Jessica Grogan

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Education

University at Buffalo, PhD in Theoretical Computer Science — Aug 2021 – present

- GPA: 3.5/4.0
- Schomburg Fellowship

University at Buffalo, BS in Computer Science — Aug 2017 – May 2021

- GPA: 3.5/4.0

Publications

Can Transformers Solve Least Squares to High Precision? 2024

Jerry Weihong Liu, ***Jessica Grogan***, Owen M Dugan, Simran Arora, Atri Rudra, Christopher Re

International Conference on Machine Learning, In-Context Learning Workshop

Monarch Mixer: A Simple Sub-Quadratic GEMM Based Architecture 2023

Dan Fu, Simran Aurora, ***Jessica Grogan***, Isys Johnson, Atri Rudra, Tri Dao, Christopher Re

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 Re

International Conference on Machine Learning, **Outstanding Paper Runner-up Award**

Experience

Research Assistant, University at Buffalo – Buffalo, NY — June 2005 – Aug 2007

- 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 structrued matrices (Monarch matrices) for IO efficient matrix multiplication.
- Gained research experience in theory driven machinie learning utilizing stuctured linear algebra.

Machine Learning Engineer Intern, ACV Auctions – 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.

Teaching Assistant - Algorithms, University at Buffalo – Buffalo, NY — Jan 2020 – May 2021

- Taught students common algorithms in the field of computer science and how to analyze time and space complexity. Algoriths included BFS, DFS, stable mathcine problem, etc.
- Held weekly office hours, reviewed and graded students' exams, and written homework assignments.

Teaching Assistant - Systems Programming, University at Buffalo – 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 assignements.

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

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

Technologies

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

Highlights

Alan Selman Award

Schomburg Fellowship

Outstanding Paper Runner-Up Award