

# RUSHENDRA SIDIBOMMA

Pune, Maharashtra

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## Education

Indian Institute of Information Technology, Sri City

Dec. 2020 – June 2024

Bachelor of Technology in Computer Science (Hons.) - GPA: 9.56/10

Sri City, India

## Experiences

AutomationEdge Technologies

Jan 2024 – Present

Machine Learning Engineer

Pune, India

- Developed a GenAI service for extracting patient details and ordered services from discharge documents retrieved through healthcare portals focusing on **Home Health Care**. Deployed for **4 major Referral Portals** in the **United States**.
- Devised a custom keyword-based classification algorithm that improved the classification time of relevant pages in medical documents by **65%**. This efficient algorithm cut down the LLM costs of the service by over **21%**.
- Built a fully automated solution for performing **ICD-10 coding** of medical documents for a leading insurance and billing agency. Devised a versatile approach for handling over **70,000 ICD codes** across **20+** hospital document formats.

Trustworthy AI Lab, Toronto Metropolitan University

May 2023 – July 2023

Research Intern, Supervised by Dr. Reza Samavi (Associate Prof.)

Toronto, Canada

- Proposed a novel relaxation for the ReLU constraints that optimized the time complexity of the convex optimization problem for certifying robustness by **47%** with an error of **less than 2%**. Research article in press for submission.
- Conducted an extensive survey of recent approaches in machine learning security and differential privacy. Designed and implemented experiments to compare the robustness of multi-layer neural networks and certify against adversarial data.

Robotics Lab, IIIT Sri City

August 2022 – January 2024

Undergraduate Research Assistant, Supervised by Dr. Rakesh Sanodiya (Assistant Prof.)

Sri City, India

- Proposed a novel approach for unsupervised domain adaptation in **AlexNet** which improved the alignment of the source and target images in the feature space. The resulting model generated significantly more distant class-clusters.
- Improved the classification accuracy across all tasks of **Office-31** dataset by **4%** using the proposed training framework.

## Publications

- R. Sidibomma** and R. K. Sanodiya, "Learning Semantic Representations and Discriminative Features in Unsupervised Domain Adaptation," 2023 11th International Symposium on Electronic Systems Devices and Computing (ESDC), Sri City, India, 2023, pp. 1-6, doi: 10.1109/ESDC56251.2023.10149872.

## Projects

Knowledge Management Application | Django, Retrieval Augmented Generation (RAG), Azure

October 2023

- Developed a **multi-tenant RAG chatbot** using an open-source LLM, reducing the existing production cost by **25%**.
- Improved retrieval accuracy by **30%** using Azure Document Intelligence for chunking and indexing user documents.
- Implemented **"query expansion"** to ensure that the LLM responses are highly relevant to the user's knowledge base.

Attendance Robot | RaspberryPi, Python, MySQL

January 2023

- Built a **working prototype** of a **mobile autonomous robot** for real-time attendance logging of 80+ students.
- Implemented a robust **Haar-Cascade facial recognition** model for real time detection, attaining an accuracy of **98%**.
- Devised a low-power logic to **avoid obstacles** and maintain its course by integrating the data from the **LIDAR sensor**.

Micro-Blogging Web Application | MongoDB, Express, React, Node

April 2022

- Built an end-to-end web-application that enabled **150+** dorm students to connect with peers based on common interests.
- Created a unique card-based UI for allowing users to swipe story cards right or left based on preference.
- Implemented **Redis caching** to fetch posts and ensure seamless user experience. Setup **CI/CD** using **Github Actions**.

## Technical Skills

Languages: Python, C/C++, HTML/CSS, JavaScript, SQL, MATLAB

Technologies/Frameworks: Linux, PyTorch, GitHub, Bash, Docker

Developer Tools: Linux, Git, Bash, VS Code

## Leadership / Extracurricular

- Progressed to **President** of AI/ML Club of university —delivered **5+ lectures** and **mentored 50+ students**.
- Contributed as a key member of the **runners-up** team in the football campaign at the All India Inter-IIIT Sports Meet.
- Attended **9+** MUNs as a delegate and **Chaired** the institute's inaugural MUN —**managed 30+ delegates**.