Amanda Gentzel

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Education

University of Massachusetts Amherst **Amherst, MA**
Ph.D. Candidate in Computer Science *2015-present*
Thesis: Improving Evaluation Methods for Causal Modeling Algorithms
Advisor: David Jensen, Knowledge Discovery Laboratory

University of Massachusetts Amherst **Amherst, MA**
M.S. in Computer Science *2011-2015*

Westminster College **New Wilmington, PA**
B.S. in Computer Science, Minor in Mathematics *2006–2011*
B.M. in Sacred Music
Advisor: C. David Shaffer

Research Experience

University of Massachusetts Amherst
Research assistant, Advised by David Jensen *2011-present*

- Developed modeling approaches and built counterfactual models to explain the behavior of deep reinforcement learning agents in Starcraft 2.
- Surveyed and evaluated current evaluation practices in causal modeling.
- Worked with Pratt and Whitney to developed and evaluated methods for forecasting jet engine maintenance.
- Studied techniques from economics for learning causal dependencies in time series data, and evaluated and compared multiple algorithms for learning causal models in temporal data.
- Studied and developed methods for using density estimation to detect insider threats and anomalies in relational corporate usage data.

CERT **Software Engineering Institute, CMU**
Summer intern *Summer 2014*

- Worked with linguistic features extracted from e-mail communications to find anomalies
- Examined methods to locate insider threats in corporate communication data

University of California Santa Cruz
Undergraduate researcher, Advised by Jacob Rosen *Summer 2010*

- Worked with a computer simulation of the Raven Surgical Robotic System
- Worked with OpenGL to improve simulation, controlled via haptic devices

Westminster College
Undergraduate researcher, Advised by C. David Shaffer *2010-2011*

- Explored techniques for promoting cooperative behavior in discrete spaces for simulated entities
- Wrote simulation and ran experiments using genetic algorithms for simple tasks

University of Massachusetts Amherst
Undergraduate researcher, Advised by Rick Adrion *Summer 2009*

- Produced data sets and researched techniques for recognizing video playback from captured screenshots
- Evaluated video capture performance within a larger lecture capture system

Publications

A. Gentzel, D. Garant, and D. Jensen. The Case for Evaluating Causal Models Using Interventional Measures and Empirical Data. *In Neural Information Processing Systems (NeurIPS)*, 2019.

A. Gentzel, D. Garant, and D. Jensen. The Case for Evaluating Causal Models Using Interventional Measures and Empirical Data. *In Causality Workshop at Neural Information Processing Systems (NeurIPS)*, 2018.

L. Friedland, A. Gentzel, and D. Jensen. Classifier-Adjusted Density Estimation for Anomaly Detection and One-Class Classification. *In Proceedings of the 14th SIAM International Conference on Data Mining (SDM)*, 2014.

T. Senator, H. Goldberg, et al. Detecting insider threats in a real corporate database of computer usage activities. *In Proceedings of the 19th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD)*, 2013.

P. Dickson, D. Arbour, W. Adrion, and A. Gentzel. Evaluation of automatic classroom capture for computer science education. *In Proceedings of the Conference on Innovation and Technology in Computer Science Education (ITiCSE)*, 2010.

Talks and Presentations

A. Gentzel, D. Garant, and D. Jensen. "The Case for Evaluating Causal Models Using Interventional Measures and Empirical Data." Poster at NeurIPS 2019.

A. Gentzel, D. Garant, and D. Jensen. "The Case for Evaluating Causal Models Using Interventional Measures and Empirical Data." Spotlight presentation and poster at NeurIPS 2018 Causality Workshop.

A. Gentzel, E. Baseman, D. Corkill, and D. Jensen. "Relational Dependency Networks for Anomaly Detection." Poster at New England Machine Learning Day, May 13, 2014.

A. Gentzel, E. Baseman, D. Corkill, and D. Jensen. "Relational Dependency Networks for Anomaly Detection." Poster at ADAMS PI Meeting, Apr 23, 2014.

A. Gentzel. "Relational Anomaly Detection." Poster at Grad Cohort, April 11 2014.

A. Gentzel, L. Friedland, and D. Jensen. "Classifier-Adjusted Density Estimation." Poster at Women in Machine Learning workshop, NIPS 2013.

L. Friedland, A. Gentzel, D. Corkill, and D. Jensen. "Classifier-Adjusted Density Estimation for Anomaly Detection." Poster at ADAMS/SMISC PI Meeting, Oct 2 2013.

L. Friedland, A. Gentzel, D. Corkill, and D. Jensen. "Relational Anomaly Detection." Poster at ADAMS/SMISC PI Meeting, Jan 30, 2013.