Department of Mathematics
Phillips Academy
Andover, MA 01810, USA

Jadrian Miles, PhD

http://jadrian.org
jadrian.miles@gmail.com
(919) 593-8094

Education

Ph.D. in Computer Science, Brown University. 2015
Sc.M. in Computer Science, Brown University. 2008
B.S. with Distinction in Computer Science, **B.S.** in Mathematics, Duke University. 2006

Professional Experience

Software Engineering & Research

Brown University, Providence, RI 2006–2015
Graduate Researcher in Computer Science Department
- Developed a mixed discrete/continuous model of brain-tissue structure, and algorithms to fit it to MRI data.
- Collaborated across disciplines with scientists in Providence, RI; St. Louis, MO; Edinburgh; and Cape Town.
- Made frequent presentations, including over 25 one-hour talks given to my research group and others.
- Developed and ran my research software on Linux and Mac OS X in C/C++, GLSL, Python/Numpy, Matlab, and bash.

Google, Inc., Cambridge, MA 2011
Intern in Software Engineering
- Back-end design, development (with MapReduce in C++), and deployment of a customer-facing user interface for latency analytics, which shipped on my final day. 2011

Avid Technology, Inc., Tewksbury, MA 2000–2008
Intern in Software Engineering, Software Quality Assurance, and Training Departments
- Research and development of algorithms for video deinterlacing (machine learning), scene reconstruction (computer vision), and cryptographic steganography. 2008, 2006, 2003
- Video codec evaluation; development of in-house codec testing workflow software. 2004
- Migration of full corporate code base to Visual Studio .net compiler; software refactoring & optimization. 2003
- Software quality assurance; network and hardware construction and maintenance. 2002
- Worked with Matlab, C/C++, Intel numerical libraries, Javascript, etc. on Windows.

Teaching

Phillips Academy, Andover, MA 2015–2016
Instructor in Department of Mathematics, Statistics, and Computer Science
- Taught AP CS (3 sections), Software Design, Computer Graphics, and Data Structures (2 sections).
- Designed the Graphics course from scratch: a bottom-up approach in Python/Numpy and WebGL.
- Advised two teams, of three students each, on independent projects: “PACTF” and Combinatorial Optimization.
- Co-instructed the outdoor learning program, Outdoor Pursuits, for two trimesters.

Carleton College, Northfield, MN 2013–2015
Visiting Instructor in Computer Science Department
- Taught Intro (2x), Data Structures (2x), Math of CS (2x), Algorithms (3x), and Software Design (1x).
- Designed and taught an elective on medical image analysis. Significantly redesigned Data Structures.
- Managed undergraduate graders for most courses.
- Advised five students as research assistants for two trimesters.
- Advised three teams, of six students each, on two-trimester senior capstone projects.
- Academic advisor for fourteen majors.

Brown University, Providence, RI 2008, 2013
Instructor in Computer Science Department
- Taught Intro to Computation for the Humanities and Social Sciences and managed a staff of undergraduate TAs. 2013

Teaching Assistant in Computer Science Department
- TA'd Virtual Reality Design for Scientific Visualization, including extensive virtual reality software support. 2008

New Urban Arts, Providence, RI 2009–2011
Academic mentor in math and science to high-school art students.

Duke University, Durham, NC 2004–2006
Undergraduate Teaching Assistant in Computer Science Department
- TA'd Software Design, Graphics, Numerical Analysis (grad-level), and Discrete Math. Taught one lecture for Graphics.

Skills

Programming and markup languages

- **Proficiency:** C/C++, Matlab, Python/Numpy, Java, compliant HTML, CSS, LaTeX.
- **Familiarity:** Make, Javascript, PHP, SVG, bash, csh, SuperCollider, Processing.

Software / Libraries

- **Proficiency:** Debian/Ubuntu Linux, Mac OS X, Windows XP, Eclipse, Photoshop, Inkscape.
- **Familiarity:** JUnit, Git, Subversion, CVS, ClearCase.

Service

Reviewer for *IEEE Visualization* and *IEEE Transactions on Visualization and Computer Graphics*.

Carleton College, Northfield, MN 2013–2015

- Faculty reviewer of sophomore writing portfolios. 2014
- Interviewer for Digital Humanities postdoctoral candidates. 2014
- Interviewer for Goldwater Scholarship candidates. 2014

Providence Public School Department, Providence, RI 2012

- Invited Evaluator of student demonstrations for Expanded Learning Opportunities.

Brown University, Providence, RI 2006–2010

- Member, CS Graduate Student Committee for PhD Admissions. 2011
- Technical Officer, Brown Graduate Student Council. 2008, 2010
- CS Department Representative, Brown Graduate Student Council. 2006–2009
- Organizer, CS Graduate Student Committee for Faculty Search. 2008
- Organizer, CS Graduate Student Recruitment. 2007, 2008

Duke University, Durham, NC 2005–2006

- President, Duke University Chapter of the Association for Computing Machinery. 2006
- Member, Student Advisory Committee to the Office of the Dean of Students. 2006
- DJ, WXDU. 2005–2006

Publications and Presentations

Journal Papers

- A. Gongvatana, R. Cohen, S. Correia, K.N. Devlin, J. Miles, H. Kang, H. Ombao, B. Navia, D.H. Laidlaw, and K.T. Tashima. "Clinical Contributors to Cerebral White Matter Integrity in HIV-Infected Individuals". *Journal of Neurovirology*, 17(5):477–486, 2011.
- R. Boller, S.A. Braun, J. Miles, and D.H. Laidlaw. "Application of Uncertainty Visualization Methods to Meteorological Trajectories". *Earth Science Informatics*, 3(1–2):119–126, June 2010.
- D.F. Keefe, D. Acevedo, J. Miles, F. Drury, S.M. Swartz, and D.H. Laidlaw. "Scientific Sketching for Collaborative VR Visualization Design". *IEEE Transactions on Visualization and Computer Graphics*, 14(4):835–847, Jul–Aug 2008.

PhD Dissertation

- J. Miles. "A Multi-Scale Model of Brain White-Matter Structure and Its Fitting Method for Diffusion MRI". Brown University Department of Computer Science, May 2015.

Refereed Posters, Workshops, and Invited Talks

- J. Miles and D.H. Laidlaw. "Predicting DTI Tractography Uncertainty from Diffusion-Weighted-Image Noise". Poster at ISMRM 2012.
- R. Boller, S. Braun, J. Miles, and D. Laidlaw. "Application of Uncertainty Visualization Methods to Meteorological Trajectories". NASA Earth and Space Science Informatics Workshop, University of Maryland, Baltimore County. August 2009.
- J. Miles. "A Specialized Inter-Curve Similarity Measure for Agglomerative Diffusion MRI Streamline Clustering". Invited talk at the Section on Tissue Biophysics and Biomimetics, National Institutes of Health. May 2009.
- J. Miles, R.A. Cohen, and D.H. Laidlaw. "Tradeoffs in Supersampling of DTI Metrics". Poster at ISMRM 2009.
- J. Miles, D.F. Keefe, D. Acevedo, F. Drury, S.M. Swartz, and D.H. Laidlaw. "Teaching Science in Virtual Reality with a Freehand 3D Illustration". Poster at IEEE InfoVis 2007.

Instructional Workshops

- J. Miles. "Regular Expressions, Text Processing, and Web Scraping", a two-hour Python tutorial at The Humanities and Technology Camp (New England) at Brown University. October 2012.
- J. Miles. "Fibbly Math Patterns", a one-hour classroom workshop for elementary- and middle-school–age students. Facilitated ten sessions total in Damariscotta, ME and Philadelphia, PA. November 2011 – January 2013.
- A. Gongvatana, J. Miles. "Diffusion MRI: Theory and Practice", a three-hour workshop in the Biostatistics Program, Department of Public Health, Brown University. October 2010.