

Kathleen Cachel

P.h.D. Candidate Data Science
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Research Interests

Fair ML · Responsible AI · Information Retrieval · Ranking Systems · Social Choice Theory

Education

- 2020-2025
(expected) *Ph.D. Data Science, Worcester Polytechnic Institute*, Worcester, MA.
Advisor: Elke Rundensteiner. Grade Point Average (GPA): 4.0
- May 2022 *M.S. Data Science, Worcester Polytechnic Institute*.
Grade Point Average (GPA): 4.0
- May 2016 *B.S. Computer Science, Tufts University*, Medford, MA.

Research & Work Experience

- Jan. 2021 -
May 2025
(expected) *Research Assistant - Responsible AI, WPI, Worcester, MA.*
- Lead student researcher on an interdisciplinary rank-based algorithmic fairness (i.e. fairML) decision-making team.
 - Designing fair and flexible ranking algorithms and metrics for preference aggregation and information retrieval.
 - Collaborating with HCI researchers to design human-in-the-loop bias mitigation technologies incorporating proposed algorithms and metrics.
 - Studied subset selection fairness and designed fairness auditing toolkit, along with practical practitioner guidance on how to choose relevant fairness metrics.
 - Mentoring junior Phd students, and undergraduate-in-research projects.
- August 2016
- July 2020 *Program Manager I & Program Manager II, Microsoft, Cambridge, MA.*
- Shipped Office collaboration feature improvements (@-mentions, comments) informed by key user metrics, data mining of customer-feedback, A/B testing, and experimentation.
 - Led cross-platfrom stakeholder PM team to coordinate dependencies, asks, and partnered with Engineering teams to operationalize feature improvements.
 - Proposed, researched, and implemented internal KPI and analytics pipeline for business decision-making.
 - Taught employee lunch-and-learns on Office data pipeline, KPI visualization, and wrote a new-hire crash course handbook in the Kusto Query Language (SQL-like Azure Data Explorer Language).

Publications

Hilson Shrestha, Kathleen Cachel, Mallak Alkhathlan, Elke Rundensteiner and Lane Harrison. “**FairFuse: Interactive Visual Support for Fair Consensus Rankings.**” 2022 IEEE VIS. 

Kathleen Cachel, and Elke Rundensteiner. “**FINS Auditing Framework: Group Fairness for Subset Selections.**” In *Proceedings of the 2022 AAAI/ACM Conference on AI, Ethics, and Society (AIES)*. 

Kathleen Cachel, Elke Rundensteiner, and Lane Harrison. “**Mani-Rank: Multiple Attribute and Intersectional Group Fairness For Consensus Ranking.**” *2022 IEEE 38th International Conference on Data Engineering (ICDE)*. 

Teaching & Mentorship

Teaching Assistant: Graduate Introduction to Data Science (Fall 2020), Graduate Machine Learning (Spring 2021)

Summer NSF REU Project Advisor (Summer 2022): Scoped project and advised team of 3 undergraduates and a junior PhD student on project: “**Is it (still) Fair? Fairness in Learning to Ranking Under Demographic Uncertainty**”.

Professional Service

Conference Organizer: Women in Data Science (WiDS) Central Massachusetts. (2021, 2022)

Reviewer: Workshop on Human and Machine Decision @ NeurIPS. (2021)

Student Volunteer: ACM FACct. (2022)

Programming

Tools: Python, R, ggplot, KQL, Azure Cosmos DB, LATEX, PowerBi, Tableau, DataRobot, git

Github: <https://github.com/kcachel>