Clare Lohrmann

PhD Student

1111 Engineering Drive, ECES 111, Boulder, CO, USA 80309
clare.lohrmann@colorado.edu https://cmlohrmann.github.io/

EDUCATION

University of Colorado, Boulder – Boulder, CO

PhD Computer Science

Expected May 2026

Advisors: Bradley Hayes and Alessandro Roncone

Thesis: Traversing the Pareto Front of Optimality and Predictability for Human-Robot Teaming

University of North Carolina, Wilmington – Wilmington, NC

MS Data Science

August 2018 - December 2019

The George Washington University – Washington, D.C.

BS Computer Science

August 2015 - May 2018

PUBLICATIONS

Employing Laban Shape for Generating Emotionally and Functionally Expressive Trajectories in Robotic Manipulators, *Srikrishna Bangalore Raghu, Clare Lohrmann, Akshay Bakshi, Jennifer Kim, Jose Alejandro Caraveo Herrera, Bradley Hayes, Alessandro Roncone*, IEEE International Conference on Robot and Human Interactive Communication (RO-MAN), 2025.

Iteratively Adding Latent Human Knowledge within Trajectory Optimization Specifications Improves Learning and Task Outcomes, *Christine Chang, Maria Stull, Breanne Crockett, Emily Jensen, Clare Lohrmann, Mitchell Hebert, Bradley Hayes*, IEEE Robotics and Automation Letters (RA-L), 2024.

Generating Pattern-Based Conventions for Predictable Planning in Human-Robot Collaboration, *Clare Lohrmann, Maria Stull, Alessandro Roncone, Bradley Hayes*, ACM Transactions on Human-Robot Interaction (THRI), 2024.

Robot Social Identity Performance Facilitates Contextually-Driven Trust Calibration and Accurate Human Assessments of Robot Capabilities, *Maria P. Stull, Clare Lohrmann, Bradley Hayes*, Proceedings of the 33rd IEEE International Conference on Robot and Human Interactive Communication (RO-MAN 2024), 2024, (Pasadena, CA).

Improving Robot Predictability via Trajectory Optimization Using a Virtual Reality Testbed, *Clare Lohrmann, Ethan Berg, Bradley Hayes, Alessandro Roncone*, 7th International Workshop on Virtual, Augmented, and Mixed-Reality for Human-Robot Interactions (VAM-HRI), 2024, (Boulder, USA).

AWARDS

2025 ➔ University of Colorado Boulder Computer Science Annual Research Expo, Best Research in Progress

SERVICE

Boulder Valley School District, Science Fair Mentor – 2022-present

Access Computing, Member – 2024-present

LEAP Alliance, Fellow – 2024-present

Robotics Outreach and Inclusion Committee, Student Ambassador – 2024-present

RESEARCH EXPERIENCE

University of Colorado, Boulder , Boulder, CO -

Graduate Research Assistant, Computer Science

AUGUST 2020 - PRESENT

- Developed algorithmic approaches to emphasize predictability in human-robot collaboration, coordination, and teaming scenarios
- Ran multiple IRB-approved human-subjects studies, proving the effectiveness of pattern usage in human-robot coordination and teaming

The George Washington University, Washington, D.C. -

Undergraduate Research Assistant, Computer Science

MAY 2016 - AUGUST 2016

- Assisted with the development of software applications in partnership with local adult literacy programs

- Developed natural-language processing algorithms for the generation of reading comprehension questions

PROFESSIONAL EXPERIENCE

Envieta, Columbia, MD - *Intern, Post-Quantum Cryptography*

MAY 2017 - AUGUST 2017

- Wrote formal validation methods for multiple post-quantum cryptography algorithms, including Frodo and Crystals-Kyber

Pearson, Durham, NC - *Intern, Data Science*

MAY 2019 - AUGUST 2019

- Developed machine learning models in support of supply chain management teams to predict product over-ordering
- Provided model-based guidance to supply-chain analysts, resulting in seven-figure savings for the North American Higher Education division

GE-Hitachi Nuclear, Wilmington, NC - *Intern, Data Science*

JANUARY 2019 - MAY 2019, AUGUST 2019 - DECEMBER 2019

- Created machine learning models in tandem with other graduate students in support of long time horizon supply chain management
- Developed robust parts-usage predictions for thousands of unique nuclear facility components

Blackhorse Solutions, Herndon, VA and Denver, CO - *Data Scientist*

JANUARY 2020 - OCTOBER 2021

- Performed internal research and development work to expand the utility of existing persona management software
- Developed machine learning models in the domains of natural language processing, text generation, text modification, text classification, as well as audio classification