

John J. McGee

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SUMMARY

Applied mathematician with extensive algorithm invention, development and teaching experience. Long record of successful completion of software solutions to complex problems across a variety of industries. Currently enjoying service as a mathematics instructor at Radford University. Fluent in Spanish.

SKILLS

Mathematics: Calculus, Linear and Abstract Algebra, Vector Geometry, Statistics, Coding Theory, Signal Processing, Cryptography
Software: C++ / OOP (15 years), Java (3 years), Mathematica (7 years), Win32, Linux

EDUCATION

MS-Mathematics Virginia Polytechnic Institute, June 2006 (GPA 3.6)
Teaching Assistant in the Mathematics Department
Research Assistant at the Virginia Bioinformatics Institute
Thesis topic: “*An Introduction to Schoof’s Method for Computing the Order of the Group of Points on an Elliptic Curve over a Finite Field*” – Advisor: Ezra Brown.

MS-EE Worcester Polytechnic Institute, 1981 (GPA 4.0)
Concentration in mathematics and algorithms for signal processing
Teaching assistant for electronics and signal processing labs

BS-EE Worcester Polytechnic Institute, 1978 (High Distinction)
Concentration in computer/digital design and computer science

PUBLICATIONS & PRESENTATIONS

Papers

A Graph-Theoretic Method for the Discretization of Gene Expression Measurements (co-author with E. Dimitrova – submitted)

An optimization algorithm for the Inference of Biological Networks (co-author with P. Licona-Vera et. al. – submitted)

Patents

System and Method for Monitoring Performance Metrics (US 6,643,613)

Methods and Apparatus for Adaptive Threshold Determination (US 7,076,695)

Methods and Methods for Display of Time-Series Data Distribution (US 7,219,034)

Selected Public Presentations

Some Interesting Properties of Elliptic Curves (UAF – Fall 2008)

Elliptic Curve Algorithms (Wolfram Technology Conference – Fall 2007)

Estimating Circularity from Discrete Samples (Poster Presentation – SACNAS 2005)

Bayesian Networks as a Tool for Causal Discover (VT-Math Dept-2004)

A Novel Approach to e-Business Performance Metric Analysis (CMG-2001)

EXPERIENCE

- 8/06-present Radford University, Radford, VA (<http://www.radford.edu>)
Instructor - Mathematics and Statistics Department
Classes include introductory statistics, calculus and linear algebra courses
(STAT 200, MATH 151, MATH152, MATH260, Praxis II Prep)
Service activities include advising students, supporting internships and working with
the RU Math Club. One patent application resulting from undergraduate research.
- 8/03-6/05 Virginia Bioinformatics Institute, Blacksburg, VA (<http://www.vbt.vt.edu>)
- Developed a system for high-performance analysis of social contact networks for epidemiology. The method employs topological, graph-theoretic and statistical methods to analyze personal contact graphs for approximately 1.5 million persons.
 - Contributed to the design and development of an agent-based human immune system simulator (<http://www.vbi.vt.edu/~pathsim>).
 - Developed genetic algorithm software as an estimator of a minimal Boolean dynamical system to fit a multi-variate discrete time series.
 - Assisted in the design and development of a novel discretization method based on graph theory.
 - Conducted a 7 week seminar entitled – “C++ Software Development for Mathematical Algorithms”
- 8/02-8/03 Altaworks Corp., Nashua, NH
On consulting retainer for patent processing and statistical analysis.
- 7/00-8/02 Altaworks Corp., Nashua, NH (<http://www.altaworks.com>)
R&D Software Engineer for e-Business performance analysis
- Developed adaptive threshold system based on non-parametric statistics
 - Invented novel algorithms for creation and use of empirical quantile functions
 - Developed Bayesian Network computation algorithms
 - Designed a historical data compression and display method
 - Developed a metric correlation subsystem to build a relationship graph
 - Represented Altaworks at the Computer Measuring Group (CMG) conference
 - Primary inventor on 3 patents covering the above technologies
- 3/99-7/00 Metronics, Bedford, NH (<http://www.metronics.com>)
Senior Engineer in dimensional metrology software development group
- Developed methods for mechanical and optical system calibration
 - Served as company representative on DMIS National Standards Committee
- 1999-2000 Daniel Webster College, Nashua, NH (<http://www.dwc.edu>)
Adjunct Instructor - courses: Programming in C++, Advanced C++
Topics covered include: inheritance, virtual functions, templates, exceptions and STL.

- 1997-1999 Grason-Stadler, Milford, NH (Division of Nicollet Biomedical)
Senior Engineer / System Integrator in audiology products group
- Imbedded microprocessor/DSP audiological device development
- Assisted in debug and performance evaluation of audio signal processing system
- Programming in C, Masm for embedded system using Paradigm tools
- 1986 - 1997 L. S. Starrett Company, Mount Airy, NC (<http://www.starrett.com>)
Senior Engineer / Group Leader for Coordinate Measuring Machine Division
- Invented and assisted in development of a new CMM control language
- Developed over 100 algorithms for 3D geometric feature & tolerance evaluation
- Developed a system to create and apply 3D parametric error compensation
- Developed machine interface electronics, firmware and drivers
- 1984-1986 Self-employed as an electrical engineering consultant
- Developed hardware/software for embedded system control of an industrial plating line with over 350 I/O points. (Z80 ASM, DG-PASCAL)
- Developed a preemptive multi-tasking kernel for Z80
- Developed energy management system control program including a graphical user interface and reporting system, database management, automatic polling.
- 1981-1984 Data General Corporation, Westboro, MA
- Developed diagnostic software and firmware for high-speed computer communication products (RS-232, X.25, Ethernet).
- Created multi-tasking kernel for DG Nova for use in reliability testing
- 1979-1981 Worcester Polytechnic Institute, Worcester, MA
- Teaching assistant for analog and digital circuit design courses.
Included lab assistance, homework grading and lecturing.

ACTIVITIES

MAA, SACNAS – member
SIAM – student chapter secretary at VT
ANSI Standards Committees – DMIS (national standards committee), SOI (TRB)
DMIS User Group - promotion committee chair, working group leader
Student Pilot EE-0058561 (36 hours)

HONORS

Pi Mu Epsilon (2006), Tau Beta Pi, Eta Kappa Nu, Upsilon Pi Epsilon (1978)