

Education

University of California, Santa Barbara
PhD Candidate in Computer Science

Santa Barbara, CA
Expected Graduation: June 2026

University of California, Santa Barbara
Bachelor of Science in Computer Science (3.94 GPA)
College of Engineering Honors

Santa Barbara, CA
Class of 2020

Publications

- [1] **Lim, L.**, Kalagi, V., Agrawal, D., and El Abbadi, A. “Tricycle: Private Transformer Inference with Tricyclic Encodings” (2025)
- [2] **Lim, L.**, Liu, J., Kalagi, V., Agrawal, D., and El Abbadi, A. “Hyperion: Private Token Sampling with Homomorphic Encryption” (2025)
- [3] Ali, A., Choi, J., Gipson, B., Gorantala, S., Kun, J., Legiest, W., **Lim, L.**, Viand, A., Demissie, M., and Zheng, H. “HEIR: A Universal Compiler for Homomorphic Encryption” (2025)
- [4] **Lim, L.**, Goh, W., Agrawal, D., El Abbadi, A., Gupta, T. “QUICKER: Quicker Updates Involving Continuous Key Rotation” (PoPETS 2024)
- [5] **Lim, L.**, Aghababae, L., and Swart, G. “Compiling Just the Best Bits: Finding the Maximum Net Benefit Shared Subexpressions in a Query Workload” (patent submission)
- [6] Jiang, S., **Lim, L.**, and Sra, M. “Spatializing Music in Virtual Reality” (SUI 2023)
- [7] **Lim, L.**, Goh, W., and Sra, M. “A Spatial Music Listening Experience in Augmented Reality” (UIST 2021)
- [8] Zackhary, V., **Lim, L.**, Agrawal, D., and El Abbadi, A. “Cache on Track (CoT): Decentralized Elastic Caches for Cloud Environments” (EDBT 2021)

Work Experience

Researcher in Distributed Systems Lab

University of California, Santa Barbara

September 2020 – Current

- Implemented end-to-end private transformer inference with homomorphic encryption [1]
- Optimized key rotations by developing new protocols to eliminate race conditions while utilizing new updatable encryption primitives, resulting in an accepted research paper [3]
- Developed a virtual reality application to spatialize music, resulting in a paper at a top conference [5]
- Developed an augmented reality mobile application for spatial music, culminating in an accepted paper at a top HCI conference [6]
- Reduced workload imbalance for distributed system backends by developing a front end cache [7]
- Managed students and research teams, resulting in successful projects

Software Engineering Intern, Google

Sunnyvale, CA

June 2024 - September 2024

- Developed a pipeline in MLIR to compile a Python machine learning models into CKKS homomorphic encryption, leading to a 3000x performance improvement over previous infrastructure
- Implemented optimized matrix multiplication FHE kernels, leading to a 6x performance improvement
- Led directly to a research paper submission at a top security conference [2]

Software Engineering Intern, Oracle

Redwood City, CA

June 2021 – September 2021, June 2022 - September 2022

- Conducted research on optimizing for net benefit of query plan native compilation by modeling native compilation benefit and clustering to group similar query plans, leading to a patent [4]

Software Engineer Intern, Toyon Research Corporation

Goleta, CA

July 2019 – September 2020

- Improved accuracy of object detection in applications of cutting edge models like RetinaNet and Faster R-CNN by tuning hyperparameters and implementing image transformations
- Authored monthly progress reports by analyzing results for government contracts
- Created image classification model using ResNet to determine benefits of additional LIDAR data

Software Engineer Intern, Calix Inc.

Goleta, CA

June 2017 – July 2018

- Developed automation framework on host computer instructing DUT to run self-diagnostics
- Debugged hardware abstraction layer on embedded systems Linux OS