Ishaan Bansal

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EDUCATION

Texas A&M - Engineering Honors — College Station, TX
Major in Aerospace Engineering and Applied Math in Computational Science with a minor in Computer Science and Engineering Entrepreneurship — Expected 2027
Cumulative GPA: 4.0

Dulles High School - Math and Science Academy — Houston, TX
Highschool Degree — Aug 2020 - May 2024
Cumulative GPA: 4.49/4.0; Class Rank: 40/757; SAT Score: 1580
Relevant Coursework: AP Physics C: Mechanics, AP Physics C: Electricity and Magnetism; AP Computer Science A

WORK EXPERIENCE

Society of Flight Test Engineers — Aug 2024 - Present
Lead Drone Engineer
- Leading a team of 10 engineers in the design and development of a drone from the ground up, overseeing and actively participating in both hardware and software aspects.
- Developing the drone's control systems in C++ and ensuring seamless integration across flight systems to achieve operational goals
- Driving the project's next phase by developing autonomous capabilities using advanced algorithms and machine learning for intelligent flight, object detection, and decision-making

University of Houston — May – Aug 2023 & 2024
Researcher
- Designed and implemented a Python application to enhance lab efficiency, used by PhD students and used on 20+ lab computers and employed Principal Component Analysis (PCA) to optimize gas sensor performance by analyzing response and recovery times
- I created a custom lab setup focusing on the Hall Effect, which is now adopted by PhD students for thesis research on gas sensors.
- Utilized 3+ machine learning techniques to develop a program that identifies 5+ different gasses in compound mixtures, achieving 90% accuracy
- Led a team of 10 high schoolers in the lab for practical and theoretical practices and acted as a liaison between them and the professor

PROJECTS

Ocean Trash Detector — Oct 2024
- A web application that predicts the location of ocean trash within a 50-mi radius based on user inputs (date, time, latitude, and longitude).
- The application uses Flask for the backend and Folium/Leaflet for map visualization on the front end with integrated API maps.
- When compared to current trash data, the model has an accuracy of up to 92%
- The back end is coded using CNN and LSTM models to input latitude, longitude, and date to output the future position of trash based on over 1 million data points of ocean patterns from the past 120 years as given by the NCEI NOAA

Cambridge Center - Exoplanet Classifier — Oct 2023
- Led a machine learning project focused on exoplanet detection, achieving a 96.19% accuracy, 94.65% recall, and 97.97% precision using NASA and Caltech JPL datasets.
- Developed 5 machine learning models with minimal (<100) false positives/negatives for 2000+ data points.

ACTIVITIES

Independent Physics Researcher — Sep 2022 – Aug 2024
Neighborhood Teacher
- Conducted self-directed research, mastering the Lagrange method and Newtonian mechanics, and developed 5 coded simulations to model complex mechanical systems like double and spring pendulums - Projects displayed on GitHub profile
- Regularly taught over 15 local students, creating and using theoretical problems and physical experiments, with 100% positive feedback on improving their understanding of physics.
- Hired to act as a medium who managed relationships between local tutoring companies and 50+ parents

ADDITIONAL

Technical Skills: Proficient in Python, C++, Java, HTML, Soldering, Machine Learning (sci-kit learn, PCA), Verbal and Written Communication, Consulting, Leadership, CAD, CFD, Excel, Word, PowerPoint
Certifications & Training: Online Course in Python and Machine Learning (Udemy)
Awards: NMSQT Commended Scholar (2023); Regeneron Science and Engineering Fair State Qualifier (2024); IBM Thomas J. Watson Memorial Scholarship (2024)