Sajeeb Kumar Ray

Dept. of Information and Communication Engineering (ICE)
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Personal Statement: Experienced in Deep Learning and Machine Learning with 2+ years of research expertise in Image Processing. Ranked first among all students in the B.Sc. in Information and Communication Engineering (ICE). Strong background in competitive programming, with high rankings on CodeForces and CodeChef.

Research Interests: Computer Vision, Image Processing, Natural Language Processing, Machine Learning, Deep Learning, Embedded Systems, Internet of Things.

i. Research ⬀

9. Deep Learning Based Lung Image Segmentation Using XR-U-Net; **SK Ray**, A Islam, MC Chanda, N Islam, MA Hossain and Mirza AFMRH; (Presented in ICCIT-2024).

8. Vehicle Classification and Detection Using YOLOv8: A Study on Highway Traffic Analysis; N Islam, **SK Ray**, MA Hossain and Mirza AFMRH; (Presented in ICRPSET-2024).

7. Generating Bangla Image Captions with Deep Learning Techniques; MA Hossain, **SK Ray**, N Islam and Mirza AFMRH; (Presented in STI-2024).

6. **SK Ray**, MA Hossain, N Islam and Mirza AFMRH; Enhanced Plant Health Monitoring with Dual Head CNN for Leaf Classification and Disease Identification (Under 4th Revision in Elsevier Journal).

5. Embedded Systems-Based AC Device Controller; Alamin, **SK Ray**, MA Hossain, Mirza AFMRH, N Islam and MM Arman; (Presented in ICRPSET-2024)

4. Security Circuit Integrated with Industrial Process Controller; **SK Ray**, T Debnath, N Islam and MA Hossain; Universal; (Submitted in Conference).

3. Freshness Detection of Fruits and Vegetables Using Multi-Task CNN and ResNet-50; **SK Ray**, MA Hossain, N Islam, Alamin and Mirza AFMRH; (Under Review in Journal).

2. Understanding the Traffic Sign through a Deep CNN Architecture for Enhanced Traffic Safety; N Islam, **SK Ray** and MA Hossain; (Under Review in Journal).

1. Enhanced human activity recognition through deep multi-layer perceptron on the UCI-HAR dataset; MA Hossain, **SK Ray**, N Islam, Alamin and Mirza AFMRH; (Accepted: http://doi.org/10.11591/ijaas.v13.i2.pp429-438).

ii. Educational Qualifications

B.Sc. 2025	**Bachelor of Science (Engineering)** from Department of Information and Communication Engineering (ICE), Pabna University of Science and Technology, Bangladesh. Degree Expected: June 2025 **CGPA: 3.89** out of 4.00 **(1st Position)**
HSC 2019	**Higher Secondary School Certificate** from Collectorate School and College Rangpur (CSCR), Rangpur. Group: Science Board: Dinajpur GPA: **5.00 out of 5.00**

SSC 2017   **Secondary School Certificate** from Jaldhaka Government Model Pilot High School (JGMPHS), Jaldhaka.
Group: Science   Board: Dinajpur   GPA: **5.00 out of 5.00**.

iii. Programming Skills

✦ **Competitive Programming**	➢ **Top rating 4★ (1816) on CodeChef** ☑ **Specialist (1492) on CodeForces** ☑ ➢ I **solved over 750 Programming Problems** in different online judge such as **CodeForces**, **HackerRank** ☑, **beecrowd (URI)**.
✦ **Languages**	➢ **Python, C++, R, MATLAB, Java, C, CSS, HTML, JavaScript, PHP, SQL, MySQL, Arduino.**

iv. Embedded System & Robotics Projects

AI Baby Nursing Robot	An automated baby rocker capable of classifying baby cry to understand baby's needs. It can provide some necessary information such as Gas leakage, Smoke detection, and Temperature, Humidity and CO level of the home environment. (Partial Contribution)
Infant Monitoring System ☑	A low-cost, mobile-based system was proposed to monitor infants in the workplace. The system uses IoT devices and real-time video transfer to monitor infants and detect safety hazards. Hardware: **ESP32, ESP32 CAM, GSM Module, Sensor: PIR, DHT11, MQ-2 etc.** Programming: **Arduino, JavaScript, HTML, CSS and XML**
RC Plane	Radio Controlled Airplane for Safety Surveillance and Transportation. My role in this project was to debug the mistakes and help teammates to work. Other members are **ALAMIN** and **Gulam Mustofa**. Hardware: **Transmitter, Receiver, Servo Motor, BLDC motor**, etc.

v. Volunteering

- ✦ **Vice President** | ICE Association (Oct-2024 to Present)
Elected as the highest student-held position in the 1st Executive Committee. Led key events, including the 1st Alumni Reunion & Fiesta 2025, tours, and sports activities. Focused on mentoring clubs, optimizing resources, and strategic planning to foster growth and strengthen the ICE community.
- ✦ **Vice President** ☑ | SolverGreen (Oct-2024 to Present)
Joined SolverGreen, a social organization dedicated to Learning, Volunteering, Education, and Research. Leading initiatives to expand research opportunities by organizing seminars, workshops, and launching new courses. Advocating for early student involvement in research, ensuring that junior students gain valuable experience alongside final-year students to foster a stronger research culture.
- ✦ **Class Representative** (Feb-2022 to Present), Department of Information and Communication Engineering. Managed class schedules, facilitated teacher-student communication, and supported peer well-being.
- ✦ **Founding Member & Joint Organizing Secretary |** PUST Carrier and Entrepreneurship Club (Nov-2024 to present)
The club aims to bridge the gap between industry and students' academic life.
- ✦ **District PR Manager** (Mar-2022 to Feb-2023), Pabna in ICT Olympiad Bangladesh.

vi. Computer Skills

- ✦ Research: **CNN, RNN, LSTM, Pytorch, Tensorflow, Pandas, Numpy.**
- ✦ **PCB Design, Circuit Design, Clean Coding.**
- ✦ **MS Word, MS Excel, MS PowerPoint.**
- ✦ Operating System: **Windows, Linux.**
- ✦ Software: **Adobe Photoshop CC, Adobe Illustrator CC, Proteus 8 Professional, Xampp, VS Code, VR Box, Arduino, mikroC, PICkit, MS SQL Server, etc.**
- ✦ Typing Speed: **40 WPM (English).**

vii. Certifications ⬀

- ✦ Advanced Learning Algorithms (Coursera)
- ✦ Supervised Machine Learning: Regression and Classification (Coursera)
- ✦ Problem Solving (Intermediate) provided by HackerRank
- ✦ Problem Solving (Basic) provided by HackerRank

viii. Achievements

- ✦ **Finalist** ⬀**,** Disaster Hackathon 2.0 **| Team PREVENTERs**
  Designed a real-time cyclone alert system for coastal regions facing power and network outages. Secured a top 5 finalist position and refined the solution through intensive mentoring, with potential for real-world implementation.
- ✦ **Champion** ⬀, Innovation Showcasing-2024
  Presented a cost-effective smart room concept. to assist physically challenged individuals, especially those from middle-income families.
- ✦ **Runner-Up**, ICE Fiesta Programming Contest 2024
- ✦ **Champion**, ICE Fiesta Programming Contest-2023
- ✦ **University Merit Scholarship 2020, 2021, 2022**
- ✦ **Bangladesh 3rd Rank**(Global-350th) on Codeforces Round 857 (Div. 2)
- ✦ **Bangladesh 5th Rank**(Global-123th) on CodeChef Starters 79 (Div. 2)
- ✦ **Bangladesh 4th Rank**(Global-171th) on CodeChef Starters 49 (Div. 4)

ix. Languages Proficiency

✦ **Bangla**	✦ Native Language
✦ **English**	✦ Have a good command in speaking, listening, reading and writing. English is the instruction medium of B.Sc. (Engineering).

x. Personal information

Father's Name	: Ashwini Kumar Ray
Mother's name	: Sabitry Ray
Nationality	: Bangladeshi
Date of birth	: 24-08-2002
Permanent Address	: Vill: Shalongram, Post: Balagram, Jaldhaka, Nilphamari, Rangpur, Bangladesh.

xi. Personal Strength

✦ A dynamic personality and networking ability.
✦ Aesthetic knowledge and creativity.
✦ Strong desire for leading an honest life with dignity.
✦ Strong ability to maintain for confidential correspondence.
✦ Ability to team building and participatory approaches.
✦ Ability to work under pressure and target oriented.
✦ Ability to keep good relation with co-workers.

I declare that all the information provided here are authentic

xii. References

Prof. Md. Anwar Hossain	**Tarun Debnath**
Chairman	**Assistant Professor**
Department of Information and	Department of Information and
Communication Engineering	Communication Engineering
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