# XUANHAO (ERIC) ZHANG

⬦ (+1) 617-447-9107 ⬦ xuanhao0831@gmail.com ⬦ https://www.xh-zhang.com

## WORK EXPERIENCE

**Google Inc.** Kirkland, WA
*Software Engineer III (Persistent Disk Team)* *Nov. 2022 - Present*

- Owned the resource and permission areas of PD Podification, that decoupled 40+ backend jobs from the legacy monolithic system to the new server platform to increase release velocity.
- Led multiple projects during the pod migration, including colossus spindles capacity/permission, jobs' reshaping, and modernizing Autocap/Autopilot integration.
- Recognized the resource (GCU/RAM) efficiency problems during migration. Started from a 20% project and then collaborated with SREs to propose, plan and land a multi-quarter project to improve PD's CPU/RAM resources efficiency. It included CPU profile/scheduler analysis, memory analysis, high throughput/IOPS bursting workload analysis, vertical/horizontal auto-scale fine-tuning, as well as benchmarks.
- The PD resource efficiency project improved around 20% of the resource utilization across 300+ cloud locations with a projected 5 year savings of $XX million without hurting SLOs. The results also got a Google Perfy Silver Award.
- Led a project to design and implement a mechanism to filter out the alerts from known device corruptions, significantly reducing the SRE on-call toil.

**Google Inc.** Kirkland, WA
*Software Engineer II (Persistent Disk Team)* *Jul. 2021 - Nov. 2022*

- Owned the PD silent data corruption (SDC) area. Identified potential SDC locations across PD and introduced new metrics, monitoring and alerts to improve observability and debuggability.
- Designed and implemented the disk metadata journaling for the PD cross-cell migration case. Utilized Flume to handle large-scale of IOs from Spanner to Colossus for both journaling and recovery pipelines. It improved the disk metadata reliability and abilities of disaster recovery.

**Synopsys Inc.** Boxborough, MA
*Software Engineer Co-op (Methodology Core Team)* *Jan. 2020 - Aug. 2020*

- Developed a Machine Learning Platform from scratch, which helps the circuit designers reserve the optimal cloud resources to run simulations.
- Built the data pipeline and ETL scripts with PySpark, and trained a MixNet model using PyTorch.
- Prototyped and benchmarked the performance of the deployed ML system, including data recollection, evaluation and retraining system.
- Saved average 60% on computing resources, which prevent millions of dollar wastage on the CPU clusters. The results were presented at the Design Automation Conference 2020.

## TECHNICAL SKILLS

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| **Distributed System** | C++, Python, Performance tuning and optimization, large scale deployment |
| **ML&Robotics** | PySpark, PyTorch, CUDA programming, ROS, CAD, 3D Printing |

## EDUCATION

**Northeastern University, Boston, MA** *Sep. 2018 - Dec. 2020*
Master of Science in Electrical & Computer Engineering, GPA 3.84/4.0
**Southeast University, Nanjing, China** *Sep. 2013 - Jun. 2017*
Bachelor of Engineering in Information Science and Technology, GPA 3.67/4.0.

## RELATED PROJECT

**Robotic Arm to Automatically Changing 3D Printer Plates**          Dec. 2024 - Present

- Design and implement a robotic arm system capable of automatically removing finished 3D print plates (for Bambulab A1C) and replacing them with new ones.
- Implement ROS nodes for motion planning, sensor data processing, and error handling, ensuring robust and reliable system operation.
- Started from self-implemented inverse kinematics algorithms to leverage MoveIt! within ROS to generate smooth and collision-free trajectories for the robotic arm. Working on integrating LLM APIs to the system.