

Christopher S. Mayfield

James Madison University
Department of Computer Science
701 Carrier Drive, MSC 4103
Harrisonburg, VA 22807
mayfiecs@jmu.edu

Education

Ph.D., Computer Science, Purdue University, Aug 2011

Dissertation: *Statistical Inference and Data Cleaning in Relational Database Systems*

Co-Advisors: Sunil Prabhakar and Jennifer Neville

M.S., Computer Science, Purdue University, May 2007

B.S., Computer Science, University of Utah, May 2005

B.A., German Language, University of Utah, May 2005

Professional Experience

James Madison University, Associate Professor 2017–Present, Assistant Professor 2011–2017

Purdue University, Graduate Fellow, Research Assistant, Teaching Assistant, 2005–2011

Google Inc., Mountain View CA, 5/2009 – 7/2009

Performed a large-scale study of hard disk failure trends across all of Google’s production servers; validated results in Pinheiro et al., FAST 2007.

IBM Almaden Research Center, San Jose CA, 5/2008 – 8/2008

Using DB2 pureXML, developed algorithms and components for “Data-Driven Analysis of XML Data for Business Intelligence” (DAXBI).

The Arbiter .net, Sandy UT, 10/2001 – 12/2003 and 1/2005 – 7/2005

Led the development of an extensive ASP.NET web application for sports associations to assign referees to games and manage payroll. Over 100,000 users in 2005; the NCAA acquired the company in 2008.

L-3 Communication Systems, Salt Lake City UT, 1/2004 – 12/2004

Designed and implemented embedded networking software, device drivers, and test applications for the FAB-T system using C++ and the Green Hills Integrity Real-time OS.

Honors and Awards

Oliver Endowed Professorship, JMU College of Integrated Science and Engineering, 2017–2019

Outstanding Junior Faculty Award, JMU College of Integrated Science and Engineering, 2016

Santos Innovation Award, JMU Center for Faculty Innovation, 2014

Outstanding Service Award, Purdue Computer Science Department, 2009

GAANN Fellowship, Purdue Computer Science Department, 2007

Siemens Leadership Scholarship, Purdue Computer Science Department, 2007

Upsilon Pi Epsilon Honor Society, Purdue Computer Science Department, 2007

Graduate Teacher Certificate, Purdue Center for Instructional Excellence, 2006

Refereed Publications

1. **C. Mayfield**. Adopting CS Principles in a Breadth-First Survey Course. *Journal of Computing Sciences in Colleges*, 32:5, 7 pages, 2017.
2. M. Kirkpatrick and **C. Mayfield**. Evaluating an Alternative CS1 for Students with Prior Programming Experience. In *ACM Technical Symposium on Computer Science Education (SIGCSE)*, 6 pages, 2017. (Acceptance rate: 30%)
3. A. Downey and **C. Mayfield**. *Think Java: How to Think Like a Computer Scientist*. O'Reilly Media, 252 pages, 2016. <http://thinkjava.org>
4. H. Hu, C. Kussmaul, B. Knaeble, **C. Mayfield**, and A. Yadav. Results from a Survey of Faculty Adoption of Process Oriented Guided Inquiry Learning (POGIL) in Computer Science. In *Conference on Innovation and Technology in Computer Science Education (ITiCSE)*, 6 pages, 2016.
5. A. Yadav, **C. Mayfield**, N. Zhou, S. Hambrusch, and T. Korb. Computational Thinking in Elementary and Secondary Teacher Education. *ACM Transactions on Computing Education*, 14:1, 16 pages, 2014.
6. **C. Mayfield**, C. Ottenheimer, B. Canada, and B. Bell. Introducing Undergraduate Database Students to K-12 Education Research. In *ACM Technical Symposium on Computer Science Education (SIGCSE)*, 6 pages, 2014. (Acceptance rate: 39%)
7. J. Gorman, S. Gsell, and **C. Mayfield**. Learning Relational Algebra by Snapping Blocks (undergraduate student paper). In *ACM Technical Symposium on Computer Science Education (SIGCSE)*, 6 pages, 2014. (Acceptance rate: 39%)
8. A. Yadav, N. Zhou, **C. Mayfield**, S. Hambrusch, and T. Korb. Introducing Computational Thinking in Education Courses. In *ACM Technical Symposium on Computer Science Education (SIGCSE)*, 6 pages, 2011. (Acceptance rate: 34%)
9. **C. Mayfield**, J. Neville, and S. Prabhakar. ERACER: A Database Approach for Statistical Inference and Data Cleaning. In *ACM International Conference on Management of Data (SIGMOD)*, 12 pages, 2010. (Acceptance rate: 21%)
10. D. Bos, **C. Mayfield**, and D. Minchella. Analysis of Regulatory Protease Sequences Identified Through Bioinformatic Data Mining of the Schistosoma Mansoni Genome. *BMC Genomics Journal*, 10:488, 14 pages, 2009.
11. S. Singh, **C. Mayfield**, S. Mittal, S. Prabhakar, S. Hambrusch, and R. Shah. The Orion Uncertain Data Management System. In *14th International Conference on Management of Data (COMAD)*, 4 pages, 2008. (Demo paper)
12. S. Singh, **C. Mayfield**, S. Mittal, S. Prabhakar, S. Hambrusch, and R. Shah. Orion 2.0: Native Support for Uncertain Data. In *ACM International Conference on Management of Data (SIGMOD)*, 3 pages, 2008. (Demo paper)
13. S. Singh, **C. Mayfield**, R. Shah, S. Prabhakar, S. Hambrusch, J. Neville, and R. Cheng. Database Support for Probabilistic Attributes and Tuples. In *IEEE International Conference on Data Engineering (ICDE)*, 9 pages, 2008. (Acceptance rate: 19%)
14. S. Singh, **C. Mayfield**, R. Shah, S. Prabhakar, and S. Hambrusch. Query Selectivity Estimation for Uncertain Data. In *Intl Conf on Scientific and Statistical Database Management (SSDBM)*, 18 pages, 2008. (Acceptance rate: 35%)
15. S. Singh, **C. Mayfield**, S. Prabhakar, R. Shah, and S. Hambrusch. Indexing Uncertain Categorical Data. In *IEEE International Conference on Data Engineering (ICDE)*, 10 pages, 2007. (Acceptance rate: 19%)

Grants and Funding

1. H. Hu, C. Kussmaul, C. Mayfield, and A. Yadav. IntroCS POGIL: Process Oriented Guided Inquiry Learning in Introductory Computer Science. National Science Foundation (NSF) Improving Undergraduate STEM Education (IUSE). \$1,984,936 awarded, 2017–2021.
2. JMU CS 101 Dual Enrollment Program (high school teacher professional development). Sponsored by the 4-VA Collaborative. \$56,108 awarded, 2013–2016.
3. Apps4VA Student Project Competition. Center for Innovative Technology and Virginia Department of Education. \$6,180 awarded, 2013–2015.
4. Learning Relational Algebra by Snapping Blocks (undergraduate research project). JMU CISE Faculty Development Grant. \$4,711 awarded, 2013–2014.
5. Google CS4HS to support participants of the JMU CS Teaching Academy (summer workshop for high school teachers). \$12,000 awarded, 2013.

Selected Presentations

1. Converting Your Teaching (or Even Your Whole Department!) to Active Learning via POGIL. ACM Technical Symposium on Computer Science Education (SIGCSE). Seattle, WA, March 2017.
2. Implementing CS Principles as a Breadth-First Survey Course (poster). ACM Technical Symposium on Computer Science Education (SIGCSE). Seattle, WA, March 2017.
3. Helping Students to Construct Content Knowledge and Develop Process Skills with POGIL. Texas Regional Collaboratives WeTeach_CS Summit. Austin, Texas, June 2016.
4. Helping Students to Develop Communication, Teamwork, and Other Process Skills with POGIL. ACM Technical Symposium on Computer Science Education (SIGCSE). Memphis, Tennessee, March 2016.
5. Apps4VA at JMU: Student Projects Featuring VLDS Data. Third Annual VLDS Insights Conference. Stafford, Virginia, June 2015.
6. Guided Inquiry Learning in Context: Perspectives on POGIL in CS (panel). ACM Technical Symposium on Computer Science Education (SIGCSE). Atlanta, Georgia, March 2014.
7. Blown to Bits Jeopardy and Intro to POGIL. CS4EDU Workshop on Expanding and Advancing CS Education in High Schools. West Lafayette, Indiana, July 2012.
8. Computational Thinking in K-12 Education. UVA Tapestry Workshop on Attracting and Engaging Diverse High School Students to Computing. Charlottesville, Virginia, June 2012.
9. Contemporary Issues and Computational Thinking in K-12 Education. In The Loop CS4HS Workshop at Purdue University. West Lafayette, Indiana, July 2011.
10. A Statistical Method for Integrated Data Cleaning and Imputation. Google Intern Talk Series. Mountain View, California, July 2009.
11. C Development Using Eclipse. Purdue ACM Chapter Tech Talk Series. West Lafayette, Indiana, February 2009.
12. Orion 2.0: Native Support for Uncertain Data. IBM Almaden Research Center. San Jose, California, June 2008.
13. Navigating and Debugging PostgreSQL Source Code Using Eclipse. Indiana Center for Database Systems (ICDS) Seminar. West Lafayette, Indiana, September 2007.
14. Load Shedding in Stream Databases – A Control-Based Approach. International Conference on Very Large Data Bases (VLDB). Seoul, Korea, September 2006.

Courses Taught

James Madison University

CS 101, Introduction to Computer Science
CS 139/149, Programming Fundamentals
CS 159, Advanced Programming
CS 228, Discrete Structures II
CS 280, Programming Challenges
CS 474, Database Design and Application
CS 501/585, Workshop in Computer Science

Purdue University

CS 190, Contemporary Issues in Computing
CS 251, Data Structures (TA)
CS 448, Database Implementation (TA)
CS 503, Operating Systems (TA)
CS 542, Distributed Database Systems (TA)

Service Activities

Professional

Member of the ELIPSS project collaboration team, 2016–present, <http://elipss.com>
Trained workshop facilitator for the POGIL Project, 2015–present, <https://pogil.org>
Reviewer for ACM Transactions on Computing Education (TOCE), <http://toce.acm.org>
Reviewer for ACM Technical Symposium on Computer Science Education (SIGCSE)
Reviewer for Innovation and Technology in Computer Science Education (ITiCSE)

University

Facilitator for CFI jmUDESIGN Institute, 2013–present
Consultant for CFI Teaching Analysis Polls, 2013–present
Freshman advising (~75 CS majors/year), 2012–present
Member of CISE K-12 Outreach Committee, 2012–present
Member of Computer Science Lab Committee, 2011–present
Faculty advisor for ACM student chapter, 2011–2015

K-12 Outreach

JMU Valley Scholars Program, 2015–present
Provided computer science activities for prospective first-generation college students.
Annual STEM Educators Workshop, 2014–2016
Presented multiple hands-on computer science sessions for K-12 teachers and counselors.
CS 101 Dual Enrollment, 2014–2016
Developed a unique program for training and mentoring new high school CS teachers.
Computer Science Teaching Academy, June 2013 and June 2014
Organized 5-day intensive summer workshops for high school computer science teachers.