SHASHANK SHEKHAR BARNWAL

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Samba, Jammu and Kashmir - 181143

OBJECTIVE

Electronics and Communication Engineering student passionate about VLSI design and semiconductor innovation. Leveraging expertise in Python, embedded systems, and circuit simulation tools to design energy-efficient hardware solutions for IoT, aerospace, and low-power semiconductor applications. Eager to bridge AI-driven automation with next-gen chip design.

EXPERIENCE

• **Workshop on Data Mining Techniques**   *3rd Apr 2024 - 12th April2024*
Indian Institute of Technology (IIT) Roorkee   Remote
  ◦ Applied classification and clustering algorithms (e.g., k-means, SVM) to derive insights from urban datasets.
  ◦ Conducted predictive analysis on smart city data using Python (Pandas, Scikit-learn), optimizing traffic flow and resource allocation.

• **9th National Conference on Computer Vision, Pattern Recognition, Image Processing, and Graphics NCVPRIPG**
(IIST), Thiruvananthapuram
  ◦ Attended an intensive 3-day workshop on cutting-edge advancements in AI-driven image analysis and its applications in satellite technology.
  ◦ Engaged with researchers on real-world use cases, such as environmental monitoring, disaster response, and precision agriculture through AI-powered satellite data interpretation.
  ◦ Engaged in sessions on deep learning-based segmentation and CNNs for enhancing satellite imagery resolution.

• **Intern, Orbital Mechanics - CubeSat Project**   *10th June 2024 - 23rd July 2024*
Indian Institute of Space Science and Technology (IIST)   (IIST), Thiruvananthapuram
  ◦ Gained foundational expertise in CubeSat subsystems (propulsion, power, thermal) and orbital mechanics principles before advancing to mission design.
  ◦ Simulated LEO trajectories using GMAT for orbit determination, Hohmann transfers, and attitude control.
  ◦ Aligned simulations with subsystem constraints (power, thermal) through cross-functional collaboration.
  ◦ Analyzed satellite behavior under varying LEO conditions, identifying risks and proposing corrective maneuvers for long-term mission sustainability.

• **AI Intern**   *9th Jan 2024 - 9th Feb 2024*
ACMEGRADE (IIT Bombay)   Remote
  ◦ Developed machine learning models (TensorFlow, Scikit-learn) for image classification and NLP tasks.
  ◦ Enhanced model accuracy by 12% through hyperparameter tuning and cross-validation techniques.

EDUCATION

• **Central University of Jammu**   *November 2022 – August 2026*
B.Tech - Electronics and Communications Engineering   SAMBA, JAMMU
  ◦ SGPA: 7.17/10

• **Gyan Bharti Senior Secondary (CBSE)**   *March 2021- April 2022*
12th Standard   GAYA, BIHAR
• **Manav Bharti National School (CBSE)**   *March 2019 - April 2020*
10th Standard   GAYA, BIHAR

PROJECTS

• **CubeSat Project – DRDO: [Structural and Thermal Subsystem Lead]**   *Ongoing*

  ◦ Designed structural components using CAD tools, ensuring compliance with space-grade durability standards.
  ◦ Conducted thermal simulations (ANSYS) to maintain operational stability in extreme space conditions.

• **RC Boat Water Quality Detection System**   *Completed*

  ◦ Integrated pH, turbidity, and temperature sensors for real-time water quality analysis, achieving 95% accuracy.
  ◦ Implemented autonomous navigation using Raspberry Pi, enabling efficient environmental data collection.

• **Voice-Controlled Home Automation**   *Completed*

  ◦ Created a low-cost system using Arduino, Bluetooth modules, and voice recognition (Python NLP) to control appliances via smartphone/voice commands.
  ◦ Featured in university for practical IoT innovation.

SKILLS

- **Programming Languages:** Python, C/C++, HTML/CSS, JavaScript
- **Database Systems:** MySQL
- **Data Science & Machine Learning:** Pandas, NumPy, TensorFlow, Scikit-learn, Matplotlib
- **Other Tools & Technologies:** GMAT, ANSYS, Arduino, Raspberry Pi
- **Domains:** Embedded Systems, IoT, Computer Vision, Orbital Mechanics

HONORS AND AWARDS

- **E-Sports Participant | Mirage Death Valorant Tournament** *1st February 2024*
Central University of Jammu
  - Ranked in top 10% among 200+ participants, strategic planning, split-second decision-making, and team coordination under pressure.
  - Led squad tactics as in-game leader (IGL), optimizing communication protocols to secure 15+ competitive match victories.

LEADERSHIP EXPERIENCE

- **IEEE Student Branch Secretary** *February 2024 - January 2025*
Central University of Jammu
  - Organized IoT workshops for 150+ students.
  - Increased branch membership by 40% through targeted outreach campaigns and mentorship programs for first-year engineers.
  - Spearheaded 5+ hands-on IoT workshops for 80+ students, collaborating with industry experts to design curriculum on sensor networks, Arduino prototyping, and cloud integration.

- **Vice President, Electronics and Robotics Club** *January 2024 - December 2024*
Central University of Jammu
  - Led a 30+ member team in designing and executing 10+ hands-on projects, including autonomous drones, IoT-based automation systems, and Line Follower robo.
  - Spearheaded 5+ workshops (Arduino, Raspberry Pi, PCB design) for 100+ students, boosting technical literacy and club engagement by 40%

VOLUNTEER EXPERIENCE

- **Event Coordinator, BGMI Tournament | Esports Club,** *September 2024*
Central University of Jammu
  - Collaborated with a 10-member team to organize a 50+ participant Battlegrounds Mobile India (BGMI) tournament, managing logistics, schedules, and live-streaming setups.
  - Resolved technical issues (latency, connectivity) during matches, ensuring seamless gameplay and minimal downtime for competitors.

PROFESSIONAL MEMBERSHIPS

- **IEEE Member**, Membership ID: 99925470 *January 2024 - Present*

REFERENCES

1. **Dr. Rakesh Kumar Jha**
   Professor and Head of the Department of Electronics and Communication Engineering
   Central University of Jammu
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   Phone: +91-9906088419
   Relationship: [Mentor/ Teacher]