Sidharth Baskaran

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Education

Georgia Institute of Technology Aug. 2022 – May 2026
B.S. Computer Science, GPA: 4.0 *Atlanta, GA*

- **Coursework**: Data Structures & Algorithms, Linear Algebra, Multivariable Calculus, Honors Discrete Math
- **Awards**: President's Undergraduate Research Salary Award (2×$1500, Summer & Fall 2023), Faculty Honors

Experience

Founding Engineer June 2023 – Present
Automorphic (YC S23) *San Francisco, CA*

- Leading development of an end-to-end ML platform adding customization and steerability to large-language models
- Implementing large-scale distributed training and enabling user-friendly experiment tracking integrations
- Architecting solutions to improve language model performance on out-of-domain knowledge-intensive tasks
- Combining and implementing techniques from recent state-of-the-art works in neural language modeling and reinforcement learning

Research Intern June 2023 – July 2023
Oak Ridge National Laboratory *Oak Ridge, TN (Remote)*

- Generalized transformer models for graph-structured molecular regression tasks under Dr. Guojing Cong, Learning Systems Group
- Adapted the Relational Transformer and Tokenized Graph Transformer architectures to support property prediction tasks on crystal materials to explore viable architectures without strong inductive bias
- Initiated an effort to harness language models (e.g. BERT) to perform large-scale regression on crystal structures

Undergraduate Researcher Sept. 2022 – July 2023
Fung Lab, Georgia Tech School of Computational Science & Engineering *Atlanta, GA*

- Developed a novel model-agnostic method involving virtual nodes to improve performance of graph neural networks (GNNs) on metal organic framework regression tasks
- Explored various heterogeneous and vanilla GNN architectures for viability to achieve ≈15% improvement over the baseline method
- Implemented and evaluated various novel graph pooling methods for efficacy on downstream tasks

Research Assistant June 2021 – Nov. 2021
University of Texas at Austin *Austin, TX*

- Worked under Dr. Maruthi Akella to solve transcendental equations describing spacecraft flight dynamics

Projects

MatDeepLearn December 2022 – July 2023

- Helped refactor and develop core functionality for MatDeepLearn, the Fung Lab's research codebase for benchmarking and developing graph neural networks for materials science
- Implemented various GNN and Transformer-based architectures as a part of my research
- Scaled experiment workflow through distributed training and hyperparameter optimization, optimized large-scale data preprocessing through a batch processing routine optimized for graphs

Machine Learning Sandbox January 2023 – Present

- Re-implementations and modifications to RL and DL papers as part of independent study

Technical Skills

Languages: Python, Java, JavaScript, MATLAB/Octave, C++, HTML/CSS
ML tools: PyTorch, Jax, Ray, Slurm, GCP, HuggingFace, Gradio, Weights and Biases
General tools: Jupyter, Git, Unix, LaTeX , REST APIs, React, 3D printing & CAD