Piratach Yoovidhya

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Education

Carnegie Mellon University • Pittsburgh, PA

M.S. in Computer Science, Research Thesis (GPA: 4.08/4.33) *Expected August 2024*

B.S. in Computer Science, Concentration in Computer Systems *May 2022*

Selected Coursework:

15-740, Computer Architecture
15-410, Operating Systems
15-451, Algorithm Design and Analysis
15-259, Probability and Computing
17-715, Hardware Security
15-418, Parallel Computer Architecture
15-440, Distributed Systems
15-445, Database Systems

Research Experience *(at Carnegie Mellon University)*

Simulating Cache Coherence for Cache-Attached Accelerators *(Aug 2023 - Present)*

- Collaborating with Professor Nathan Beckmann and PhD student Jennifer Brana.
- Builds on top of existing work on Kobold.
- Designing and implementing benchmarks utilizing the system.

Microarchitectural Simulation of Polymorphic Cache Hierarchy *(Jan 2022 - May 2022)*

- Collaborated with Professor Nathan Beckmann and PhD students Brian Schwedock and Nikhil Agarwal.
- Simulated microarchitecture through a dataflow architecture on a CGRA.
- Allows for fine-grained instruction-level parallelism and flexibility over routing of inputs/outputs.

täkō: a polymorphic cache hierarchy *(Nov 2020 - May 2022)*

- Collaborated with Professor Nathan Beckmann and PhD student Brian Schwedock.
- Designed and implemented applications that show a significant speedup compared to the baseline cache.
- Identified potential problem in the system, where the callbacks would pollute the core's L2 with unused data. This is later addressed in Kobold.
- Best paper nominee at ISCA'22.

Work Experience

Google LLC • Software Engineer • *Sunnyvale, CA* *(Aug 2022 - July 2023)*

- Worked within Google Cloud Storage, designing and implementing a load generator used to generate prod-representative traffic.
- This is used to ensure changes are robust, and will not cause any issues when rolled out to production.

ThaiSC • Research Intern • *Bangkok, Thailand* *(May 2021 - Aug 2021)*

- Investigated potential bottlenecks in the distributed training of recommender models across multiple nodes.
- Focused on Facebook's DLRM in particular, profiling some other recommender models (e.g. NCF, DeepFM) for reference.

CMU CB Dept. • Research Programmer Assistant • *Pittsburgh, PA* *(Jan 2020 - May 2020)*

- Worked with Professor Robert Murphy in implementing *Bioactive*, a program that is used to assist in research through active learning and model construction
- Fixed database issues that prevented several campaigns from working as intended
- Implemented a continuous modeler based on linear regression and modularized the code for other files

KBTG • Data Science Intern • *Bangkok, Thailand* *(Jun 2019 - Aug 2019)*

- Worked in the data science team to develop a feature that evaluated the price of a car (for collateral) from a photo to be used in K-Plus, Thailand's #1 mobile banking app
- Successfully developed a license plate and vehicle image recognition model using Keras, and connected it to a pipeline that would function as a part of the vehicle price evaluation program