Jessica Grogan

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Education

PhD **University at Buffalo**, Theoretical Computer Science — Aug 2021 – present
- GPA: 3.5/4.0
- Schomburg Fellowship

BS **University at Buffalo**, Computer Science — Aug 2017 – May 2021
- GPA: 3.5/4.0

Publications

Towards Learning High-Precision Least Squares Algorithms with Sequence Models 2025
Jerry Liu, ***Jessica Grogan***, Owen Dugan, Ashish Rao, Simran Arora, Atri Rudra, Chris Ré
International Conference on Learning Representations

Can Transformers Solve Least Squares to High Precision? 2024
Jerry Weihong Liu, ***Jessica Grogan***, Owen M Dugan, Simran Arora, Atri Rudra, Christopher Ré
International Conference on Machine Learning, In-Context Learning Workshop

Monarch Mixer: A Simple Sub-Quadratic GEMM Based Architecture 2023
Dan Fu, Simran Arora, ***Jessica Grogan***, Isys Johnson, Atri Rudra, Tri Dao, Christopher Ré
Neural Information Processing Systems, **Oral presentation**

Monarch: Expressive Structured Matrices for Efficient and Accurate Training 2022
Tri Dao, Beidi Chen, Nimit Sohoni, Arjun Desai, Michael Poli, ***Jessica Grogan***, Alexander Liu, Aniruddh Rao, Atri Rudra, Christopher Ré
International Conference on Machine Learning, **Outstanding Paper Runner-up Award**

Experience

University at Buffalo, Research Assistant — Buffalo, NY, May 2021 – present
- Designed a sub-class of Monarch matrices that maintains causal properties throughout training a neural network by utilizing polynomial evaluations.
- Designed an expressive class of structured matrices (Monarch matrices) for IO efficient matrix multiplication.
- Gained research experience in theory driven machine learning utilizing structured linear algebra.

ACV Auctions, Machine Learning Engineer Intern — Buffalo, NY, May 2023 – Dec 2023
- Designed and implemented a classification model for engine vibration data using PyTorch.
- Collaborated on designing and implementing an audio-vibration model to accurately detect issues of a car engine.

University at Buffalo, Teaching Assistant - Algorithms — Buffalo, NY, Jan 2020 – May 2021
- Taught students common algorithms in the field of computer science and how to analyze time and space complexity. Algorithms included BFS, DFS, stable matching problem, etc.
- Held weekly office hours, reviewed and graded students' exams, and written homework assignments.

University at Buffalo, Teaching Assistant - Systems Programming — Buffalo, NY
Aug 2019 – May 2021

- Taught students systems programming in C using Ubuntu virtual machines. Projects included memory allocation systems, synchronized memory usage, etc.
- Held weekly office hours, reviewed and graded students' exams, and programming assignments.

Salient Management company, Software Engineer Intern — Horseheads, NY
May 2018 – Aug 2018

- Worked with the Quality Assurance team to develop and test new business analytic products before deployment. Learned and utilized Java, Git, GitBucket and Jira.

Technologies

Tools: Python, PyTorch, C, C++, GitHub, Java

Highlights

Alan Selman Award (2024)

Schomburg Fellowship (2021-2024)

Outstanding Paper Runner-Up Award (International Conference on Machine Learning 2022)