AKANKSHA ATREY

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EDUCATION

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

University of Massachusetts Amherst Sep 2017 - Dec 2020
M.Sc. in Computer Science (3.89 GPA)

University at Albany, SUNY Aug 2014 - Dec 2016
B.Sc. Computer Science and Mathematics (4.0 GPA)

RESEARCH EXPERIENCE

University of Massachusetts Amherst (CICS) Jan 2020 - present
Research Assistant in the Laboratory for Advanced Software Systems

- Designing, developing, and evaluating end-to-end trustworthy and privacy-preserving ML models for edge computing systems.
- Building large-scale systems for ubiquitous computing.

Adobe Research May 2022 - Aug 2022
Research Scientist Intern

- Empirically evaluated the importance of order in input sequences for novel recommendation problems.
- Designed and evaluated a novel end-to-end transformer-based recommender system that employs least squares-based attention with non-linear modeling.

Adobe Research Jul 2021 - Oct 2021
Research Intern - Data Science and Machine Learning

- Conceptualized and evaluated server side privacy of on-device decisioning systems
- Designed an end-to-end on-device decisioning system that preserves both client and server privacy

University of Massachusetts Amherst (CICS) Sep 2017 - Dec 2019
Research Assistant in the Knowledge Discovery Laboratory

- Characterized, measured and evaluated the generalizability and explainability of deep reinforcement learning agents using causal modeling techniques
- Developed a methodology grounded in counterfactual reasoning to evaluate the explanations generated from saliency maps in deep reinforcement learning

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

- Analyzed the temporal effects of long-term opioid usage on opioid addiction and misuse

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

- Detected twitter bots to understand the popularity diffusion of presidential candidates (w/ Prof. Feng Chen)
- Analyzed e-petition information diffusion in online social networks (w/ Prof. Teresa Harrison)
- Developed a Reeb graph based validation approach 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

· Characterized and developed methods for real-time diversity analytics using images on social media

WORK EXPERIENCE

IBM Jan 2017 - Aug 2017
Software Engineer

· Debugged, coded, tested and resolved complex client issues for two low-level IBM z/OS mainframe components
· Interacted and collaborated with clients directly to provide personalized assistance
· Languages/Tools: PLX, machine code, assembler

Auto/Mate Dealership Systems Sep 2016 - Dec 2016
Software Developer Intern

· Developed Java and SQL scripts for COBOL to PSQL conversions for the ReportMate application
· Languages/Tools: Java, COBOL, SQL, Eclipse

CommerceHub Feb 2016 - May 2016
Software Engineer Intern

· Handled numerous full-stack tasks with a primary focus on backend and unit testing in the Product Stream team
· Languages/Tools: Java, Groovy, MongoDB, Spock, Jira

VoxVilla, LLC May 2015 - Aug 2015
Web Developer Intern

· Established and populated backend and collaborated with front-end engineers on the design of the website
· Collaborated with potential clients off-site to gather domain knowledge
· Languages/Tools: Java, PHP, HTML5, SQL

GRADUATE COURSEWORK

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

PUBLICATIONS

[1] **Akanksha Atrey**, Camellia Zakaria, Prashant Shenoy, and Rajesh Balan. W4-groups: Modeling the who, what, when and where of group behavior via mobility sensing. In *Submission at the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT)*, 2022

[2] **Akanksha Atrey**, Ritwik Sinha, Somdeb Sarkhel, Saayan Mitra, David Arbour, Akash Maharaj, and Prashant Shenoy. Towards preserving server-side privacy of on-device models. In *Companion Proceedings of the Web Conference*, 2022

[3] Teresa M Harrison, Catherine Dumas, Nic DePaula, Tim Fake, Will May, **Akanksha Atrey**, Jooyeon Lee, Lokesh Rishi, and SS Ravi. Exploring e-petitioning and media: The case of# bringbackourgirls. *Government Information Quarterly*, 2022

[4] Sam Witty, Jun K. Lee, Emma Tosch, **Akanksha Atrey**, Kaleigh Clary, Michael L. Littman, and David Jensen. Measuring and characterizing generalization in deep reinforcement learning. In *Applied AI Letters*, 2021

[5] **Akanksha Atrey**, Prashant Shenoy, and David Jensen. Preserving privacy in personalized models for distributed mobile services. In *IEEE International Conference on Distributed Computing Systems*, 2021

[6] Saurabh Bagchi, Tarek F Abdelzaher, Ramesh Govindan, Prashant Shenoy, **Akanksha Atrey**, Pradipta Ghosh, and Ran Xu. New frontiers in IoT: Networking, systems, reliability, and security challenges. In *IEEE Internet of Things Journal*, 2020

[7] **Akanksha Atrey**, Kaleigh Clary, and David Jensen. Exploratory not explanatory: Counterfactual analysis of saliency maps for deep reinforcement learning. In *ICLR*, 2020
[8] Hseyin Oktay, **Akanksha Atrey**, and David Jensen. Identifying when effect restoration will improve estimates of causal effect. In *SIAM International Conference on Data Mining*, 2019
[9] Lee Witty, Sam, Jun Ki, Emma Tosch, **Akanksha Atrey**, David Jensen, and Michael Littman. Generalization in deep reinforcement learning. In *Critiquing and Correcting Trends in Machine Learning Workshop at NeurIPS*, 2018
[10] Vivek K Singh, **Akanksha Atrey**, and Saket Hegde. Do individuals smile more in diverse social company?: Studying smiles and diversity via social media photos. In *ACM Multimedia*, 2017
[11] Teresa M Harrison, Catherine Dumas, Nic DePaula, Tim Fake, Will May, **Akanksha Atrey**, Jooyeon Lee, Lokesh Rishi, and SS Ravi. E-petitioning and online media: The case of #bringbackourgirls. In *ACM International Conference on Digital Government Research*, 2017
[12] Vivek Kumar Singh, Saket Hegde, and **Akanksha Atrey**. Towards measuring fine-grained diversity using social media photographs. In *ICWSM*, 2017
[13] Catherine L Dumas, **Akanksha Atrey**, Jooyeon Lee, Teresa M Harrison, Tim Fake, Xiaoyi Zhao, and SS Ravi. E-petition information diffusion in online social networks. In *ACM International Conference on Digital Government Research*, 2016

AWARDS AND HONORS

2020-2021 Outstanding Teaching Assistant Award	Oct 2021
Dean's Outstanding Anti-Racism Leadership Award	May 2021
NSF Travel Grant for WiML 2019	Dec 2019
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

SERVICE

CICS Community Outreach Student Team	*Chair/Founder*	Apr 2019 - Aug 2022
CICS CARE: PhD Applicant Support Group	*Chair*	Sep 2020 - May 2022
CICS Committee Against Racism and for Equity	*Chair*	Jun 2020 - Sep 2020
ACM E-Energy	*Volunteer*	Jun 2020
ACM/IEEE IoTDI	*Volunteer*	Apr 2020
CS Social Committee (UMass Amherst)	*Chair*	Sep 2019 - May 2020
CS New Student Committee (UMass Amherst)	*Chair*	Sep 2017 - May 2020
Indian Student Association (UMass Amherst)	*Vice President*	Apr 2018 - May 2019
CS Social Committee (UMass Amherst)	*Chair*	Sep 2017 - May 2018
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