

# VIVEK KUMAR

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🌐 <https://www.vivtrain.dev> 📺 vivtrain 🎧 vivtrain

## EDUCATION & ACCOLADES

### 🎓 UCLA (University of California – Los Angeles)

- B.S. in Computer Engineering
- Class of 2024
- 3.14 GPA with 252.0 Units

#### Relevant Coursework

Data Structures & Algorithms • Operating Systems  
Programming Languages • Computer Microarchitecture  
Systems & Signals • Computer Vision • Feedback Control

### Collegiate Honor Societies

#### Upsilon Pi Epsilon (ΥΠΕ)

- President 2021
- Corporate Chair 2019
- Inducted 2018

#### Eta Kappa Nu (HKΝ)

- Inducted 2018

#### Tau Beta Pi (ΤΒΠ)

- Inducted 2018

### 🎓 Buchanan High School – Clovis, CA

- 4.0 GPA (unweighted) with 11 AP Courses
- Valedictorian, CTO of Robotics Team 1671
- Present-day volunteer work with Team 1671

## TECHNICAL & PROFESSIONAL SKILLS

### SOFTWARE

- C++, Java, Python (Proficient)
- JS/TS React, .NET C# (Novice)
- VSCode, NeoVim, Git, Bash, Linux/Unix

### ENGINEERING

- Robotics, Control Systems, Motion Planning
- Electronics (Arduino, Raspberry Pi)
- CAD (SolidWorks, OnShape), 3D Printing

### INTRAPERSONAL

- Mediation, Conflict Resolution
- Documentation, Typesetting (e.g.  $\LaTeX$ )
- Leadership, Team Structure, Delegation

## WORK EXPERIENCE

### FIRST® Robotics Team 1671 – Alumni Mentor

2023 – Present

- Taught high schoolers programming (Java), math, and physics to solve real engineering problems
- Built performant, robust, and safety-critical robots to compete in regional and international tournaments
- Guided students in developing leadership, professional, and intrapersonal skills

### Collect Coffee Bar – Barista

2023, 2024

### Personal Sabbatical

2022 – 2023

### Motorola Solutions – Software Engineering Intern

2021

- Developed internal testing tools (native .NET Windows apps in C#) for security cameras
- Designed a Figure of Merit (FoM) for image focus using classical computer vision techniques

### Symantec Corporation – Security Technology and Response Intern

2019

- Developed core C++ infrastructure which backs consumer and enterprise security software
- Reduced the size of a daily binary patch file to signature-based Intrusion Detection System software by 98%
- Identified the root cause of a long-standing, assembly-level stack corruption bug in function-hooking infrastructure
- Created an automation framework that singles out expensive operations and outputs an HTML report

## PROJECTS

### Low-Poly Image Generator

2025

- Built an interactive, configurable CLI tool in C++ to generate triangulated images (published at [vivtrain/lowpoly](https://vivtrain.com/lowpoly))
- Designed a custom computer-vision pipeline with OpenCV to extract vertices from any input image
- Implemented an  $O(n \log n)$  Delaunay triangulation algorithm (9.5k vertices + 19k triangles in 1.3 seconds)

### Personal Website

2024 – 2025

- Designed and built a website to showcase projects and personal writing with a sleek and cohesive aesthetic
- Developed a responsive front end using Next.js, React Server Components, and Tailwind CSS
- Deployed to Vercel with automated Git-based CI/CD at <http://vivtrain.dev>

### Upsilon Pi Epsilon (ΥΠΕ) Beta Chapter – President

2021 – 2022

- Led UCLA's chapter of UPE, a computer science honor society endorsed by IEEE and the ACM
- Organized ~40 officers to host career fairs, daily free tutoring, and frequent professional events
- Personally co-hosted a town hall for presenting feedback from the student body to CS Department faculty

### COVID-19 3D Printed PPE Project – Production and Disinfection

2020

- Organized civilian engineers to mass-produce face shields and masks during PPE supply shortages
- Created a pipeline for production, disinfection, and distribution
- Delivered over 2000 units to local hospitals and elder-care facilities over the course of 6–8 weeks