Lakshya Arora

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IIT Bhubaneswar
Electrical Engineering
Pre Final year Undergraduate
CGPA: 8.26/10

Education

Year	Degree/Examination	University/Board	% / CGPA
2022-27	Electrical Engineering Dual Degree	Indian Institute of Technology Bhubaneswar	**8.26/10**
2022	Intermediate (12^{th} standard)	St. Vivekanand Sr. Sec. School, Rajasthan	**92.6%**
2020	Secondary School Certificate (10^{th} standard)	Bikaner Boys School, Rajasthan	**94.6%**

Projects

Hexapod Robot with Intelligent Navigation and Control *Embedded Systems with Machine learning*

- Engineered a six-legged autonomous robot featuring intelligent navigation, real-time control, and adaptive locomotion.
- Used Raspberry Pi 4 with a customized PCB to control **18** servo motors, allowing precise and coordinated leg movements.
- Implemented **Dijkstra and A* pathfinding algorithms** to enable autonomous navigation in dynamic environments.
- Created a web-based dashboard to monitor robot performance and control it remotely over Wi-Fi using **Flask library**.
- Enabled gesture-based control and autonomous pathfinding across varied terrains with **95%** stability in movement.
- Achieved smooth and accurate multileg coordination with $<$ **10 ms** control latency through optimized servo signaling.

Advanced Text and Defect Detection *Machine learning*

- Designed a scalable solution for fruit freshness, defect, and label verification in supply chain inspection.
- Used a **hybrid CNN-LSTM** model in TensorFlow for image-based freshness classification, achieving **92%** accuracy.
- Applied **Gabor** filters and contour-based perspective transform to detect surface tears and zoom into product regions.
- Built a Tkinter-based desktop interface for image input and inference output, with end-to-end pipeline execution.

Age Detection using Deep Learning in OpenCV *Machine learning and OpenCV*

- Deployed a real-time age prediction system using facial features for demographic analysis and smart applications.
- Integrated pre-trained **Caffe-based** CNN models to classify detected faces into 8 predefined age groups.
- Delivered age group predictions with an observed accuracy of approximately **85%** on real-world test images.
- Validated the use of lightweight deep learning models for reliable demographic estimation in vision pipelines.

Arcade, Modular Console-Based Application Suite in C *C and Graphics Programming*

- Built an application that combines multiple logic-based programs with graphics, I/O of files and real-time input handling.
- Designed a modular framework to support multiple standalone programs within a single application.
- Utilized **graphics.h, conio.h, and windows.h** for rendering game elements, animations, and user interaction.
- Implemented a **GUI-driven terminal** interface for keyboard navigation, graphics rendering, and state management.

Technical Skills

Programming Languages : C, C++, C#, Python, MySQL, Raspberry Pi, Esp32, Esp8266, Arduino
Utilities and Libraries : Git, Matlab, AutoCAD, Flask, Pyttsx3, Seaborn, Pandas, Scikit-Learn

Certifications

- Introduction to machine learning from Stanford University on Coursera.
- Deep learning specialization on Coursera.

Achievements

- **Top 10** out of **1,500+** teams in India in Gujarat Robofest 4.0.
- Secured **All India Rank 7141** in **JEE Advanced** among **2+ Lakh** shortlisted candidates from across the country.
- Secured **2nd** position in Ardugem and ESP trade competition among **30+ teams** throughout Bhubaneswar.
- Secured **3rd** position in Gamedev Hackathon among **25+ teams** throughout Bhubaneswar.

Positions of Responsibility

RISC Robotics Society *Member* **May 2023 - Present**

- Led a team of **10+ students** in developing an AI-based chatbot using **ESP32**.
- Developed a biometric attendance system with automated identification and logging.

Tensors Machine Learning Club *Member* **April 2024 - Present**

- Created projects with regard to disease classification,number classification and movie recommendation system.