AKANKSHA ATREY

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OBJECTIVE

I am pursuing my Ph.D. in Computer Science under Prof. David Jensen at the Knowledge Discovery Laboratory, University of Massachusetts Amherst. My current research interests lie in employing causal modeling techniques to understand, evaluate and develop ML models.

EDUCATION

University of Massachusetts Amherst   Sep 2017 - present
M.S./Ph.D in Computer Science

University at Albany, SUNY (CEAS)   Aug 2014 - Dec 2016
B.Sc. Computer Science and Mathematics

· Summa Cum Laude, Deans List of Distinguished Students (4.0 GPA)
· Presidential Honor Society, Tau Sigma National Honor Society

University of Winnipeg   Sep 2013 - Jun 2014
Freshmen year of B.Sc. only

· Deans Honor List (3.96 GPA)

RESEARCH EXPERIENCE

University of Massachusetts Amherst (CICS)   Sep 2017 - present
Research Assistant in the Knowledge Discovery Laboratory

· Explainable artificial intelligence via causal modeling techniques

IBM Research   May 2019 - Aug 2019
Research Intern in the Science for Social Good Program

· Analyzing the temporal effects of long-term opioid usage on opioid addiction and misuse
· Developing interpretable methods for analyzing individual treatment effects for opioid addiction over time

University at Albany, SUNY (CEAS)   Aug 2014 - Dec 2016
Undergraduate Research Projects

· Twitter popularity diffusion of presidential candidates through detection of twitter bots (w/ Prof. Feng Chen)
· E-petition information diffusion in online social networks (w/ Prof. Teresa Harrison)
· Reeb graph based validation of statistical predictive models for the spread of AIDS (w/ Prof. Elizabeth Munch)

Rutgers University, New Brunswick (SCI)   May 2016 - Aug 2016
Research Intern w/ Prof. Vivek Singh

· Faces in Places: Real-time Diversity Analytics Using Social Media

COURSEWORK

Advance ML, Research Methods, Probabilistic Graphical Models, Secure Distributed Systems, Advanced Algorithms, Distributed and Operating Systems, Neural Networks.

WORK EXPERIENCE

IBM (Poughkeepsie, NY) Jan 2017 - Aug 2017
Software Engineer

- Level 2 Service for IBM z/OS mainframe
- Worked with the Supervisor and RTM components
- Languages/Tools: PLX, machine code, assembler

University at Albany, SUNY (Albany, NY) Jan 2015 - Dec 2016
Teaching Assistant

- Introduction to Computer Science, Programming at the Hardware/Software Interface, Systems Programming, Automata Formal Theory

Auto/Mate Dealership Systems (Albany, NY) Sep 2016 - Dec 2016
Software Developer Intern

- Worked on ReportMate on COBOL to PSQL conversions
- Languages/Tools: Java, SQL

Commerce Hub (Albany, NY) Feb 2016 - May 2016
Software Engineer Intern

- Worked in Product Stream team, responsible for various updates, writing testing scripts, etc.
- Languages/Tools: Java, Groovy, MongoDB, Spock

VoxVilla, LLC (Albany, NY) May 2015 - Aug 2015
Web Developer Intern

- Responsible for creating database and design of website
- Languages/Tools: Java, PHP, HTML5, SQL

PUBLICATIONS

[1] ATREY, A., CLARY, K., AND JENSEN, D. Exploratory not explanatory: Counterfactual analysis of saliency maps for deep RL. In *Under Review at ICLR 2020* (2020)

[2] OKTAY, H., ATREY, A., AND JENSEN, D. Identifying when effect restoration will improve estimates of causal effect. In *SIAM International Conference on Data Mining* (2019)

[3] WITTY, SAM, L., KI, J., TOSCH, E., ATREY, A., JENSEN, D., AND LITTMAN, M. Generalization in deep reinforcement learning. In *Critiquing and Correcting Trends in Machine Learning Workshop at NeurIPS* (2018)

[4] SINGH, V. K., ATREY, A., AND HEGDE, S. Do individuals smile more in diverse social company?: Studying smiles and diversity via social media photos. In *ACM Multimedia* (2017), ACM, pp. 1818–1827

[5] HARRISON, T. M., DUMAS, C., DEPAULA, N., FAKE, T., MAY, W., ATREY, A., LEE, J., RISHI, L., AND RAVI, S. E-petitioning and online media: The case of #bringbackourgirls. In *International Conference on Digital Government Research* (2017), ACM, pp. 11–20

[6] SINGH, V. K., HEGDE, S., AND ATREY, A. Towards measuring fine-grained diversity using social media photographs. In *ICWSM* (2017), pp. 668–671

[7] DUMAS, C. L., ATREY, A., LEE, J., HARRISON, T. M., FAKE, T., ZHAO, X., AND RAVI, S. E-petition information diffusion in online social networks. In *International Conference on Digital Government Research* (2016), ACM, pp. 515–517

TALKS AND PRESENTATIONS

[1] *Using Counterfactual Reasoning to Facilitate Understanding of Deep Networks.* IBM Research Intern Highlight. June 2019. Invited Talk.

[2] *Identifying When Effect Restoration Will Improve Estimates of Causal Effect.* SIAM International Conference on Data Mining (SDM) 2019. May 2019. Paper talk & poster.

[3] *Do Diverse Social Interactions Make Us Smile More Often? Studying Smiles and Diversity Via Social Media Photos.* ACM Multimedia (ACMMM) 2017. October 2017. Paper talk & poster. (Travel funded by ACMMM)

[4] *Twitter Popularity Diffusion of Presidential Candidates through Detection of Twitter Bots.* MIT IEEE Undergraduate Research Conference (URTC). November 2016. Poster.

[5] *Reeb Graph Based Validation of Statistical Predictive Models for Spread of AIDS.* Grace Hopper Celebration of Women in Computing (GHC). October 2015. Poster.

[6] *Reeb Graph Based Validation of Statistical Predictive Models for Spread of AIDS.* New York Celebration of Women in Computing (NYCWIC). April 2015. Short talk.

AWARDS AND HONORS

NSF Graduate Research Fellowship Program Honorable Mention	Apr 2019
Lori A. Clarke Scholarship in Computer Science	Jun 2018
CRA-W Grad Cohort 2018 Invitation and Travel Grant	Apr 2018
Lita and Stephen Greenwald Research Fund Award	May 2017
ISO President's Medal for Exemplary Leadership	Apr 2017
Spellman Top Academic Achievement Award	Apr 2017
CRA-W Research Scholar (for Grace Hopper Celebration)	Oct 2016
Bruce B. and Louise Steen Gravitt Scholarship	May 2016
Spellman Top Academic Achievement Award	Mar 2016
Tau Sigma National Honor Society Scholarship	Jan 2016
Women and Technology Award and Scholarship	Jun 2015
Ross A. Johnston Entrance Scholarship in Math and Statistics	Sep 2013

EXTRA-CURRICULAR SERVICE

CS Social Committee (UMass Amherst)	*Chair*	Sep 2019 - Present
CICS Community Outreach Student Team	*Chair*	Apr 2019 - Present
Indian Student Association (UMass Amherst)	*Vice President*	Apr 2018 - May 2019
CS New Student Committee (UMass Amherst)	*Chair*	Sep 2017 - May 2018
CS Social Committee (UMass Amherst)	*Chair*	Sep 2017 - May 2018
Graduate Student Senate (UMass Amherst)	*Senator*	Sep 2017 - Dec 2017
Indian Student Organization (UAlbany)	*Vice President*	Jun 2016 - Dec 2016
Tau Sigma National Honor Society (UAlbany)	*President*	Mar 2016 - Dec 2016
Office of Undergraduate Education (UAlbany)	*Peer Mentor*	Sep 2015 - Dec 2016
Tau Sigma National Honor Society (UAlbany)	*Secretary*	Mar 2015 - Mar 2016
Asian Pacific American Conference (UAlbany)	*Logistics Chair*	Jan 2015 - Apr 2015
Victoria General Hospital (Winnipeg, MB)	*Volunteer*	Aug 2012 - Jun 2014