

ATANU SHUVAM ROY

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EDUCATION

Indian Institute of Technology, Kanpur, India	2022 – 2024
Master of Technology in Computer Science & Engineering	CPI: 7.29/10
Jiangxi University of Science & Technology, Jiangxi, China	2018 – 2022
Bachelor of Engineering in Computer Science & Technology	Percentage: 91.01%
Notre Dame College, Dhaka, Bangladesh	2017
Higher School Certificate (HSC)/12th	GPA: 5.00
St. Joseph Higher Secondary School, Dhaka, Bangladesh	2015
Secondary School Certificate (SSC)/10th	GPA: 5.00

RESEARCH EXPERIENCE

Robotics and Automation Research Lab (RARL)	Aug 2024 – Present
Research Assistant (Remote)	Ganzhou, Jiangxi, China

- Working on **energy aware** automated guided vehicle (AGV) **priority based shortest path planning** using traditional algorithms like, **dijkstra, floyd-warshal, DFS** etc.
- Collaborating and guiding junior lab students on **computer vision projects** in the agricultural monitoring domain

IoT Vision Lab, IIT Kanpur	Dec 2022 – Aug 2024
Research Assistant	Kanpur, India

- Researched and integrated ECA Mechanism into YOLOv7 object detection model and reducing model parameters by 20% to detect water pipeline defects for **Jal Jeevan Mission project [Water is Life]** of Government of India.
- Prototyped system and software for streetlight management system using **real time vehicle detection using FMCW RADAR** and LoRaWAN for communication

Robotics and Automation Research Lab (RARL)	Aug 2018 – Dec 2021
Research Assistant	Ganzhou, Jiangxi, China

- Developed software for **real-time camera-based monitoring** of a novel food delivery service robot, leveraging **Pixy Cam** for precise detection of delivery locations using color-coded labels
- Designed and implemented a **deep learning-based low-altitude vehicle speed detection algorithm** for UAVs using MobileNet SSD on Raspberry Pi
- Proposed and researched a novel **servo motor-based camera tilt mechanism** to optimize the field of view for accurate vehicle detection and speed measurement
- Reviewed existing attendance taking mechanisms and online exam systems and independently developed an attendance system and a **online exam submission system with anti-cheating and end-to-end encryption for low-end IoT system**
- Developed and implemented an **Arduino-based heart rate monitoring system** using W5100 Ethernet Shield
- Developed a cost-effective, **web-based zonal SCADA/HMI system** using NodeMCU and Arduino using Raspberry Pi as host for secure transmission of data over the network

INDUSTRY EXPERIENCE

Backend Ace

Web Developer & DevOps Engineer

Sep 2024 – Present

Remote (NY, USA)

Wizzartech

Associate Web Developer

Apr 2022 – Dec 2022

Remote (Toronto, Canada)

PUBLICATIONS

- Moshayedi, A.J., **Roy, A.S.**, Khan, Z. A., Yang, S., UrbanPark: Advancing Parking Infrastructure with LoRaWAN enabled Smart Parking Modules. *4th International Conference on Computing and Information Technology (ICCIT) (2025) [Accepted]*.
- Moshayedi, A.J., **Roy, A.S.**, Ghorbani, H., Lotfi, H., Zhang, X., Liao, L., & Gheisari, M. (2024). A novel IoT-enabled portable, secure automatic self-lecture attendance system: design, development and comparison. *Int. J. Electronic Security and Digital Forensics*, 16(6), 663–689.
- **Roy, A.S.**, Das, A. "Advanced Path Tracking and Traffic Management Using IR Sensors and Timed Automata." *Journal of Robotics Research (JRR)*, 1(1), 15–23, September 2024.
- **Roy, A.S.**, Bagade, P. "Attentive-YOLO: On-site Water Pipeline Inspection using Efficient Channel Attention and Reduced ELAN-based YOLOv7", *VISAPP 2024*.
- Moshayedi, A.J., **Roy, A.S.**, Liao, L., Khan, A.S., Kolahdooz, A., & Eftekhari, A. "Design and Development of FOODIEBOT Robot: From Simulation to Design." *IEEE Access* (2024).
- Moshayedi, A.J., **Roy, A.S.**, Taravet, A., Liao, L., Wu, J., & Gheisari, M. "A secure traffic police remote sensing approach via a deep learning-based low-altitude vehicle speed detector through UAVs in smart cities: Algorithm, implementation and evaluation", *Future Transportation*, 3(1), 189–209, 2023.
- Moshayedi, A.J.M., **Roy, A.S.**, Lan, H., Gheisari, M., & Bamakan, S.M.H. "Automation attendance systems approaches: a practical review", *BOHR International Journal of IoT, AI and ML*, 1(1), 25–34, 2022.
- Moshayedi, A.J., Kolahdooz, A., **Roy, A.S.**, Rostami, S.A.L., & Xie, X. "Design and promotion of cost-effective IoT-based heart rate monitoring", in *CICA 2022*, Vol. 12303, pp. 405–410, 2022. (SPIE)
- Moshayedi, A.J., Kolahdooz, A., **Roy, A.S.**, Sambo, S.K., Zhong, Y., & Liao, L. "Review on: The service robot mathematical model", *EAI Endorsed Transactions on AI and Robotics*, 1(1), 2022.
- Moshayedi, **Roy, A.S.**, Kolahdooz, A., & Shuxin, Y. "Deep learning application pros and cons over algorithm", *EAI Endorsed Transactions on AI and Robotics*, 1(1), 2022.
- Moshayedi, **Roy, A.S.**, Liao, L., & Li, S.Y. "Raspberry Pi SCADA zonal based system for agricultural plant monitoring", in *ICISCE 2019*, pp. 427–433, IEEE.
- Moshayedi, **Roy, A.S.**, & Liao, L. "PID Tuning Method on AGV (automated guided vehicle) Industrial Robot", *Journal of Simulation and Analysis of Novel Technologies in Mechanical Engineering*, 12(4), 53–66, 2019.

ACADEMIC PROJECTS

Bengali Song Visualization

Jan 2024 – Apr 2024

- Performed comprehensive stylometric analysis and self-similarity mapping of Bengali song lyrics.
- Developed an integrated web application to visualize linguistic patterns.

Robot Assistant X – Your Personal ChatBot

Aug 2023 – Nov 2023

- Implemented an NLP model on Raspberry Pi using TensorFlow for interactive, voice-controlled assistance.
- Developed a companion mobile application using Flutter, enhancing human-robot interaction.

Welding Defect Detection using Improved YOLOv7 Model

Feb 2023 – Apr 2023

- Integrated an Efficient Channel Attention mechanism to improve defect detection accuracy.
- Optimized the model for deployment on resource-constrained IoT edge devices.

Automated Guided Vehicle (AGV) Path Tracking

Aug 2022 – Nov 2022

- Designed and simulated a 4-wheel differential drive AGV using Coppeliassim VREP.
- Developed a robust path tracking algorithm leveraging real-time sensor data.

PERSONAL PROJECTS

Activity Recognition Application using LSTM

Sep 2023 – Aug 2023

- Developed an LSTM model with PyTorch for sensor-based activity recognition and deployed it on the cloud.
- Designed a companion mobile app for real-time sensor monitoring and prediction.

Smart Parking System

Jul 2022 – Sep 2022

- Engineered a web application using ReactJS and ExpressJS to manage multiple parking lots.
- Integrated LoRa-WAN for robust, low-power networking between devices.

SKILLS

Programming Languages	C/C++, Python, JavaScript (NodeJS/ReactJS), HTML/CSS/PHP, Flutter
Tools & Frameworks	Scikit-learn, Pandas, Numpy, PyTorch, SQL, MongoDB, PyQt5, Git, Unity
Domains	Embedded Systems, IoT, Deep Learning, Computer Vision, Robotics

ADDITIONAL INFORMATION

Awards & Honors:

- 2023 – MHRD Fellowship, IIT Kanpur.
- 2022 – Outstanding International Graduate Award, Jiangxi University of Science & Technology.
- 2021 – 2nd Position (Provincial) & 3rd Position (National) in the 14th China University Computer Design Competition.
- 2019 & 2020 – Jiangxi Provincial Government Scholarship for foreign students, China.

Certifications:

- [Google IT Support Specialization](#) (Issued: May 2019, Credential ID: XWWFL3BT84WV)

Copyrights:

- 2022 – Software Copyright for Pandemic-driven Exam Assistant (PEA) [登记号: 2022SR0088310, China].
- 2020 – Software Copyright for Self-Lecture Attendance System (SLAS) [登记号: 2020SR0058411, China].

Language Skills:

- Bengali (Native), English (Fluent, IELTS: 7.0), Hindi (Intermediate), Chinese (Beginner)

Referees:

- Dr. Priyanka Bagade, Indian Institute of Technology, Kanpur — pbagade@iitk.ac.in
- Dr. Amitangshu Pal, Indian Institute of Technology, Kanpur — amitangshu@iitk.ac.in
- Dr. Indranil Saha, Indian Institute of Technology, Kanpur — isaha@cse.iitk.ac.in
- Dr. Ata Jahangir Moshayedi, Jiangxi University of Science & Technology — ajm@jxust.edu.cn