

Rohan Bansal

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Creative tinkerer with interest in AI, computer vision, robotics (controls), and flight avionics. Proactive, technical leader aspiring to work at the intersection between hardware and software.

EDUCATION

Georgia Institute of Technology

BS Computer Science, Minor in Aerospace Engineering

Graduating May 2026

College GPA: 4.0, High School GPA: 4.68

COURSEWORK & AWARDS

Courses: Calculus I/II, Linear Algebra, Discrete Mathematics, Data Structures & Algorithms, Multivariable Calculus, Physics 1 & 2, AP Calculus AB/BC, AP Physics C, AP Computer Science A

Awards: 2x Innovation in Control Systems (FRC Robotics MBR Regional), Software Engineering Award (KLA Corporation), Paradigm Challenge Finalist

EXPERIENCE

Lockheed Martin Space Systems | *Aerospace Engineering Intern*

Jun. 2022 - Present

- 2023: Scaled microactuator assembly for baseline use on four other company-wide projects, performed stress analysis on novel gear and pinion design. Modeled fittings and crossbars for rigid flex solar panel. Prototyped physical testbench for cable torque testing, performed torque analysis in MATLAB.
- 2022: Simulated kill vehicle and seeker avionics in PTC Creo and MATLAB for product demonstrations. Assisted data visualization by updating relevant charts and documents in Excel as program progressed.

GT Guidance, Navigation & Control | *Avionics Team Member*

Aug. 2023 - Present

Wrote PID algorithm to control thrust-vectoring launch vehicle. Tuned pitch and yaw parameters to achieve less than 1% error. Currently writing Kalman Filtering and state estimation algorithms for attitude determination.

CodeDay Labs | *Labs Intern, Fullstack Developer*

Jun. 2021 - Aug. 2021

Led a team of 3 to develop a Garageband-esque sequential music composition environment from scratch. Built entire REST API, music-stitching system and drag/drop functionality. Ranked #1 most popular amongst 69 other teams.

AMHS Robotics Team 1351 | *President, Programming Lead*

Aug. 2019 - May 2023

Managed team of 150 students. Pioneered autonomous robot software utilizing advanced computer vision and path following algorithms. Won software awards at the national, regional, and corporate levels. Developed scalable, web-based attendance system that receives over 400 visits a week during the school year.

PROJECTS

Stereo Vision Object Radar | *Java, Python, OpenCV, PyTorch, YOLOv5*

- Computer vision pipeline to track moving objects relative to a simultaneously moving vehicle.
- Trained YoloV5 image detection on over 20,000 images with up to 98% accuracy, implemented DeepSORT algorithm to precisely track up to 800 moving objects per frame. Optimized to run on 20ms cycles.
- Two cameras for stereo vision depth perception, one for image detection. Can accurately detect distance and angle (yaw) to specified targets.

Realtime FRC Electronics Simulator | *Java, LibGDX*

- Award winning desktop application to simulate circuit design of an robot control system.
- Supports comprehensive circuit simulation in real time with detailed error indicators (LEDs, traces)
- Includes models of every single FRC system component rendered from 3D onto a 2D plane

Keypoint-Tracking Modified Nerf Gun With Turret | *Python, OpenCV, Arduino, C, Additive Manufacturing*

- A nerf gun and camera mounted into a custom 3D-printed turret enclosure, capable of 3 degrees of rotation (X, Y, Z).
- Utilizes OpenCV and Python to scan for predetermined targets, providing angle-error to an Arduino PID loop. Dart is fired on successful vision lock on target.

SKILLS

Languages: C++, C#, Java, Python, JavaScript, HTML/CSS, Rust, Go, SQL, Bash, \LaTeX

Tools: Git, Linux, OpenGL, ROS 2, TensorFlow/Torch, OpenCV, Unity, KiCAD/Altium, PTC Creo/F360