Ayush Kumar

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Bachelor of Engineering
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EDUCATION

•**RV Institute of Technology and Management** *2027*
Bachelor of Engineering in Computer Science & Engineering CGPA till 4th Sem: 9.08

•**Doon Public School, Dhanbad** *2022*
Central Board of Secondary Education (CBSE) Percentage: 78.6%

•**De Nobili School CMRI, Dhanbad** *2020*
Indian Certificate of Secondary Education (ICSE) Percentage: 90.2%

PERSONAL PROJECTS

•**Multimodal Sentiment Analysis of Public Opinion using Tweets** *Aug 2025*
Developed a sophisticated multimodal model to analyze public sentiment from text, images, and videos.

- Tools & technologies used: Python, TensorFlow/PyTorch, Hugging Face Transformers, Pandas, Scikit-learn, XG-Boost, OpenCV, Librosa
- Established baseline performance on the text component using the Sentiment140 dataset (1.6 million tweets) with models including Naive Bayes and XGBoost. **Achieved 87% accuracy** on a curated dataset. Engineered advanced feature extraction pipelines, utilizing Large Language Models (BERT, RoBERTa) for nuanced textual analysis, CNNs for image features, and MFCCs for audio components.

•**Text-Based Parkinson's Disease Screening using Pre-Trained LLM** *Oct 2025*
Developed a multimodal AI diagnostic system to detect Parkinson's Disease from clinical data with 96.73% accuracy

- Tools & technologies used: Python, PyTorch, Flask, Transformers (Hugging Face), PubMedBERT, BioGPT, Clinical-T5, LightGBM, XGBoost, SVM, CUDA 11.8, Pandas, Scikit-learn, NumPy, JavaScript
- Built a web-based diagnostic platform using multimodal machine learning ensemble to classify Parkinson's Disease into 4 categories (HC, PD, SWEDD, Prodromal). Combined 3 medical transformers (PubMedBERT, BioGPT, Clinical-T5) with 3 conventional ML models (LightGBM, XGBoost, SVM) through weighted voting, achieving 96.73% accuracy. Trained on 42,645 PPMI patient samples with 31 engineered features (demographics, motor symptoms, cognitive scores, non-motor indicators) . Implemented RAG system with medical research papers for evidence-based report generation with literature citations and clinical recommendations.

•**TaskSync — Full-Stack Task Manager** *Apr 2025*
Built a full-stack task manager application with, secure user authentication with JWT and full CRUD operations.

- Tools & technologies used: React, Node.js, Express, MongoDB, Tailwind CSS, JWT, Axios
- Developed a RESTful API backend using Node.js and Express, connected to a MongoDB database for persistent data storage. Integrated the React frontend with the backend using Axios for seamless asynchronous data communication.

TECHNICAL SKILLS AND INTERESTS

Languages: C, C++, Python, Java, HTML, CSS, JavaScript
Developer Tools: Git, Github, Linux, Canva, Docker
Frameworks: Pandas, PyTorch, NumPy, TensorFlow, Keras, scikit-learn, Tailwind, Node.js, Express.js
Cloud/Databases: MySQL, MongoDB, AWS, Google Cloud Platform
Soft Skills: Problem-Solving, Teamwork, Leadership, Time Management, Communication
Coursework: OOP, DBMS, Operating System, Computer Networks, DSA
Areas of Interest: Natural Language Processing, LLMs, SLMs, Deep Learning, Web3)

POSITIONS OF RESPONSIBILITY

–**Technical Head** Robotics, Web Dev, Cybersecurity, Coding and Entrepreneurship club *Fall 2025*
–**Events and Website Head** Core Organizing Committee, Techfest Robofiesta 2025 *2025*
–**Core Team Member** Robotics, Web Dev, Cybersecurity, Coding, GDG and Entrepreneurship club *2025-26*

ACHIEVEMENTS

–**Codeforces Contest** Secured 12872th rank out of 52000+ participants worldwide, demonstrating strong problem-solving and algorithmic skills. *Dec 2024*

–**Competitive Programming** Active participant in competitive programming with ratings of 892 (Codeforces), 429 (AtCoder), and 1224 (CodeChef). *Ongoing*

–**Research Publication** "Optimizing Soybean Production: A Data-driven Machine Learning Framework." Journal of Research in Artificial Neural Network Systems, Vol. 1, Issue 3. *Sep-Dec 2025*

–**NPTEL Certificate** Intro to Large Language Models - IIT Delhi *Dec 2025*

–**NPTEL Certificate** Deep Learning IIT Ropar *May 2025*

–**Coursera Certification** Advanced Learning Algorithms - Deep Learning. AI (Stanford University) *Oct 2024*

–**Coursera Certification** Supervised Machine Learning: Regression and Classification - Deep Learning. AI (Stanford University) *Oct 2023*

–**Coursera Certification** Introduction to Front-end Development - Meta *Sep 2023*