**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 (DnLab), 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.

**Sep. 2004 – May 2006**      **Mathematics Tutor, Peer Tutor** (two concurrent positions)  
**Monmouth University**

Tutored undergraduate and graduate students in computer science, mathematics, and history as part of a university-sponsored peer tutoring service. Also tutored students in college and graduate-level mathematics, including unfamiliar topics, for the university's mathematics learning center.

## Selected Publications

**9 Total**

**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)**

**Analyzing Tree-Like Structures in Biomedical Images Based on Texture and Branching: An Application to Breast Imaging:** By Michael Barnathan, et al. Published in Proceedings of the International Workshop on Digital Mammography (IWDM) 2008, Tucson, Arizona, July 20 – 23, 2008.

**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 Web-Accessible Framework for Automated Storage and Texture Analysis of Biomedical Images:** By Michael Barnathan, Jingjing Zhang, and Vasileios Megalooikonomou. 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 AAAI 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 8 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, courier-imapd, 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).
- High 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.

Complete Portfolio and CV available at <http://michael.barnathan.name>.