

Jessica Grogan

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Education

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- 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

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- 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 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

Experience

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- 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 structured matrices (Monarch matrices) for IO efficient matrix multiplication.
 - Gained research experience in theory driven machine learning utilizing structured 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. Algorithms included BFS, DFS, stable matching 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 assignments.
- 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 deployment. Learned and utilized Java, Git, GitBucket and Jira.