

# RUSHENDRA SIDIBOMMA

Pune, Maharashtra, India

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## Education

Indian Institute of Information Technology, Sri City

Dec 2020 – June 2024

Bachelor of Technology in Computer Science (*Honors*) - GPA : 9.57/10

Sri City, India

*Thesis:* “A Refined Framework for Unsupervised Domain Adaptation”

*Relevant Coursework:* Computer Programming, Data Structures & Algorithms, Machine Learning, Data Mining, Computer Networks, Computer Architecture, Linear Algebra, Statistics, Calculus, Cryptography, Automata Theory

## Experience

AutomationEdge Technologies

Jan 2024 – Present

Machine Learning Research Engineer

Pune, India

- Developed a **GenAI** tool for extracting patient details and ordered services from patient discharge documents retrieved via **Home Health Care** portals. Successfully deployed in **4 major referral portals** across the United States.
- Devised a custom **keyword-based** classification algorithm that **reduced** the time taken to classify relevant pages in medical documents by **60%**. This optimization reduced **LLM operation costs** by over **21%**.
- Built a fully automated solution for performing **ICD-10 coding** of medical documents for a leading healthcare agency, handling over **70,000 ICD codes** across **30+** 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 approach for evaluating a model’s robust accuracy that is **highly scalable** and computes the **closest estimate** of the true robust accuracy compared to benchmark methods. Research article in preparation.
- Formulated a novel semi-definite relaxation of the **ReLU** function constraints, reducing the time complexity of the robustness certification problem by **47%** with an error margin of **less than 2%**.

Robotics Lab, IIIT Sri City

Aug 2022 – Jan 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. Resulting model achieved a **11%** increase in inter-class cluster distances.
- Improved classification accuracy across all tasks of the **Office-31** dataset by **2%** with minimal computational overhead.

## 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. ([Link](#))
- Sidibomma, R.**, Patwa, P., Patwa, P., Chadha, A., Jain, V., & Das, A. (2025, January). Hate Speech Detection and Target Identification in Devanagari Languages via Parameter Efficient Fine-Tuning of LLMs. Proceedings of the First Workshop on Challenges in Processing South Asian Languages (CHIPSAL). ([Accepted](#))

## Projects

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

March 2024

- Developed a **multi-tenant RAG chatbot** using **on-prem LLMs** to address queries about company and HR policy.
- Redesigned** the indexing schema on Azure cloud platform, leading to a **30%** improvement in chunk retrieval quality.
- Implemented query expansion techniques to ensure **high alignment** of LLM responses with the user’s knowledge base.

Detection and Severity Grading of Diabetic Retinopathy | *PyTorch, OpenCV, Medical AI*

September 2023

- Built a robust ensemble of **deep learning models** involving CNNs, vision transformers, and segmentation models which attained an accuracy of over **86%**. Developed as a **minimum viable product** for a startup focusing on telehealth.
- Implemented **RMS Pooling** and **Krizhevsky color augmentation** to address the highly **imbalanced dataset**.

Attendance Robot | *RaspberryPi, Python, MySQL*

January 2023

- Built a **working prototype** of a **mobile autonomous robot** for real-time attendance logging of **80+** students.
- Developed a robust **Haar cascade** model for facial recognition, 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**.

Technical Skills

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**Programming Languages:** Python, C/C++, JavaScript, SQL, MATLAB, LaTeX  
**Tools & Technologies:** Linux, AWS, Azure, Git, Docker, Bash, On-prem LLM Hosting  
**Frameworks & Libraries:** PyTorch, Django, NumPy, Pandas, OpenCV, Matplotlib

Talks & Presentations

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- Undergraduate Thesis Defense** | *IIT Sri City, India* May 2024
- Oral presentation to defend thesis on “A Refined Framework for Unsupervised Domain Adaptation”
- Workshop on Advances in Deep Learning and Applications (WADLA)** | *Sri City, India* Dec 2023
- Hosted the event spanning **4 days** with **30+ speakers** from academia, Nvidia, Google, Adobe Research, and other leading organizations
- Paper Presentation, IEEE ESDC 2023** | *Andhra Pradesh, India* May 2023

Honors & Awards

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- Awarded **CAN\$9,000 fellowship** for a **12-week on-site** research assistantship in **Canada**
- Graduated with **Honors** (Recognized for high academic standing and successful thesis defense)

Leadership Experiences

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- **President** of the institute’s **AI/ML Club** — delivered **7+ presentations** and **mentored 20+ students**
- Attended **9+ MUNs** as a delegate and **Chaired** the institute’s inaugural MUN — **managed 30+ delegates**