
Caitlin Kuhlman

cakuhlman@wpi.edu

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, R, Bash, SQL, Javascript

Technologies & Platforms: Hadoop, Git, Apache Tomcat

Operating Systems: Linux/Unix, Windows, Mac

Software & Libraries: Weka, Scikit-learn, Eclipse IDE, Adobe Photoshop, Illustrator

Design: Fine arts training and working knowledge of visual design principles and best practices.

Awards

ORISE Fellowship 2014 – 2016

Appointment to the Student Research Participation Program at the U.S. Army Natick Soldier Research, Development and Engineering Center, administered by Oak Ridge Institute for Science and Education and DOE.

Research Experience

Research Assistant in the 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 over 30 datasets.

Data Science for Social Good Fellow IBM Research Yorktown Heights, NY *May – August 2016*

- One of six researchers selected to work with IBM and partner organizations on data analytics solutions for social good. Focus of project: to better quantify innovation in countries around the world.
- Worked closely with a small team of data scientists to analyze over 1400 publicly available economic, demographic, and environmental datasets.
- Developed models to predict and measure the level of innovation in a country, and identify contributing factors that facilitate innovation.

Technical Intern MITRE Corporation Bedford, MA *June – August 2014 and June – August 2015*

- Member of a small team of researchers investigating new techniques for automatic feature learning leveraging the Hadoop distributed computing framework.
- 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, and provided proof-of-concept for a supervised learning-based system for intrusion detection.

Research Assistant Knowledge Discovery Lab UMass Boston *May – August 2013 and January – May 2014*

- Contributed to a collaborative project with George Mason University and the US Department of Energy for the automatic analysis of geospatial imagery, leading to a journal publication.
- Implemented a system for detecting buildings in satellite images, developed a web client for image analysis, and released an open source command line tool for image preprocessing.
- Compiled and annotated a data set for experimentation made public for use by other researchers.

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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