# ALVIN LI

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## EDUCATION

**University of Michigan** — Ann Arbor, MI
*B.S.E Computer Science, Minor in Mathematics* — *Expected May 2025*

- Coursework: Data Structures and Algorithms, Elementary Analysis, Introduction to Combinatorics, Theory of Computing, Advanced Algorithms, Linear Algebra, Putnam Seminar, Analysis on Manifolds, Probability Theory, Stochastic Processes, Machine Learning, Computer Organization, Computer Vision
- Activities: ICPC Programming Team (Valiant), Math Club, Board Games Club

**Stuyvesant High School** — New York, NY
*High School Diploma* — *Jun 2022*

## SKILLS

**Languages:** C/C++, C#, Python, Java, LaTeX, Processing
**Libraries:** PyTorch, NumPy, Pandas, Scikit-learn, Q#, Qiskit, Matplotlib, OpenCV, LibROSA
**Technologies:** Linux, Git, Vim, VSCode, Visual Studio, Docker, .NET, Kafka, Elasticsearch, Grafana
**Foreign Languages:** Mandarin Chinese, French

## EXPERIENCE

**Roblox** — San Mateo, CA
*Software Engineering Intern – Foundation AI* — *May 2024–Aug 2024*

- Designed and built a processor and pipeline for client-to-server matchmaking data to reach an easily queryable datastore using C#, Kafka, and Elasticsearch.
- Analyzed matchmaking data to find causes of server fragmentation in Roblox games and made a Kibana dashboard for visibility and further analysis of server fragmentation.
- Conducted research on machine learning algorithms applied to matchmaking in games.

**Roblox** — San Mateo, CA
*Software Engineering Intern – Infrastructure* — *May 2023–Aug 2023*

- Migrated microservices from a Windows-based framework to a modern, scalable Linux-based framework which uses Docker, Nomad, Github Actions, and Grafana.
- Worked with teams across the company to deploy and redirect traffic to their migrated services.
- Wrote various features and tests for microservices using C#, .NET 6, SMBLibrary, and gRPC.

**Google Research** — New York, NY
*Researcher* — *Dec 2020–Jun 2021*

- Worked with a team of three to research and design an audio autocompletion deep learning model.
- Collaborated with a researcher to learn concepts in machine learning and discuss relevant research articles.
- Technologies used: Python, PyTorch, NumPy, Pandas, LibROSA

## PROJECTS

**Semantic Segmentation of Point Clouds** — Ann Arbor, MI
*Python, PyTorch, NumPy* — https://github.com/chrsdavis/point-cloud-segmentation

- An implementation of *SalsaNext*, a state-of-the-art machine learning model used to identify and disambiguate objects in 3D LiDAR point clouds. It processes point clouds obtained from LiDAR sensors and classifies each point into one of many predefined labels such as "road", "pedestrian", or "tree". This model is trained on the RELLIS-3D dataset.

## AWARDS

- USACO Gold Division Qualifier (2021)
- 2× AIME Qualifier
- CodeForces Expert Rating
- William Lowell Putnam Exam: Top 500 (2022, 2023)
- Michigan Engineering Dean's List (4×)
- National Merit Scholar Finalist (SAT: 1580)
- William J. Branstrom Freshman Prize
- James B. Angell Scholar