

# Nicholas Perello

[nperello@umass.edu](mailto:nperello@umass.edu) | [www.linkedin.com/in/nperello](https://www.linkedin.com/in/nperello) | [nperello.github.io](https://nperello.github.io)

## EDUCATION

### University of Massachusetts Amherst

Ph.D. in Computer Science

Amherst, MA

September 2020\* - Expected February 2026

\*M.S. from September 2018 - May 2020. Admitted to Ph.D. program starting Fall 2020.

Advisors: Przemyslaw Grabowicz & Yair Zick

### University of Massachusetts Amherst

M.S. in Computer Science

Amherst, MA

September 2018 - May 2020

### University of Massachusetts Amherst

B.S. in Computer Science; B.S. in Mathematics

Amherst, MA

September 2014 - May 2018

Thesis: *Using Superior Resource Allocation to Reduce Cognitive Overload During Coronary Artery Bypass Surgery*

## RESEARCH INTERESTS

Responsible AI • Explainability • Algorithmic Recourse • ML Observability • Machine Learning • Artificial Intelligence

## PUBLICATIONS

\*Equal Contribution, †Equal Advising

### Archival Publications

- **Nicholas Perello**, Cyrus Cousins, Przemyslaw A. Grabowicz, Yair Zick. Discrimination Induced by Algorithmic Recourse Objectives. Accepted to ACM Conference on Fairness, Accountability, and Transparency (ACM FAccT), 2025.
- Jenny Hamer\*, **Nicholas Perello**\*, Jake Valladares, Vignesh Viswanathan\*, Yair Zick. Simple Steps to Success: A Method for Step-Based Counterfactual Explanations. In Transactions on Machine Learning Research (TMLR), 2024.
- Przemyslaw A. Grabowicz\*, **Nicholas Perello**\*, Kenta Takatsu. Learning from Discriminatory Training Data. In AAAI/ACM Conference on Artificial Intelligence, Ethics, and Society (AIES), 2023
- Przemyslaw A. Grabowicz, **Nicholas Perello**, and Aarshee Mishra. Marrying Fairness and Explainability in Supervised Learning. In ACM Conference on Fairness, Accountability, and Transparency (ACM FAccT), 2022.
- Weihao Tan\*, David Koleczek\*, Siddhant Pradhan\*, **Nicholas Perello**, Vivek Chettiar, Nan Ma, Aaslesha Rajaram, Vishal Rohra, Soundar Srinivasan, H M Sajjad Hossain†, and Yash Chandak†. On Optimizing Interventions in Shared Autonomy. In Thirty-Sixth AAAI Conference on Artificial Intelligence (AAAI), 2022. Also appeared at ICML Workshop on Human-AI Collaboration in Sequential Decision-Making, 2021.

### Non-Archival Publications

- Przemyslaw A. Grabowicz, **Nicholas Perello**, Yair Zick. Towards an AI Accountability Policy. In Comment on FR Doc # 2023-07776 Posted by the National Telecommunications and Information Administration, 2023
- Aarshee Mishra\*, **Nicholas Perello**\*, and Przemyslaw A. Grabowicz. Towards Fair and Explainable Supervised Learning. In ICML Workshop on Socially Responsible Machine Learning (SRML), 2021.
- Przemyslaw A. Grabowicz and **Nicholas Perello**. Resilience of Supervised Learning Algorithms to Discriminatory Poisoning of Training Data. In 7th International Conference on Computational Social Science (IC2S2), 2021.

## AWARDS

- GEM Ph.D. Engineering & Science Fellowship recipient starting Fall 2020.
- UMass Amherst 2022-23 Distinguished Teaching Award Finalist – Highest recognition of teaching awarded at UMass Amherst, finalist from the Manning College of Information and Computer Science.
- UMass Amherst 2022-23 Commitment to Diversity Award Winner – Awarded to one student for their outstanding contributions to diversity and inclusion within UMass Amherst.

## RESEARCH EXPERIENCE

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### **Socially Intelligent Media & Systems Lab and Fair & Explainable Decision Making Lab**

UMass Amherst

Advisors: *Przemyslaw Grabowicz & Yair Zick*

September 2020 - In Progress

- Areas of interest are in fairness, explainability, and their intersection in machine learning.
- Resulted in studies that reveal and prevent discrimination in explainability techniques, utilize explainability techniques to prevent algorithmic discrimination, and focus on fair or explainable machine learning independently.
- Current projects are on fair and robust algorithmic recourse, and explanations for reinforcement learning and large language models.

### **UMass - Microsoft (MAIDAP) Collaboration**

UMass Amherst

Collaboration Lead: *H M Sajjad Hossain*

January 2020 - April 2022

- Collaborated with the Microsoft AI Development Acceleration Program in the development and study of intervention-aware multi-agent reinforcement learning algorithms motivated by how to assist individuals with disabilities in games without ruining their user experience.

### **UMass Center for Data Science**

UMass Amherst

Program Heads: *Brant Cheikes & Matthew Rattigan*

June 2019 - August 2019

- Partnered with Springfield Public Schools to aid in their investigation of the diminishing college success rates of their students using exploratory data analysis and machine learning with students' academic histories.

### **Laboratory for Advanced Software Engineering Research**

UMass Amherst

Advisor: *Leon Osterweil*

December 2016 - May 2018

- Investigated methods to reduce the risk of errors in performing complex medical procedures by assisting medical staff by utilizing in-house models and simulations developed collaboratively with domain experts.

## INDUSTRY EXPERIENCE

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### **Salesforce**

San Francisco, CA

Software Engineering Intern

June 2018 - August 2018

- Full stack developer of a Service Cloud Chatbot feature that streamlined the retrieval of knowledge articles by removing the need for clients to develop code for this task for each of their deployed chatbots.

### **Intel Corporation**

Hillsboro, OR

Software Engineering Intern

June 2017 - August 2017

- Given ownership of internal benchmark data analytics tool and extended it to enhance user experience, support more types of data, and present additional visualizations of data.

## PROGRAMMING SKILLS

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Python • PyTorch • Pandas • NumPy • scikit-learn • SQL • Java

## SERVICE, MENTORSHIP, & OUTREACH

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- **Code2040 Fellow and Senior Fellow** during the summers of 2017 and 2018.

### **University of Massachusetts Amherst – Manning College of Information & Computer Science**

- **Co-founder of B[U]ILT (Black, Indigenous, and Latinx in Tech)** (Co-chair Fall 2018 - Fall 2021).
- **Co-chair of CARE (Committee Against Racism and for Equity) Inclusive Teaching Subcommittee** (Summer 2020 - Fall 2021).
- **Member of Teaching Development Committee** (Fall 2021 - Spring 2022).
- **UGRAD Research Volunteer (URV) Program Ph.D. Mentor** (Winter 2020-21).
- **Energizing Mentoring and Broadening Exposure to Research (EMBER) Program Ph.D. Mentor** (Spring 2021).

## TEACHING EXPERIENCE

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### University of Massachusetts Amherst

Teaching Assistant, \*Instructor

Amherst, MA

September 2020 - In Progress

- **CS345: Practice and Applications of Data Management** (Fall 2020)
- **CS383: Artificial Intelligence** (Spring 2021, Fall 2021, Spring 2022, Fall 2022)
- **CICS160: Object Oriented Programming** (Spring 2023)
- **FYS191\*: First-Year Seminars\*** (Fall 2022, Fall 2023)
- **CICS290C\*: Computing Success Strategies\*** (Fall 2023)
- **CICS110: Foundations of Programming** (Spring 2024)
- **CS515: Algorithms, Game Theory, & Fairness** (Fall 2024)