AJAY KUMAR RAY

Jammu , J&K

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EDUCATION

Central University Of Jammu	**2022 - 2026**
B.Tech - Electronics and Communication Engineering ***CGPA : 8.96(current)***	*Jammu, J&K*

Jagdish Nandan College (BSEB)	**2019 - 2021**
12th Standard ***Percentage : 75.8%***	*Madhubani, Bihar*

MKU Vidyalaya , Mangrauni (BSEB)	**2018 - 2019**
10th Standard ***Percentage : 63.4%***	*Madhubani, Bihar*

RELEVANT COURSEWORK

- CMOS Digital VLSI Design
- Digital System Design
- Digital Electronics
- Control System
- RF and Microwave
- Internet Of Things
- Advanced 5G/6G Wireless Networks
- Oops Concepts
- Cyber Physical System
- Web Development
- DBMS
- Data Structure

EXPERIENCE

Internship Trainee – Bharat Electronics Limited (BEL)	**Aug 2025 - Present**
Role - Intern	*Panchkula , Haryana*

- Contributing to projects in electronics and embedded systems with real-world applications.
- Collaborating with engineers on design, testing, and documentation.
- Learning industry practices and tools to strengthen engineering and development skills.

IISF 2024 Hackathon Finalist	**Nov 29 - Dec 3 , 2024**
Role - AI Model Developer & Researcher	*IIT Guwahati, Assam*

- Finalist, IISF Hackathon 2024 – Indian International Science Festival (IISF), IIT Guwahati.
- Worked on "Generative AI models for cloud replacement in satellite images".
- Developed AI-based techniques to enhance satellite imagery by removing cloud obstructions.
- Implemented deep learning models for image reconstruction and enhancement.
- Collaborated in a team-based problem-solving environment under real-world constraintst.

Finalist, Strategy Showdown - E-Summit'25, IIT Roorkee	**Jan 31 - Feb 2 , 2025**
Role - Strategy & AI-driven Market Analyst	*IIT Roorkee , Uttarakhand*

- Developed a Go-To-Market (GTM) strategy for Intelliswitch using AI and data analytics.
- Conducted market research and applied advanced analytical techniques for business scaling.
- Participated in the Startup Expo and entrepreneur lectures, gaining insights into tech-driven business growth.
- Collaborated with a team to solve real-world business challenges in a high-pressure competition.

Workshop on Robot Operating System (ROS)	**April 2024**
Role - Workshop Attendee	*CUJammu*

- Gained hands-on experience with the ROS framework, focusing on its architecture, communication mechanisms (nodes, topics, services), and package management.
- Developed and simulated basic robotics applications using ROS, including robot motion planning and sensor integration.
- Implemented ROS-based control systems to manage sensor data and automate robot behavior in simulated environments.

PROJECTS

All India Model Rocketry Competition (ISRO)

- Selected and qualified for the prestigious national-level rocketry competition organized by ISRO and IN-SPACe.
- Designed and implemented a ejected 1 kg payload deployment system at 1000m altitude..
- Developed and optimized parachute-based recovery mechanisms for safe descent.
- Ensured structural integrity and aerodynamic stability during payload ejection.
- Conducted simulations and real-world testing to validate deployment and recovery efficiency.

Object Detection Radar System

- Built and tested an Arduino-based radar system to detect objects and visualize their positions in real-time.
- Integrated an ultrasonic sensor and servo motor to scan the environment across a range of angles (15°–180°).
- Developed a radar-like interface using Processing4 to display object positions dynamically on screen.
- Implemented real-time data acquisition, processing, and visualization for effective object detection and tracking.

DeepFake Detection Using Deep Learning

- Developed a machine learning model to detect manipulated facial videos and images (DeepFakes) using convolutional neural networks (CNNs).
- Collected and preprocessed datasets such as FaceForensics++ to train and validate the model.
- Implemented frame-level analysis to identify inconsistencies in facial landmarks, eye blinking patterns, and compression artifacts.

TECHNICAL SKILLS

Languages: Python, C++, JavaScript, SQL, Verilog, VHDL
Machine Learning: Pandas, NumPy, Matplotlib, Seaborn,TensorFlow, PyTorch
Design Concepts: RTL Design, FSM, ALU, Flip-Flops, Counters, Memory Modules
Tools and Frameworks: VS Code, Git, GitHub, TinkerCAD Circuits, Canva

CERTIFICATIONS

- CMOS Digital VLSI Design - NPTEL
- VLSI SoC Design using Verilog HDL - Maven Silicon
- ISRO START Program on "Overview of Space Science and Technology" - ISRO
- Internet of Things - Technophilia

EXTRACURRICULAR

- **President, Electronics and Robotics Club** - Organized technical competitions and mentoring sessions.
- **IEEE Student Member -** Engaged in research discussions and professional networking.
- **Commentator, Inter -College Cricket Match -** Provided live match commentary.
- **Organized an event for juniors -** Conducted engaging technical activities and competitions for first and second-year students.