

Arnav Bajaj

arnavbajaj9@gmail.com • arnav-bajaj.com • GitHub: Jackhammer9

Education

Technische Hochschule Würzburg-Schweinfurt – B.Eng in Robotics Engineering Graduation: March 2027

- Developed a line follower robot, learned camera calibration, Simulink, soldering, machine vision algorithms, and navigation algorithms through various Robotic Labs.

Experience

Student Research Assistant – Julius Maximilians Universität Würzburg Feb 2025 – Jul 2025

- Developed a pipeline for psychology students integrating virtual meta humans with realistic facial expressions.
- Designed a learning/teaching tool using **Unreal Engine** and **Meta Humans** to enhance student engagement and understanding.

Web Automation Freelancer – Upwork.com Jan 2021 – May 2022

- Automated social media processes, reducing manual workload by up to **75%**.
- Created a bot detection algorithm for Twitter, achieving a security improvement rate of **94%**.

Projects

Car Price Predictor <https://github.com/Jackhammer9/Car-Price-Predictor>

- Built an **ML pipeline** for car price prediction with feature engineering & multiple regressors.
- Optimized hyperparameters using **GridSearchCV**, boosting prediction accuracy.

RedDownloader (Open Source Python Library) <https://github.com/Jackhammer9/RedDownloader>

- Developed an open-source Reddit media downloader with pristine quality.
- Gained **85+ GitHub stars** and averages **1,000+ monthly downloads** on PyPI.

Drone Project: Nimbus

- Designed a custom drone with an Arduino-based flight controller.
- Implemented a PID loop to maintain flight stability.

Gyroscope and FSR Controlled Car: Sperry

- Created a robot controlled by wearable FSR and gyroscope sensors.
- Engineered Bluetooth-based communication for low-latency control.

Way to the Veil

- Developed a fast-paced ninja-themed 2D action game with dynamic combat mechanics.
- Implemented enemy AI and boss fights mirroring player abilities.

Skills

Programming: Python, C++, C#, JavaScript, Matlab

Machine Learning: Tensorflow, PyTorch, Scikit-learn

Computer Vision: OpenCV, Mediapipe, OptiTrack

Robotics: ROS, RoboDK

Game Development: Unity, Pygame, Unreal, Aesprite

Web Development: HTML, CSS, React, Django, Three.js

Electronics: Altium, LTSpice, Arduino

Parallel Computing: CUDA, cuDNN

Tools: Git, GitHub, LaTeX

Extracurricular

Astra Robotics – Member Sep 2022 – May 2023

- Contributed to the HAL logistics robot project.
- Redesigned the club website using Three.js and ReactJS.