ATANU SHUVAM ROY

Department of Computer Science & Engineering | Indian Institute of Technology, Kanpur

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EDUCATION

Indian Institute of Technology, Kanpur
MTech | CSE ***CGPA: 6.75/10***
2022 - Present Kanpur, India

Jiangxi University of Science & Technology
BE | CST ***Percentage: 91.01%***
2018 - 2022 Ganzhou, China

Notre Dame College
XII, HSC ***GPA: 5/5***
2017 Dhaka, Bangladesh

St. Joseph Higher Secondary School
X, SSC ***GPA: 5/5***
2015 Dhaka, Bangladesh

ACCOMPLISHMENTS

- 2023 - **MHRD Fellowship** (IIT Kanpur)
- 2022 - **Outstanding International Graduate Award** – JXUST, China
- 2019 & 2020 - Awarded **Jiangxi Provincial Government Scholarship** for foreign students, China

COURSEWORK

MTech Courses

- Embedded and Cyberphysical Systems
- Deep Learning for Computer Vision
- Introduction to ML
- Sensing Communication & Networking

BE Courses

- Data Structures & Algorithms
- Operating Systems
- Embedded Systems
- Computer Networks
- Database Management System

SKILLS

Languages

C/C++, Python, Javascript (NodeJS/ReactJS), HTML/CSS/PhP, JAVA/Kotlin (Android), Flutter (Dart)

Utilities

Scikit-learn, Pandas, Numpy, PyTorch, SQL, NoSQL (MongoDB), PyQt5, Git

RESPONSIBILITIES(POR)

- **International Student Representative** (Volunteer) at Jiangxi University of Science & Technology, China (*Aug '18 - Jan'22*)

MISCELLANEOUS

RESEARCH EXPERIENCE

RADAR based Context Aware Tracking on IoT Devices **(M.Tech Thesis)**
Guide: Prof. Priyanka Bagade *Mar 2023 - Present*

- Designing a **Multi-label Classification Model** for tracking moving objects
- Building & deploying model on **IoT based hardware prototype** with RADAR

IoT based on-site Water Pipeline Inspection
Guide: Prof. Priyanka Bagade *Feb 2023 - Present*

- Implementing **ECA mechanism** inside YOLOv7 model to increase accuracy
- **Reducing model complexity** to enable better performance on Raspberry Pi

Remote Traffic Police Sensing via Deep Learning **(B.Eng.)**
Guide: Dr. Ata Jahangir Moshayedi *Mar 2021 - Dec 2022*

- Detection of moving vehicles using **OpenCV and MobileNet SSD**
- **Optimizing image capturing** method for camera tilt on UAV & detecting vehicle speed

Raspberry Pi SCADA System for Agricultural Plant Monitoring **(B.Eng.)**
Guide: Dr. Ata Jahangir Moshayedi *Aug 2018 - Mar 2019*

- Designing an **IoT Zonal Network** for a sensor-based monitoring system
- Developing a **web-based SCADA System** for Raspberry Pi

WORK EXPERIENCE

***INTERNSHIP**

Associate Web Developer - Wizzartech **Remote**
Toronto, Canada *Apr 2022 - Aug 2022*

- **Leading Jr. Developers** to finishing projects and micromanage the team
- **Creating Websites** according to the demand of clients

Research Assistant - Robotics and Automation Research Lab (RARL) **Part-Time**
Ganzhou, Jiangxi, China *Aug 2018 - Dec 2021*

- Led the team to successful completion of the projects in record time
- Developed Several Full Stack Applications- **Self-lecture Attendance Service**, **Pandemic-driven Exam Assistant (PEA)**, **Raspberry Pi SCADA System for Agricultural Plant Monitoring**

PUBLICATIONS

GOOGLE SCHOLAR

- Moshayedi, A.J., **Roy, A.S.**, Taravet, A., Liao, L., Wu, J. and Gheisari, M. "A secure traffic police remote sensing approach via a deep learning-based low-altitude vehicle speed detector through uavs in smart cites: Algorithm, implementation and evaluation", *Future Transportation*, 3(1), pp.189-209, 2023.
- Moshayedi, A.J.M., **Roy, A.S.**, Lan, H., Gheisari, M. and Bamakan, S.M.H. "Automation attendance systems approaches: a practical review" *BOHR International Journal of Internet of Things, Artificial Intelligence and Machine Learning*, 1(1), pp.25-34, 2022.
- Moshayedi, A.J., Kolahdooz, A., **Roy, A.S.**, Rostami, S.A.L. and Xie, X. "Design and promotion of cost-effective IOT-based heart rate monitoring" In *International Conference on Cloud Computing, Internet of Things, and Computer Applications (CICA 2022)*, Vol. 12303, pp. 405-410, 2022. SPIE.
- Moshayedi, A.J., Kolahdooz, A., **Roy, A.S.**, Sambo, S.K., Zhong, Y. and Liao, L. "Review on: The service robot mathematical model" In *EAI Endorsed Transactions on AI and Robotics*, 1(1), 2022.
- Moshayedi, **Roy, A.S.**, A.S., Kolahdooz, A. and Shuxin, Y. "Deep learning application pros and cons over algorithm deep learning application pros and cons over algorithm" In *EAI Endorsed Transactions on AI and Robotics*, 1(1), 2022.
- Moshayedi, **Roy, A.S.**, Liao, L. and Li, S., Y. "Raspberry Pi SCADA zonal based system for agricultural plant monitoring" In *6th International Conference on Information Science and Control Engineering (ICISCE)*, pp. 427-433, 2019. IEEE.
- Moshayedi, **Roy, A.S.**, and 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), pp.53-66, 2019.

- 2023 - Completed a rigorous trekking expedition to Kashmir organized by the **Adventure Sports Club**, IITK
- 2023 - Enrolled to **Toastmasters International** to work on Public Speaking

CERTIFICATIONS

- **Google IT Support Specialization** (Issued: May 2019) – Credential ID: XWWFL3BT84WV

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- 2022 - **Software Copyright** - Pandemic-driven Exam Assistant PEA 线上考试助手[简称：PEA] 登记号: 2022SR0088310 [China]
- 2020 - **Software Copyright** - Self-Lecture Attendance System 自学考勤系统[简称：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. Ata Jahangir Moshayedi
@ Jiangxi University of Science & Tech
✉ ajm@jxust.edu.cn

ACADEMIC PROJECTS

Robot Assistant X - Your Personal ChatBot
*Instructor: **Prof. Amitangshu Pal*** *Aug 2023 - Nov 2023*
- Implementing an **NLP Model using Tensorflow** on the Raspberry Pi Device
- Developing a Companion App for the Robot using Flutter for **Voice Control**
- Building a robot that can **manage indoor localization** using object detection sensors

Welding Defect Detection using improved YOLOv7 model
*Instructor: **Prof. Priyanka Bagade*** *Feb 2023 - Apr 2023*
- Implemented **Efficient Channel Attention** Mechanism (ECA-Net) in the network
- Reduced model size to test on IoT and Edge Devices

Automated Guided Vehicle (AGV) Path Tracking
*Instructor: **Prof. Indranil Saha*** Aug 2022 - Nov 2022
- Designed and simulated **4-wheel differential drive AGV** with object detection sensors in Coppeliasim VREP
- Introduced a **path tracking algorithm** that uses camera sensor for the vehicle in Python

TECHNICAL PROJECTS

Activity Recognition Application using LSTM
Freelance Project *Sep 2023 - Aug 2023*
- Implemented **a LSTM model and deployed in the cloud** for activity recognition (sensor-based) using PyTorch and built a mobile app to monitor sensors & predict activity

Smart Parking System
Freelance Project *Jul 2022 - Sep 2022*
- Developed Web Application and APIs to manage multiple parking lots using **ReactJS and ExpressJS for admin tasks** having **LoRa-Wan** as networking medium

Online Exam Assistant
Team Project *Oct 2020 - Apr 2021*
- Built a **full stack application** for distance education having course management, exam scheduling, and timed assessment with anti-cheating mechanisms
- *Ranked 2nd Position (Provincial) & 3rd Position (National) - 14th China University Computer Design Competition*

Self-Lecture Attendance System
Team Project *May 2019 - Dec 2020*
- Developed a QR-based attendance system with Java Springboot and **WeChat Mini Program** for the client module
- *Won 2nd Prize in Central China - "Internet " Innovation Competition and the 7th "Discovery Cup", China*