Pranav Sukesh

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Education

Purdue University, College of Science **Expected: May 2028**
Bachelor of Science, Computer Science *West Lafayette, Indiana*
- **GPA: 4.00**; Concentration in Computer Graphics and Visualization, Minor in Mathematics

Harker Upper School **May 2025**
High School Diploma *San Jose, California*
- **Weighted GPA: 4.56/4.8**; Game Development Club President, FIRST Robotics Team 1072 Machining Director
- Relevant Coursework: AP® Computer Science A with Data Structures, Computer Architecture, Compilers and Interpreters, Neural Networks, Robot Kinematic Software

Activities

Special Interest Group in Game Development (SIGGD), Purdue University **Aug. 2025 – Present**
Software Developer *West Lafayette, Indiana*
- Designed, implemented, and quality tested software for SIGGD's annual game development project, a 3D action-survival game, leveraging knowledge in design patterns, scalable architectures, and the Unity game engine to develop a robust codebase.
- Collaborated with artists and sound designers to incorporate their work into the product to best deliver an interactive experience.
- Specialized in shader design, dependency injection, and independent subsystem development to best support the team.

IEEE Autonomous Racing, Purdue University **Oct. 2025 - Present**
Embedded Controls Lead *West Lafayette, Indiana*
- Spearheaded development of embedded software for autonomous control of a racing vehicle for Purdue's evGrandPrix, developing a finite state machine architecture to communicate with our central processing unit through ROS2.
- Prioritized safety and reliability in motor control and emergency behavior, ensuring proper control of our vehicle during races.
- Oversaw microcontroller integration with electrical, mechanical, and algorithmic divisions of our team in developing our final vehicle.

Relevant Experience

Computer Architecture TA, Harker Upper School **Jan. 2025 – May 2025**
Teaching Assistant *San Jose, California*
- Explained computer architecture principles, including logic gates, Karnaugh maps, and Von Neumann architectures, to a class of 20 students, working together with the course's teacher, and provided 1-on-1 debugging support during and after class sessions.
- Programmed EEPROMS for class use and distributed integrated circuits, handouts, and relevant materials to students.

Projects

Original Game Development Creations | *C#, Unity* **Jun. 2023 - Present**
- As an independent game developer, created 8 original 3D video games in the game engine Unity using C# in teams of 1-5 people.
- Designed, programmed, and conducted playtesting over the span of 1-3 weeks, with the finished product published online on itch.io.

3D Model Slicer and G-code Compiler for 3D Printing | *Python* **Sep. 2025**
- Engineered an algorithm for slicing 3D models into layers and generating an infill pattern as a preliminary step for 3D printing.
- Programmed a compiler that converts these sliced models into 3D printer toolpath instructions (G-code), which is simulated on a built-in visualizer and can be run on a physical 3D printer.

3D Rendering Engine and Inverse Kinematics Simulator | *Python* **Jan. 2025 - Jul. 2025**
- Built a graphics engine backend from the ground up in Python using mathematical principles of linear algebra and affine transformations to rasterize a virtual 3-dimensional space onto a pixel screen as seen by a dynamic virtual camera present in-engine.
- Implemented a numerical inverse kinematics simulation, enabling motion planning for robotic arms of arbitrary joint configurations.
- Authored a paper about the mathematics and functionality present in the engine, to be published on Purdue's SIGHORSE publication.

Skills

- **Languages:** Proficient in C#, Python, C++, Java, Comfortable with C, MIPS32 Assembly, OpenGL, HLSL, LaTeX
- **Software:** Unity, Unreal Engine, Blender, Autodesk Maya, Autodesk Fusion 360, Onshape, Arduino, Raspberry Pi
- **Skills:** Computer Graphics, Shader Technology, Inverse Kinematics, Computational Geometry, Computer Aided Machinery (CAM), CAD and 3D Modeling, Integrated Circuits, Game Design, LLM Architecture and Training, Automata Theory