



FACULTY MENTOR

Bill Lin

PROJECT TITLE

AI datacenter networks

PROJECT DESCRIPTION

AI datacenters are expanding to incorporate upwards to 1 million GPUs. The network that interconnects them plays a central role. Emerging technologies in silicon photonics, heterogeneous integration, and systems-in-packages offer new opportunities to rethink network architectures.

1. Explore and develop novel ideas for datacenter networks.
2. Compare against existing approaches.
3. Co-author papers based on this work to be published in top-tier conferences and journals.

This project will be hybrid.

PREREQUISITES

Have a strong background in computer engineering and good programming skills.



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PROJECT TITLE

AI accelerators for neural ODEs

PROJECT DESCRIPTION

Neural ODE (ordinary differential equation) is an emerging AI model that can effectively tackle many generative AI problems. Unlike traditional feed-forward networks, neural ODEs leverage feedback mechanisms. In this project, we will explore circuits-based accelerators that are well-matched to the neural ODE model.

1. Explore and develop novel ideas for AI accelerators to realize neural ODEs.
2. Compare against existing approaches.
3. Co-author papers based on this work to be published in top-tier conferences and journals.

This project will be hybrid.

PREREQUISITES

Have a strong background in computer engineering, good circuits background, basic machine learning, and good programming skills.