

# Alex Li

alexli-vq.github.io | linkedin.com/in/alexli-vq

## Education

**Carnegie Mellon University**, B.S. Computer Science

Aug 2023 – May 2027

- **Coursework:** Distributed Systems, Cloud Computing, Computer Graphics, Intro to Computer Systems, Intro to Machine Learning, Intro to AI, Intro to Computer Vision, Parallel and Sequential Data Structures and Algorithms, Functional Programming, Probability, Statistics, Linear Algebra

## Experience

**Software R&D Intern**, PTC (Onshape)

Jun 2025 - Aug 2025

- Spearheaded development of an all new Notes Panel with Markdown support, granular permissions, and preview modes; drove project from design through deployment to all customers in August 2025
- Revamped admin page UI with server-side sorting, pagination, and search in MongoDB for improved scalability
- Practiced agile development and CI/CD best practices within Onshape's three-week sprint cycles

**Research Assistant**, CMU Search-Based Planning Lab

May 2025 - Aug 2025

- Implemented and evaluated dozens of sampling-based algorithms for single-agent start-to-goal search
- Investigated novel conflict-resolution strategies for multi-agent planning under uncertainty

**Robotics/Computer Vision Intern**, Dassault Systemes (Solidworks)

Dec 2024 - Jan 2025

- Designed and developed single- and multi-camera pose estimation (position/orientation) using pure computer vision techniques in Python/C++ with OpenCV
- Achieved 5× speedup and improved precision compared to prior implementations

**C++ R&D Development Intern**, Poisson Software Co.

Jun 2024 – Aug 2024

- Built a high-performance, multi-threaded message queue and broker in C++
- Developed persistent caching to accelerate repeated 3D model computations

## Projects

**Cloud Computing Projects**

Mar 2025 - Apr 2025

- Created application to elastically scale AWS EC2 instances based on simulated demand curve
- Deployed and scaled microservices on Azure using Kubernetes
- Technologies: Java, Python, YAML, AWS, Azure, Kubernetes

**TartanAUV - CMU Robotic Submarine Team**

Aug 2024 - Current

- Learned how the robo-sub uses ROS. Refining reinforcement learning capabilities for object detection/recognition.
- Concepts Used: Python, ROS, Reinforcement learning

**Malloc Lab**

Mar 2024

- Wrote custome implementation of Malloc, **Top 3%** in class for S24 in throughput and utilization metrics (74.2%)
- Concepts Used: C, Linked-lists, Memory management

**Carnegie Mellon Racing (CMR)**

Sep 2023 - Current

- Created C++ midpoint tracing algorithm using lidar data for CMR's driverless competition vehicle 22a
- Concepts Used: C++, Delaunay Triangulation

## Skills

**Languages:** C++, C, Go (Golang), Python, Java, Scala, JavaScript, TypeScript, Standard ML, HTML/CSS, ~~TeX~~ LaTeX, SQL

**Frameworks/Tools:** Git/GitHub, Docker, Kubernetes, Helm, Angular, REST APIs, PyTorch, NumPy, OpenCV, ROS, Kafka, Spark, Hadoop, CI/CD, Agile/Scrum

**Databases/Cloud:** MySQL, MongoDB, Redis, AWS, Azure, Google Cloud, Linux/Unix