Daniel Israel

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Education

UCLA, Los Angeles, CA
PhD in Computer Science, September 2022 - Present
- Advisors: Aditya Grover, Guy Van den Broeck
- Computer Science Department Scholar Award

CALIFORNIA INSTITUTE OF TECHNOLOGY, Pasadena, CA
B.S. in Computer Science, Minor in Information and Data Science
- Advisors: Anima Anandkumar, Pietro Perona, Frederick Eberhardt
- GPA: 4.0

Research Experience

UCLA
Graduate Research Student, September 2022 – Now

- Working on Efficient LLM systems
    - Prepacking [1] and MultiGen [3]: Algorithmic improvements for higher latency and throughput in LLMs
    - MARIA [2]: Fast and scalable autoregressive text infilling

- Probabilistic Inference in Deep Generative Models
    - Variational Backdoor Adjustment [5]: A variational approach to support high dimensional causal queries

ANIMA LAB
Research Assistant, October 2021 – June 2022

- Projects with Professor Anima Anandkumar and Sahin Lale at Caltech
- Implementing model based reinforcement learning to control Cassie bipedal walking
- Research applying safety constraints to Multi-Armed Bandits algorithms

CALTECH SURF 2021
Researcher, June 2021 – October 2021

- Summer research project under the mentorship of Professor Eberhardt
- Causal Feature Learning on neural data to retrieve a parcellation of the brain
- Awarded Paul C. Bartlett named SURF, semifinals of Perpall Speaking Competition

PERONA LAB
Research Assistant, March 2021 – June 2021

- Worked under Professor Pietro Perona and Caltech graduate student
- Research proposes a model by for the development of number sense in the human brain in an unsupervised manner

Other Experience

UCLA CS DEPARTMENT / CALTECH CMS DEPARTMENT
Teaching Assistant

- TA for CS81: Introduction to Computer Science by Professor Stahl
- TA for CS161: Fundamentals of Artificial Intelligence by Professor Guy Van den Broeck
- TA for CS M146: Introduction to Machine Learning by Professor Aditya Grover
- TA for ACM 116: Introduction to Probability Theory taught by Professor Kostia Zuev
- TA for CS 155: Machine Learning and Data Mining taught by Professor Yisong Yue
- Hosted weekly office hours and helped grade problem sets

SPLUNK, INC.
Intern, June 2020 – August 2020

- Worked with Splunk Security Analytics team and updated architecture to support asynchronous processing using Apache Pulsar
- After conducting performance tests, established 4x improvement in throughput

Skills

- Experience with various backend source code for increased efficiency in LLM inference
- Strong understanding of probabilistic inference algorithms in graphical models
- Analytical skills and ability to visualize and present research
- Strong mathematical background in probability theory, linear algebra, and discrete math
- Complete understanding of modern deep generative model landscape

Selected Works

[1] Siyan Zhao, Daniel Israel, Guy Van den Broeck and Aditya Grover. Prepacking: A Simple Method for Fast Prefilling and Increased Throughput in Large Language Models, In Proceedings of the 28th International Conference on Artificial Intelligence and Statistics (AISTATS), 2025

[2] Israel, Daniel, Aditya Grover, and Guy Van den Broeck. "Enabling Autoregressive Models to Fill In Masked Tokens." arXiv preprint arXiv:2502.06901 (2025).

[3] Israel, D. M., Zhao, S., Van den Broeck, G., & Grover, A. Fast and Memory-Efficient Multi-Sequence Generation via Structured Masking. In Workshop on Efficient Systems for Foundation Models II@ ICML2024.

[4] Bansal, H., Israel, D., Zhao, S., Li, S., Nguyen, T., & Grover, A. (2024). MedMax: Mixed-Modal Instruction Tuning for Training Biomedical Assistants. arXiv preprint arXiv:2412.12661.

[5] Israel, D., Grover, A., & Broeck, G. V. D. (2023). High Dimensional Causal Inference with Variational Backdoor Adjustment. arXiv preprint arXiv:2310.06100.