Alex Fout
Graduate Student

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EDUCATION

Ph.D. in Statistics (in progress) began 2017
Colorado State University - Fort Collins, CO

M.S. in Computer Science 2017
Colorado State University - Fort Collins, CO
Thesis: Protein Interface Prediction using Graph Convolutional Networks
Advisor: Asa Ben-Hur

M.S. in Industrial Engineering 2013
New Mexico State University - Las Cruces, NM

B.S. in Applied Mathematics 2011
University of Colorado - Boulder, CO

B.S. in Engineering Physics 2011
University of Colorado - Boulder, CO

PROFESSIONAL EXPERIENCE

Summer Program for Operations Research May 2016 - Aug 2016
Technology Intern
National Security Agency - Fort Meade, MD
Designed and implemented a machine learning pipeline to perform anomaly detection on Hadoop Distributed File System name node logs.

- Worked with customer to establish problem statement, project goals, and deliverables

- Used automatic feature generation, feature reduction, agglomerative clustering, and anomaly detection

- Built fully automated prototype software in Python and delivered documented source code and written report to customer

- Delivered briefing to senior leadership to communicate results and mission impact

Research Scientist Intern Aug 2015 - Jan 2016
Numerica Corporation - Fort Collins, CO
Supported research effort for both ongoing and pilot projects
- Explored uses of Long Short Term Memory neural networks for data simulation

- Contributed to development of terrorist activity model

Operations Research and Systems Analyst Jun 2011 - Aug 2015
(ORSA)
U.S. Army TRADOC Analysis Center - White Sands, NM
Conducted study planning, methodology development, data collection, analysis, and documentation to support Army acquisition decisions and current operations.
- Designed and implemented iterative coarse-to-fine analysis to investigate an expansive missile design space within agency cost, personnel, modeling, and time constraints; utilized dimensionality reduction and hierarchical clustering techniques to efficiently sample the design space

- Designed and implemented artificial intelligence behaviors (similar to Reynolds steering behaviors) in Java based Army combat simulation to enable entity dynamic decision making

- Deployed to Kandahar, Afghanistan as a Regional Command ORSA in support of Operation Enduring Freedom

- Mentored multiple summer interns, providing analysis coaching and technical advising during their summer projects

PUBLICATIONS (* denotes equal contribution)

1. Fout, A.*, Byrd, J.*, Shariat, B.*, & Ben-Hur, A. (2017). Protein Interface Prediction using Graph Convolutional Networks. In Advances in Neural Information Processing Systems (pp. 6533-6542).

2. Kammerdiner, A., Fout, A., & Bent, R. (2013). Comparative Analysis of Local Search Strategies for Transmission Network Expansion Planning. In Dynamics of Information Systems: Algorithmic Approaches (pp. 327-344). Springer, New York, NY.

PRESENTATIONS (* denotes poster presentation)

Protein Interface Prediction using Graph Convolutional Networks*   2017
Neural Information Processing Systems Conference
Long Beach, CA

Long Range Precision Fires Analysis of Alternatives: Trade Space Analysis   2014
Army Operations Research Symposium
Fort Lee, VA

Long Range Precision Fires Analysis of Alternatives: Trade Space Analysis   2014
US/Germany Data Exchange
West Point, NY

Infantry Fighting Vehicle Soldier Capacity Analysis   2012
Army Operations Research Symposium
Fort Lee, VA

Infantry Fighting Vehicle Soldier Capacity Analysis   2012
Military Operations Research Society Symposium
Colorado Springs, CO

TEACHING

Instructor: STAT 301 - Introduction to Statistical Methods	Spring 2018
Teaching Assistant: STAT 201 - General Statistics	Fall 2017
Teaching Assistant: CS 161 - Object Oriented Problem Solving	Spring 2016
Teaching Assistant: APPM 1350 - Calculus I for Engineers	Spring 2009
Undergraduate Learning Assistant: PHYS 1110 - General Physics I	Spring 2007

SOFTWARE LANGAGES & FRAMEWORKS

Intermediate Experience: Python, R, Java, TensorFlow, git, LaTeX, Unix/Linux OS
Some Experience: HDFS, MapReduce, HTML/CSS, SPSS, SQL, MATLAB, Mathematica, Bash

AWARDS AND HONORS

Michael F. Baumann Award for Excellence in Analysis   2015
U.S. Army TRADOC Analysis Center

Superior Civilian Service Award   2013
U.S. Department of the Army

Research Experience for Undergraduates   2009
University of Colorado Department of Physics

Eagle Scout   2006
Boy Scouts of America