Jane Wall

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Academic Degrees

Ph.D., Rice University (3.96 GPA). Computational and Applied Mathematics.
Advisor: Steven J. Cox. Thesis: *A Quantitative Model of Neuronal Calcium Signaling*
Master of Arts, Rice University (4.0 GPA), Computational and Applied Mathematics.
Bachelor of Science, Columbus College (3.9 GPA). General Studies major with emphases in classical languages and political science.

Academic Experience

- Developed and directed **Data Science** programs at American University in the department of mathematics and statistics. Proposed curriculum for data science undergraduate major and minor, and graduate certificate. Created brochure to market the program and assisted with web site development. Developed and taught two of the four core Data Science courses.
- Developed a joint master's degree in Data Science with the School of Public Affairs. Co-director for the joint master's degree. Associate director for the university-wide Center for Data Science.
- Taught courses ranging from Finite Mathematics to Graduate Data Science courses at schools including American University, Rice University, UNC Asheville, Auburn University, University of Georgia, California State University at Northridge, Moorpark University, and IBM. In a recent offering of Calculus 1, we used common assignments and exams and gave the students a pre and post assessment test. My students showed twice the improvement of the other three sections of the course and scored an average of 20 points higher on the common final exam.

Upper division / graduate	Statistics and Computer Science	Mathematics / Other
Statistical Programming using ***R***	Computer Programming (***Python***)	Calculus 1, 2, and 3
Data Science	Intro to Engineering Computation (***MATLAB***)	Applied Calculus
Topics in Data Science	***APL*** Programming	Applied PreCalculus
Computational Neuroscience	Introductory Statistics	Great Ideas in Mathematics
Matrix Analysis	Business Statistics	College Algebra
Intro to Mathematical Models	Business Computer Systems	Finite Mathematics
Applied Differential Equations		Humanities of the Ancient World
Abstract Algebra		Vagina Dialogues
History of Science and Math		

- Developed and taught a version of Basic Statistics using R (stay tuned for results)
- Created a study abroad program (UNCA) to Greece and Turkey. Got program approved as a Greek Experience and coordinated with Classics to provide coursework to fulfill university requirement for inter-disciplinary course requirement. Produced marketing materials for program, recruited students, developed history course to offer, constructed itinerary, negotiated rates and led the first study abroad.
- Served on Faculty Senate and Senate Academic Committee (UNCA).

Industry Experience

Significant experience (IBM, BEA Systems, Total System Services) in:

- software engineering (prototype development, requirements definition)
- project management (managed multiple projects, working with customer to size, identify and prioritize changes to code)
- managing departments of programmers for both technical and business applications
- sales – consistently exceeded quota selling software, hardware and services to Fortune 500 companies. Multi-million dollar sales. Presentations and sales to C level customers.
- subcontract management – negotiated major contracts, determined contract type, managed on-going work
- managing account relationship – coordinated efforts across divisions for relationship with global account
- line management – recruiting, hiring, evaluation and coaching for employees
- started and ran my own company – one in consulting, one in wine distribution

Graduate Courses Completed

Mathematical Neuroscience	Integrative Neuroscience	Intro to Neurobiology
Concepts of Learning and Memory	Ten Unsolved Questions of Neuroscience	Mechanisms of Memory
PDEs of Mathematical Physics	Numerical Analysis	Numerical Analysis II
Optimization Theory	Numerical Solution of PDEs	Applied Mathematics
Actuarial Mathematics	Probability & Statistics	Statistics I, II
Multi-Variate Analysis	Intro to Real Analysis	Real Analysis (Measure Theory)
Analysis II	Complex Analysis	Point-Set Topology
Topology	Abstract Algebra	C++ (audit)

American Society for Actuaries courses 1 and 2 plus 10 units of Professional Development credit.

Coursera Certificates

R Programming	Practical Machine Learning	Statistical Inference	Regression Models
Data Scientist Toolbox	Reproducible Research	Getting and Cleaning Data	Exploratory Data Analysis
Intro to Big Data	Developing Data Products	Machine Learning	

Professional Societies

American Statistical Association
Society for Mathematical Biology
Association for Women in Mathematics
Mathematical Association of America
Society for Industrial and Applied Mathematics
Society for Neuroscience
American Mathematical Society

Service

Director of Data Science Programs
Assoc. Director of Center for Data Science
UNCA Academic Policies Committee
Math Department Curriculum Committee Chairperson
Instructor at OLLI (wine workshops, memory and math courses)
Asheville Lyric Opera Guild Board
Co-director of Master's in Data Science
UNCA Faculty Senate
Greek Experience Cluster Coordinator
Math Department Parsons Lecture Committee
Asheville Guardian Ad Litem Volunteer
Asheville Symphony Chorus Treasurer

Fellowships/Awards

MAA Project NExT Fellow (2006-2007)
VIGRE Fellow at Rice University
Non-teaching Assistant at University of Georgia
NASA Space Fellow at Auburn University
Pi Sigma Alpha (political science honorary)
Pi Mu Epsilon (mathematics honorary)

Research Interests

Machine Learning algorithms, particularly neural networks. Computational biology with a specific interest in modeling at the cellular level. Constructing systems of partial differential equations to model biophysical properties and approximating a solution using MATLAB. Inverse problems arising in biology.

Teaching philosophy

My teaching philosophy can probably best be summed up by John Louis von Neumann: "If people do not believe that mathematics is simple, it is only because they do not realize how complicated life is." My job as a teacher is to help students to see the simplicity of mathematics and to experience the joy of insight into mathematical principles.

I truly care about my students and do all I can to help them succeed. I have been known to offer evening study sessions to help prepare for exams. On occasion, I have provided retests for the entire class when they were struggling with difficult material. I try to keep them from getting discouraged and get them to go back and learn material they were having trouble with.

For applied math courses, I believe students should be exposed to programming using tools like R, MATLAB, Maple, Mathematica, etc. These tools increase productivity and make them more marketable. In the appropriate courses, I would provide for a substantial part of the grade to come from assignments using these tools.

Talks / Posters / Publications

Colloquium: *Calcium in Nerve Cells: How can we leverage mathematics to assist the biochemist?* Samford University, Birmingham, AL. (February, 2006)

Colloquium: *What can we tell from Calcium measurements inside a neuron?* Millsaps College, Jackson, MS. (February, 2006)

Colloquium: *Using a Mathematical Model to Help Answer Biology Questions: Calcium in Neurons*, Berry College, Rome, GA. (January, 2006)

Invited Talk: *Inferring Calcium Channel Distribution from Calcium Fluorescence Data*, SIAM Minisymposium on Mathematical Neuroscience: From Experiment to Theory I, AMS Joint Meetings, San Antonio, TX; Steve Cox and Jane Hartsfield. (January, 2006)

Invited Talk: *Quantitative Study of Neuronal Calcium Wave Initiation*, Yale University, Medical School Liver Center, New Haven, CT, December, 2005.

Invited Talk: *Neuronal Calcium Signaling*, Baylor University Math Dept, Waco, TX, November, 2005.

Pi Mu Epsilon: *Career Options for Mathematicians*, Baylor University Math Dept, Waco, TX November, 2005.

Poster: Steve Cox and Jane Hartsfield, *Inferring Calcium Channel Distribution from Calcium Fluorescence Data*, Gulf Coast Consortium for Computational Neuroscience Conference, Houston, TX, November, 2005.

Invited Talk: *A Model for Calcium Wave Initiation in the Neuron*, CSU Biology, Comp Sci and Math Depts, Columbus, GA, November, 2005.

PhD. Thesis: *A Quantitative Model of Neuronal Calcium Signaling*, November, 2005.

Colloquium: *Analysis of Calcium Wave Initiation in a Neuron*, Computational and Applied Mathematics Department, Rice University, Brad Peercy, Steve Cox, Jane Hartsfield. (April, 2005)

Poster: *Calcium Signaling in a Neuron*, First Annual Young Researchers Conference, Mathematical Biosciences Institute, Ohio State University, Brad Peercy, Steve Cox, Jane Hartsfield. (March, 2005)

Poster: *A Quantitative Model of Neuronal Calcium Signaling*, Society of Mathematical Biology Annual Meeting, University of Michigan, Brad Peercy, Steve Cox, Jane Hartsfield. (February, 2005)

Contributed Talk: *Calcium Signaling in a Neuron*, Society of Mathematical Biology Annual Meeting, University of Michigan, Brad Peercy, Steve Cox, Jane Hartsfield. (July 2004)

Poster: Steve Cox, Brad Peercy, and Jane Hartsfield, *A Quantitative Model of Neuronal Calcium Signaling,* Society for Neuroscience Annual Meeting, San Diego CA, October, 2004.

Poster: Steve Cox, Brad Peercy, and Jane Hartsfield, *A Quantitative Model of Neuronal Calcium Signaling,* Conference on Biomedical Engineering Research, February, 2005.

Master's Thesis: *A Quantitative Model of Neuronal Calcium Signaling*, May, 2004.

Talk*:* *Integrative Model of Synaptic Plasticity Involving the CREB Gene Cascade in a Two-Cell Circuit.* Graduate Student Seminar, Rice University, 2003, (co-presenter).

References

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Student quotes:
"She is the only reason I passed calculus. She will help you with anything you need. Probably the best calculus teacher at Auburn. I highly recommend her."

"I LOVED this class. Jane Hartsfield (Wall) has been the BEST teacher I've had while at Rice! … this was an amazing class!!"

"Teacher explained complex material well. She cares about her students."

"Prof. Hartsfield (Wall) was an excellent teacher. I actually felt like she wanted to be here teaching us and that was a nice change from some of the Professors here. She was always upbeat and willing to answer questions in a way that helped us to understand. I enjoyed this class and the concepts taught."

"The teacher was very good and was able to make boring matrix stuff bearable to sit through & possibly interesting."