ARYAN KUMAR AJAY KUMAR | 21EC39008

B.Tech.(Hons.) in ELECTRONICS AND ELECTRICAL COMMUNICATION ENGINEERING and M.Tech. in VISION AND INTELLIGENT SYSTEMS
MINOR in COMPUTER SCIENCE & ENGG. (B.Tech 4Y)

EDUCATION

Year	Degree/Exam	Institute	CGPA/Marks
2026	M.TECH Dual Degree 5Y	IIT Kharagpur	8.22 / 10
2021	Higher Secondary Certificate Examination	Maharashtra State Board	97.67%
2019	Secondary School Certificate Examination	Maharashtra State Board	87.80%

INTERNSHIPS

Adobe Systems | Noida, Uttar Pradesh | Product Intern   **May'25-July'25**
Objective: *To develop a PDF to video generation system for financial documents*
- Implemented a **PDF-to-Video generation pipeline** using Generative AI to produce video summaries of text-heavy financial documents.
- Automated video content generation by integrating Matplotlib, MoviePy, GPT-4o Image Generation, and Adobe Text-to-Speech APIs.
- Built a fully automated system capable of transforming **30–50 page documents into video presentations** within **10–20 minutes**.
- Delivered engaging video presentations with synchronized visuals and narration, improving information accessibility and user experience.

University of Oulu | Prof. Shuai Li | Research Intern   **May'24-June'24**
Objective: *Attacking audio classification neural nets using BAS algorithm*
- Created a successful attack using the **Beetle Antennae Search algorithm** on a **CNN** trained on audio data using Tensorflow and **Keras**.
- Preprocessed the Mini Speech Commands dataset, which contains over 8,000 audio files, converting raw waveform data spectrograms.
- Compromised the network's **accuracy** by modifying few pixels in the input spectrogram, causing misclassification of samples.
- Achieved a success rate of over **5%** in the untargeted attacks using BAS, a first of its kind result for an audio classification network.

PROJECTS

React Weather Application | Self Project   **May'24-June'24**
- Developed a **dynamic** and responsive web application using **ReactJS**, **HTML**, and **Bootstrap** to deliver real-time weather information.
- Implemented **geolocation** functionality to automatically retrieve the user's current location, ensuring accurate weather data.
- Additionally, integrated a **search feature** that allows users to fetch weather information for specific locations other than their own.
- Incorporated the integration of the **OpenWeather API** to fetch data and designed a seamless and intuitive user-friendly interface.

Snake Game Application | Self Project   **Dec'24**
- Developed a classical snake game in **ReactJS** library with **Flask** framework for backend with user logins and score save features.
- Designed the backend in Python Flask framework with the frontend in ReactJS library and used sqlalchemy for handling databases
- Processed user logins and high scores with the use of **JWT** Token stored in the local storage of the browser in accordance to **CORS** policy
- Used **PostgreSQL** as the database to test the entire application through a variety of scenarios while saving all the relevant data.

Search Engine for DSA questions | Self project   **Aug'25**
- Built a **web-based search engine** for DSA problems by scraping questions from LeetCode using **Selenium** and **BeautifulSoup**.
- Developed a **React.js frontend** with a **Node.js backend** to enhance the search experience and enable efficient information retrieval.
- Implemented a **TF-IDF–based search algorithm** in the backend to retrieve the **top 20 most relevant questions** matching a given query

COMPETITION/CONFERENCE

- Achieved peak ratings of **1692** (Expert) on **Codeforces** and **2006** (5 stars) on **Codechef** and solved **700+** problems on **Codeforces**.
- Achieved a global rank of **574** in the **Educational Codeforces Round 144 (Div. 2)** amongst **20000+** participants.
- Achieved global ranks **7**, **82** and **64** in **Codechef Starters** 62, 68 and 95 respectively among **2000+** division-2 rated contestants.

AWARDS AND ACHIEVEMENTS

- Achieved an All India Rank of 1434 in **JEE Advanced** amongst 150000+ participants (in **top 1%**), conducted by IIT Kharagpur.
- Achieved an All India Rank of 1038 in **JEE Mains** amongst 1 million+ participants (in **top 0.2%**), conducted by the NTA.
- Qualified **Indian National Astronomy Olympiad (INAO)** and the **IOAA training camp** in 11th and ranked in the **top 1%** in 12th grade.
- Availed the **NTSE Scholarship** provided by NCERT, **Ministry of Education, Government of India**, in 10th grade.

SKILLS AND EXPERTISE

- **Skills :** Competitive Programming | DSA | Problem Solving • **Programming Languages :** C | C++ | JavaScript | Python
- **Technologies/Software/Libraries :** ReactJS | Bootstrap | Numpy* | Pandas* | Flask* | HTML | CSS | Git and Github | VS Code | Cursor | NodeJS | PostgresQL | Tensorflow* | Google Colaboratory* (*denotes elementary proficiency)

COURSEWORK INFORMATION

- **Computer Science**: Algorithms-1* | Programming and Data Structures* • **Mathematics**: Advanced Calculus | Matrix Algebra | Probability and Statistics • **Others:** Signals and Systems | Digital Electronic Circuits* | Digital Communications* | Deep Learning* [*Practicum involved]

POSITIONS OF RESPONSIBILITY

Member at Grimoire of Code, IIT Kharagpur | Competitive Programming Club   **Dec' 22-Present**
- Played a key role in the success of **GoC CDC-Series**, a series of five coding contests held in summer 2023.
- Designed multiple engaging **medium-hard level problems**, provided detailed **editorials**, and tested other problems.

EXTRA CURRICULAR ACTIVITIES

- Served as a dedicated Cadet in 3, **Bengal Tech Air Squad**, for the first two years of college and participated in the annual NCC camp.
- Secured second place and won a cash prize in Space Quiz organized by the **National Students Space Challenge** at IIT Kharagpur in 2021.

!Self declared by the student, CDC could not verify the relevant documents