Muhammad Ali

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                          https://khoury.northeastern.edu/~mali

Education

2018 – 2023 Boston, MA	**Ph.D., Northeastern University** Computer Science; Advisor: Alan Mislove Thesis: *Measuring the Harms of Personalization through Advertising* **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	*Active Use:* Python (jupyter, matplotlib, pytorch, pandas, numpy, huggingface etc.), R, JavaScript, SQL, Unix, LaTeX; *Past Use:* 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 Radjovac

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