# Don D. Le

*Computer Engineer • Software Developer*

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## Education

**University of California, Los Angeles (UCLA)** Dec. 2027 (Expected)

*Bachelor of Science, Computer Science and Engineering—Minor in Mathematics* *GPA: 3.96/4.00*

- Activities: Putnam Mathematical Competition, ACM, IEEE, UMSA
- Coursework: Data Structures & Algorithms; Engr Physics I, II, III; Microcontrollers & Embedded C++; Electrical Circuits Analysis; C++ Desktop Applications; Java; Assembly [x86], Systems and Signals, Digital Systems Design

## Skills

**Interests**: High-performance computing, ODEs/PDEs modeling, System programming, General purpose GPU programming
**Languages**: C++, C, Python, CUDA, Rust, LaTeX, JavaScript, Assembly [Intel x86]
**Tools**: CMake, GNU Make, Git, CUDA Toolkit, Boost, GCC, MSVC, Vcpkg, SIMD (Intel/AMD), Conda, Linux
**Frameworks & Libraries**: PyTorch, NumPy, Scipy, OpenCV, ORB SLAM 3

## Experience

**Research Assistant, UAV Lab (Department of Aerospace Engineering)** Sep. 2024 - Aug. 2025

*California State Polytechnic University, Pomona* Pomona, CA

- Engineered drone trajectory estimation and 3D mapping system using ORB SLAM3 and Master-SLAM, achieving 85% environment reconstruction accuracy
- Integrated YOLOv8 and SLAM for object-aware pathing; C++ optimization improved inference speed by 50% over Python baseline
- Delivered real-time object detection pipeline for embedded systems, supporting autonomy in GPS-denied environments

**Computer Vision Research Intern** Jun. 2024 - Aug. 2024

*California State Polytechnic University, Pomona* Pomona, CA

- Developed high-performance UAV image processing pipeline using MPI (multi-core processing), OpenMP (multi-threading), and CUDA-accelerated ORB/SURF in OpenCV C++ with GPU module.
- Improved image stitching speed by 300% compared to the CPU-based approach for a dataset of 500 4K images using OpenCV's GPU module
- Reduced parallel processing costs by 61% through the integration of CUDA and MPI

**Math, Physics, CS Tutor & Math Teaching Assistant** Feb. 2024 - Jul. 2025

*Mt. San Antonio College* Walnut, CA

- Developed a structured, personalized tutoring curriculum for C++, engineering physics, and mathematics that increased overall student participation and understanding.
- Led after-class tutoring sessions for a class of 35 students in Differential Equations and Linear Algebra; authored and distributed comprehensive study notes in LaTeX

## Technical Projects

**Parallel SIMD Ray and Path Tracer** | *C++, SIMD, OpenMP, stb_image, 3D models* | github Aug. 2025 - Present

- Engineered a C++ multithreaded path tracer from a legacy code base to meet modern performance standards, achieving a 20% speedup over the serial version while maintaining numerical precision.
- Implemented a high-performance 3D model importer and a tile-based parallel rendering algorithm that improved workload distribution and scalability across cores, yielding a 5% performance gain.
- Accelerated vector math with CPU SIMD intrinsics, leveraging instruction-level parallelism to increase throughput and achieve a 16% performance gain.

**Chladni Patterns Generator** | *Numpy, Scipy, Partial Differntial Equations* | github, paper Feb. 2024 - May. 2024

- Built a scientific computing project to search and simulate an unlimited number of Chladni patterns by solving eigenvalue problems derived from the 2D wave equation on both Cartesian and Polar coordinates
- Optimized computational performance by applying NumPy vectorization to eigenvalue solvers and matrix operations, increased computing speed by 50%.

## Conference Proceedings

**American Institute of Aeronautics and Astronautics (AIAA)** | paper Jan. 2025

R. Ramirez, J. Korah, S. Bhandari, **D. D. Le**, Y. Chen, and T. Nguyen, "Accelerated image stitching via parallel computing for UAV applications," *in Proc. AIAA SCITECH 2025 Forum*, Orlando, FL, USA, Jan. 2025.