Caitlin Kuhlman

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Education

Worcester Polytechnic Institute
PhD in Computer Science, *in progress 2014 - present*

University of Massachusetts Boston
Major Certificate in Computer Science, *2013*
Cumulative GPA 3.6, Major GPA 3.8, Dean's List (2011, 2012)

Massachusetts College of Art and Design
BFA in Fine Arts 3D, *2007*

Skills

Programming Languages: Java, Python, C, Bash, SQL, Javascript
Technologies & Platforms: Hadoop, Git, Apache Tomcat
Operating Systems: Linux/Unix, Windows, Mac
Software & Libraries: Weka, Scikit-learn, Eclipse IDE**,** Adobe Photoshop, Illlustrator
Design: Fine arts training and working knowledge of visual design principles and best practices.

Awards

ORISE Fellowship *2014 - present*
Appointment to the Student Research Participation Program at the U.S. Army Natick Soldier Research, Development and Engineering Center, administered by the Oak Ridge Institute for Science and Education and the U.S. Department of Energy.

Research Experience

Research Assistant in Computer Science Department Worcester Polytechnic Institute *August 2014 - present*
Advisor: Elke Rundensteiner

- Researcher and developer on the Massachusetts Technology, Talent, and Economic Reporting System (MATTERS), an online analytics dashboard to measure the economic competitiveness of U.S. states.
- Work closely with domain experts from the Massachusetts High Tech Council on the identification and integration of high fidelity datasets, the design of intuitive visual analytics and user interfaces, and the development of useful data analysis tools.
- Supervise teams of undergraduate students for their Major Qualifying Projects. Projects include:
  - System to automatically extract and integrate heterogeneous data from different online sources.
  - Suite of tools for data management, currently in use by a data curation team from Brandeis University.
  - Public-facing API, providing access to a collection of 30 datasets.

Technical Intern MITRE Corporation Bedford, MA *June 2015 - present*

- Member of a small team of researchers investigating new techniques for automatic feature learning leveraging the Hadoop distributed computing framework.

Technical Intern MITRE Corporation Bedford, MA *June 2014 - August 2014*

- Worked with a lead data scientist to perform analytics on TB scale data for cybersecurity applications.
- Developed and implemented a MapReduce algorithm in Java for feature extraction using Hadoop.
- Provided proof-of-concept for a supervised learning-based system for intrusion detection.

Research Assistant Knowledge Discovery Lab University of Massachusetts Boston *January 2014 – May 2014*

- Continued project on the detection of objects in remote sensed imagery, leading to a journal publication.
- Compiled and annotated a data set for experimentation, released for use by other researchers.
- Executed thousands of tests using the Open Science Grid distributed computing network.

Research Assistant Knowledge Discovery Lab University of Massachusetts Boston *May – August 2013*

- Contributed to a collaborative project with George Mason University and the US Department of Energy for the automatic analysis of geospatial imagery.
- Implemented a system for detecting buildings in satellite images, developed a web client for image analysis and an open source command line tool for image preprocessing.

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Publications

Joseph Paul Cohen, Wei Ding, Caitlin Kuhlman, Aijun Chen, and Liping Di
"Rapid Building Detection using Machine Learning"
Accepted for publication in Applied Intelligence 2016

Presentations

Lei Cao, Yizhou Yan, Caitlin Kuhlman, Elke Rundensteiner
"Distributed Local Outlier Factor in MapReduce"
Poster presented at the Women in Machine Learning Workshop co-located with the Conference on Neural Information Processing Systems (NIPS), December 2015

Caitlin Kuhlman
*"***MATTERS: Massachusetts Technology, Talent and Economic Reporting System"**
Poster presented at the Broadening Participation Workshop at the ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp), September 2015
Poster presented at the Graduate Research Innovation Exchange WPI, December 2014. Award Finalist

Joseph Paul Cohen, Caitlin Kuhlman, Wei Ding, Aijun Chen, Liping
"Efficient M-L Aware Feature Construction for Scale and Rotation Invariant Building Detection"
Poster presented at Massachusetts Statewide Undergraduate Research Conference at the University of Massachusetts Amherst, April 2014
Invited student speaker and poster presented at the New England Undergraduate Computing Symposium at Boston University, March 2014