

Muhammad Ali

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Education

2018 – 2023 Boston, MA	Ph.D., Northeastern University Computer Science; Advisor: Alan Mislove Thesis: <i>Measuring the Harms of Personalization through Advertising</i> Outstanding Graduate Student in Research Award Selected Coursework: machine learning, parallel data processing, distributed systems
2016 – 2018 Saarbrücken, Germany	M.Sc., Saarland University Computer Science Selected Coursework: information retrieval, data mining and matrices, social network analysis, natural language processing, probabilistic graphical models
2011 – 2015 Lahore, Pakistan	B.S., National University of Computer & Emerging Sciences Computer Science

Experience

Nov 2023 – Present Boston, MA	Postdoctoral Researcher Institute for Experiential AI, Northeastern University Part of the Responsible AI team, conducting research on measuring and mitigating fairness and bias in machine learning systems.
Sep 2018 – Oct 2023 Boston, MA	Graduate Research Assistant Khoury College of Computer Sciences, Northeastern University Executed large-scale measurement studies of discrimination and harm in public-facing machine learning systems, with a focus on advertising platforms. Published work at CSCW, WSDM, USENIX Security and others.
May 2022 – Aug 2022 Burlington, MA	Research Intern, Machine Learning Oracle Labs Worked with the Machine Learning Research Group on measuring linguistic biases in masked language models, both in the embedding-space and in downstream tasks.
Aug 2021 – Nov 2021 Hillsboro, OR	Research Intern, Ethical AI Intel Corporation Worked with the AI and Analytics team to build automated model cards and explainability notebooks (with SHAP) for Intel AI's open source model repository.
Jun 2017 – Aug 2018 Saarbrücken, Germany	Research Assistant Max Planck Institute for Software Systems Research projects in algorithm auditing, using web data for demography and measuring urban segregation. Advised by Krishna Gummadi, published work at FAccT 2018.
Aug 2015 – Mar 2016 Lahore, Pakistan	Backend Engineer Patari Music Built the foundation for the music platform's social features with a graph database; maintained and added new features to the backend API.

Skills

Technical	<i>Active Use:</i> Python (jupyter, matplotlib, pytorch, pandas, numpy, huggingface etc.), R, JavaScript, SQL, Unix, \LaTeX ; <i>Past Use:</i> MATLAB, C, C++, Go, Scala, Spark, Hadoop, Node.js, PHP, React
Research	applied machine learning, explainable/responsible AI, data analysis (exploratory, descriptive), data visualization, dataset collection, algorithm auditing, computational social science, writing

Publications [Google Scholar]

USENIX Security '23	Problematic Advertising and its Disparate Exposure on Facebook Muhammad Ali, Angelica Goetzen, Alan Mislove, Elissa Redmiles, Piotr Sapiezynski USENIX Security Symposium, Anaheim, CA. Aug 2023
ConPro '22	All Things Unequal: Measuring Disparity of Potentially Harmful Ads on Facebook Muhammad Ali, Angelica Goetzen, Alan Mislove, Elissa Redmiles, Piotr Sapiezynski ConPro at IEEE S&P. San Francisco, CA. May 2022
WSDM '21	Ad Delivery Algorithms: The Hidden Arbiters of Political Messaging Muhammad Ali*, Piotr Sapiezynski*, Aleksandra Korolova, Alan Mislove, Aaron Rieke WSDM, Online. Mar 2021
CSCW '19	Discrimination through Optimization: How Facebook's ad delivery can lead to skewed outcomes Muhammad Ali*, Piotr Sapiezynski*, Miranda Bogen, Aleksandra Korolova, Alan Mislove, Aaron Rieke CSCW, Austin, TX. Nov 2019 Diversity & Inclusion Award + Honorable Mention
FAccT '18	Potential for Discrimination in Online Targeted Advertising Till Speicher, Muhammad Ali, Giridhari Venkatadri, Filipe Ribeiro, George Arvanitakis, Fabricio Benevenuto, Krishna Gummadi, Patrick Loiseau, Alan Mislove FAccT, New York, NY. Feb 2018 Best Paper Nominee
FAccTRec '17	On Quantifying Knowledge Segregation in Society Abhijnan Chakraborty, Muhammad Ali, Saptarshi Ghosh, Niloy Ganguly, Krishna Gummadi FAccTRec at ACM RecSys, Como, Italy. Aug 2017

* equal contribution

Teaching

Summer 2023	Instructor Northeastern University CY 2550: Foundations of Cybersecurity
Fall 2022	Teaching Assistant Northeastern University CS 6140: Machine Learning, with Predrag Radjovic

Service

Program Committee	WWW 2023; FAccT 2021 — 2023; IC2S2 2023; SoLaR @ NeurIPS 2023
External Reviewer	CSCW 2020, 2021, 2023; PETS 2022; NeurIPS 2021, 2023 (ethics reviewer)
Other	Northeastern PhD Admissions Committee, Fall 2021