Mirabel Reid

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EDUCATION

Georgia Institute of Technology, *Atlanta, GA* Sep 2020-Present
Pursuing PhD in Computer Science (Expected Graduation: May 2026) GPA: 3.91
University of Pittsburgh, *Pittsburgh, PA*
Bachelor of Science Sep 2016-April 2020
Double Major in Computer Science, Mathematics GPA: 4.0
Technical Skills: Python, MATLAB, C++, SQL, Git

RESEARCH INTERESTS

- Mathematically tractable models for neural computation.
- Random Graphs and the probabilistic analysis of recurrent processes.
- Interplay between machine and human learning and computation.

WORK EXPERIENCE

Max Planck Institute for Intelligent Systems *Tübingen, DE*
Research Intern May 2023-Aug 2023

- Researched models of Human/AI cooperation as part of the Social Foundations of Computing group.
- Devised a model of online expert deferral under limited budget constraints.
- Simulated the model in **Python** on real and artificial Human/AI performance data.

Los Alamos National Laboratory *Los Alamos, NM*
Research Intern May 2022-Oct 2022

- Researched improvements for Machine Learning workflows for scientific applications.
- Built a metadata visualization platform in **Python** in collaboration with domain scientists.
- Built a database backend in **SQL** to support visual training data selection.

Software Engineering Institute *Pittsburgh, PA*
Intern: Emerging Technology Center, Software Solutions Division Jan 2020-Aug 2020

- Investigated novel applications of Graph Neural Networks for software development
- Implemented machine learning solutions in **PyTorch** and **ROS**

Georgia Tech *Atlanta, GA*
Civic Data Science Intern May 2019-Aug 2019

- Collaborated with city officials and research faculty to analyze the impact of federal housing policies in the city of Albany, Georgia.
- Created a research-grade database by connecting disparate civic data sources with **Python** and **SQL**

University of Pittsburgh *Pittsburgh, PA*
Research Assistant Jan 2017-Dec 2019

- Researched a mathematical model for common properties of natural transportation networks.
- Built algorithms in **MATLAB** and **C++** to automatically process Digital Elevation Models

HONORS/AWARDS

Georgia Tech ARC-ACO Fellowship Nov 2023
ARC Triad Research Fellowship Nov 2021
Georgia Tech Presidential Fellowship Apr 2020
Culver Award (Achievement in Mathematics) Apr 2020
Brackenridge Research Fellowship May 2018

PUBLICATIONS AND PRESENTATIONS

Reid, M., & Vempala, S. S. (2024). Does GPT Really Get It? A Hierarchical Scale to Quantify Human vs AI's Understanding of Algorithms. *arXiv preprint arXiv:2406.14722*.

Reid, M., Sühr, T., Vernade, C., and Samadi, S. (2024) "Online Learning to Defer with Budget Constraints", *In Submission.*

Reid, M. E., & Vempala, S. S. (2023). The k -Cap Process on Geometric Random Graphs. In *The Thirty Sixth Annual Conference on Learning Theory* (pp. 3469-3509). PMLR.

"Assemblies and the k-Cap Process: The Effects of Locality on Neural Firing Dynamics", Poster presentation, Computational and Systems Neuroscience (COSYNE) 2023

TEACHING

- *Fall 2023* Teaching Assistant for Advanced Algorithms
- *Fall 2021* Teaching Assistant for the Introduction to Graduate Algorithms
- *Spring 2019* Teaching Assistant for Discrete Mathematics