Jessica Grogan

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Education

Ph.D. Computer Science   *University at Buffalo*
GPA: 3.5/4.0   *August 2021- Present*
Schomburg Fellowship

BS in Computer Science   *University at Buffalo*
GPA: 3.5/4.0   *August 2017 - May 2021*

Publications

"Monarch Mixer: A Simple Sub-Quadratic GEMM Based Architecture"
Dan Fu, Simran Arora, **Jessica Grogan**, Isys Johnson, Atri Rudra, Tri Dao, Christopher Ré. NeurIPS 2023. **Oral Presentation**.

"Monarch: Expressive Structured Matrices for Efficient and Accurate Training"
Tri Dao, Beidi Chen, Nimit S. Sohoni, Arjun Desai, Michael Poli, **Jessica Grogan**, Alexander Liu, Aniruddh Rao, Atri Rudra, and Christopher Ré. In International Conference on Machine Learning, pp. 4690-4721. ICML, 2022. **Outstanding Paper award (runner up)**

Experience

Research Assistant - Theory and Machine Learning   *August 2021 - Present*
University at Buffalo. Advisor: Atri Rudra   *Buffalo, New York*

- Designed a sub-class of Monarch matrices that maintain 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 and IO complexity.

Machine Learning Engineer Intern   *May 2023 - Dec 2023*
ACV Auctions R&D Team   *Buffalo, New York*

- Designed and implemented a classification model for engine vibration spectrograms using PyTorch.
- Collaborated on designing and implementing an audio-vibration model to more accurately detect issues of an engine.

Teaching Assistant - Algorithms and Complexity   *January 2020 - May 2021*
University at Buffalo   *Buffalo, New York*

- 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   *August 2019 - May 2021*
University at Buffalo   *Buffalo, New York*

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

Software Engineer Intern   *May 2018 - August 2018*
Salient Management Co.   *Horseheads, New York*

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

Highlights

Schomburg Fellowship
Outstanding Paper Award (runner-up) ICML 2022