# Pranav Kambhampati

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Meticulous Computer Engineering student with a strong foundation in computer science and hands-on experience in software development, automation, and testing. Proficient in C, C++, Python, Java, and object-oriented programming principles, with additional experience in embedded software development for microcontrollers (Arduino). Strong communicator with the ability to document, interpret, and present test results effectively. Proactive and self-driven, with a commitment to continuous improvement.

## EDUCATION

**University of California, San Diego** **Expected Graduation: December 2025**
*Electrical and Computer Engineering: Computer Engineering, B.S.* **GPA: 3.90**
**Relevant Coursework:** Data Structures, Computer Organization/Architecture, Analog Circuit Design, Operating Systems, Digital Systems Design, Software Engineering, Electronic Circuits and Systems, Machine Learning (learning algorithms)

## SKILLS

- **Languages:** Python, Java, C/C++, HTML/CSS/JavaScript, Bash, System Verilog, SQL
- **Dev/Simulation Tools:** Valgrind, Quartus, ModelSim, LTSpice, SolidWorks, Arduino, Altium Designer, Git
- **Lab Tools:** Solder Irons, Oscilloscopes, DC/AC Power Supplies, Breadboards, Multimeters
- **Concepts:** Agile, Component and Design Techniques for Digital Systems, Circuit design, Linear Time Invariant Systems (Fourier Series/Transforms, sampling, amplitude modulation), Circuit elements (op-amps, BJTs, MOSFETS)
- **Business Software:** Microsoft Office 365 (Word, Excel, PowerPoint, Outlook, Teams), Google Suite, BitBucket, GitHub

## RELEVANT EXPERIENCE

**Rocketry Avionics Hardware Engineer** **October 2023 – Present**
*Rocket Propulsion Laboratory at UC San Diego* *UC San Diego*

**Class G Rocket** | *CAD, SolidWorks, Altium Designer, Arduino, 3D Manufacturing, Soldering*

- Manufactured and launched a Class G rocket that reached an altitude of 3000 feet, which included a parachute recovery system, custom-modeled 3D printed mechanical parts and a custom designed PCB to hold the sensors together.
- Implemented an Arduino Nano based avionics system to collect live flight data, including air temperature and pressure to calculate altitude data that was stored on an SD card on-board for post-flight analysis of rocket telemetry.

**Additional Responsibilities:**

- Worked to design and implement avionics hardware systems for rocketry applications, enhancing system performance.
- Utilized Arduino platforms to develop embedded control systems, integrating hardware for in-flight rocket control.
- Documented hardware design processes, test procedures and results while collaborating with cross-functional teams to integrate avionics systems with propulsion components, contributing to successful experimental launches and testing phases.

**Computer Science and Engineering Undergraduate Tutor** **December 2023 – Present**
*UC San Diego Department of Computer Science and Engineering* *UC San Diego*

- Provide individualized tutoring sessions for classes of 400+ students on Data Structure fundamentals, Java Object Oriented Programming Design, Sorting Algorithms, Unit Testing and software development principles.
- Collaborated with faculty to align tutoring strategies with course objectives, building an optimal learning environment.
- Proctored and graded student assessments, helped setup assignments, and adjust course curriculum to target tough concepts.

**Business Operations Software Engineering and Data Analytics Intern** **June 2024 – September 2024**
*ASML* *San Diego, CA*

- Collaborated in a team of 7 building and deploying an Extract-Transform-Load system to migrate data between sources.
- Performed comparative analysis of customer revenue vs historical stock price to build ASML revenue forecasting ML model.
- Contributed to database table design and development, supporting dataset analysis and writing algorithms to identify trends in how historical stock price changes to more detailed/useful data dashboards.

## PROJECT EXPERIENCE

**Custom Designed Microprocessor** | *System Verilog, ModelSim, Altera Quartus, Computer Architecture* **March 2024 – June 2024**

- Designed a custom 9-bit assembly language and wrote code for a microprocessor capable of complex operations such as Shift and Carry Multiplication, Hamming distance calculations and smallest/greatest differences between sets of 16-bit numbers.
- Developed virtual microprocessor hardware architecture using System Verilog for the assembly language including a centralized memory, register file, arithmetic logic unit, muxes, demuxes, and other computer architecture components.
- Simulated and synthesized a fully functional microprocess with a complete Datapath using ModelSim and Altera Quartus.