

Mellon M. Zhang

Email: meilongz@gatech.edu | Mobile: (+1) 858-229-9859 | Homepage: meilongzhang.github.io

EDUCATION

Georgia Institute of Technology

Atlanta, GA

M.S. in Electrical and Computer Engineering, GPA: 4.0/4.0 - continuing on to PhD Aug 2023 - Expected May 2025

- **Advisor:** Prof. Saibal Mukhopadhyay
- **Concentrations:** Machine Learning, Digital Signal Processing
- **Coursework:** Advanced Programming Techniques, High Performance Computer Architecture, Mathematical Foundations of Machine Learning, Optimal Control and Optimization, Linear Optimization

University of California, Berkeley

Berkeley, CA

B.A. in Computer Science, GPA: 3.9/4.0

Aug 2019 – May 2023

- **Coursework:** Linear Algebra & Differential Equations, Data Science, Database Systems, Algorithms, Data Structures, Robotics, Optimization, Artificial Intelligence, Computer Architecture, Discrete Mathematics, CS Theory
- **Honors and Awards:** Rose Hills Fellowship, Gatech SURE Fellowship, Dean's List

PREPRINTS

** indicates equal contribution*

- **M. M. Zhang**, H. Kumawat, and S. Mukhopadhyay. DFDNet: Directional feature diffusion for efficient fully-sparse lidar object detection. 2025. *Under Review*. [Paper]

WORK EXPERIENCE

Gigascale Reliable Energy-Efficient Nanosystem (GREEN) Lab

Atlanta, GA

Graduate Research Assistant - Advisor: Prof. Saibal Mukhopadhyay

Aug 2023 – Current

- **Efficient Fully-Sparse LiDAR Object Detection**
- **Keywords:** Pytorch, convnets, DDP, self-driving, SLURM, HPC
- Novel neural network for efficient point cloud object detection, SOTA performance with 2x reduction in cost
- Designed network in Pytorch and trained on HPC slurm cluster via distributed data parallel
- First author manuscript under review

Knight Lab

Berkeley, CA

Undergraduate Research Assistant - Advisor: Prof. Robert T. Knight

Aug 2021 – Aug 2022

- **Explaining Large Language Models from Neuroscience Perspective**
- **Keywords:** Prompt engineering, fine-tuning, dataset creation, explainable AI
- Designed a novel dataset from neuroscience logic puzzles and finetuned T5 model.
- Awarded UC Berkeley Rose Hills Fellowship for independent research.

Gigascale Reliable Energy-Efficient Nanosystem (GREEN) Lab

Atlanta, GA

Gatech SURE Research Intern - Advisor: Prof. Saibal Mukhopadhyay

May 2021 – Aug 2021

- **Associative Memories for Robust Image Classification**
- **Keywords:** hopfield networks, Tensorflow, image classification, network design
- Novel multilayer perceptron model with an associative memory layer for image retrieval and denoising, outperforms convnets on MNIST dataset with 10x reduction in training samples.
- 2nd place of 50 in Georgia Tech SURE Symposium

PERSONAL PROJECTS

- **spkan - Sparse Convolutions with Kolmogorov-Arnold Networks:** Custom C++/CUDA kernels with Pybind11 for fast sparse convolutions with trainable activation functions inspired by the Kolmogorov-Arnold representation theorem. First sparse Kanvolution PyPI package and features 7x speedup from previous Kanvolution implementation.
- **Turtlecups - Maze-solving Mobile Robot:** Mobile robot designed to traverse mazes constructed from SOLO cups. End-to-end with perception (Canny edge detection), planning (RRT*), control (PID), and intercommunication (ROS).

SKILLS

Programming: Python (PyTorch, Tensorflow, Scikit-learn etc.), C++, CUDA, LaTeX, Java, Javascript, C, RISC-V