Archit Mukherjee

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Education

Bachelor of Technology, Vellore Institute of Technology, Chennai, India — Sep 2020 - May 2024
CGPA: 9.43/10

- *Major:* ***Electronics and Communication***
- Key Coursework: Neural Networks and Fuzzy Control, Digital Image Processing, Probability Theory and Random Processes, Information Theory and Coding, Embedded System Design

Higher Secondary Education, Council for Indian School Certificate Examinations — Year 2020
Grade: 93.75%

- Major: ***Computer Science***

Secondary Education, Council for Indian School Certificate Examinations — Year 2018
Grade: 92.2%

- Major: ***Science***

Publications

Journals

[IEEE Access'24] Siddharth Ramanathan, **Archit Mukherjee**, U. Moulisvaran, K.P. Pramoth, M Kothandaraman, P. Reena Monica, L. Ramesh Kumar, Sunil Gangele, *"CycleGAN for Flash-to-Ambient Image Conversion: A Style Transfer Approach"*. — Dec 2024

Workshops

[CoMoRea, PerCom'25] Hemanth Sabbella, **Archit Mukherjee**, T Jeck Chuang, H Yee Low, Dong Ma, Archan Misra, *"Improving the Responsiveness of Fall Detection using Spiking Neural Networks"*. — Mar 2025

Patents

[Design Patent Granted] VIT Chennai, Dr Rohith G, **Archit Mukherjee**, Tashmoy Ghosh, Sriram Kannan, Sarath Prathap. *"Autonomous Mobility Vehicle for Hospital Sterile Instrument Logistics and Waste Collection during Surgeries"*. IN Design No.: 404191-001 — Jan 2024

Research and Work Experience

Singapore Management University — **Singapore**
Research Engineer - Advisors: ***Prof. Dong Ma and Prof. Archan Misra*** — Dec 2023 - Present

- Working on improving the temporal dynamics, latency, and processing pipelines for Spiking Neural Networks with a focus on ubiquitous deployment.

Singapore Management University — **Singapore**
Research Intern - Advisor: ***Prof. Archan Misra*** — Dec 2023 - Jun 2023

- Developed a multimodal AI model designed to teach Geometry to primary and secondary students, enhancing their learning experience through interactive and adaptive methods.
- Utilized the DAVIS 346 Neuromorphic Event Camera for precise motion classification, focusing on detecting subtle variations in movement patterns.

Samsung R&D Institute India, Bangalore — **Remote**
Samsung PRISM Research Intern - Mentor: ***Ramesh Kumar L*** — Feb 2023 - Oct 2023

- Developed novel approach of using Generative Adversarial Networks to convert flash photographs into ambient photographs by removing flash artifacts.
- Completion certificate:https://www.samsungprism.com/Profile/Document/323VIS01VITC31272.pdf

Projects

Exploring AI-enabled Interactive Tutor for Teaching Geometry 2024

- Explored multimodal AI models to facilitate interactive question-answering and proactive feedback on incorrect answers to enhance geometry learning experience for primary students.
- This work was presented at the **MIT-Singapore AI Symposium**, 2024
- Poster Link: https://drive.google.com/file/d/1NsoaDDZlypS0lB4VNqquRntQRYKMnEBW/view?usp=sharing

Automated Guided Vehicle using Visual Slam 2023

- Built an AGV that maps and mobilizes in the given environment with the aid of an overhead camera that substitutes the expensive LiDARs.
- The map was created with YOLO Algorithm; the path was planned with A* Algorithm and commands were given through ROS as middleware.
- The AGV model used a Raspberry Pi to run the ROS server and Arduino Mega to control the motors.

IoT-based Smart Home 2022

- A smart home with custom lighting that can be controlled through a web app, with individual profiles with personalized lighting.
- Implemented frontend with HTML/CSS and backend with Django.

IoT-based Smart Gardening 2022

- An automated plant watering and monitoring system with real-time image capturing using ESP32 Camera and ESP8266
- Made a frontend with HTML/CSS.

Android Controlled RC Vehicle using 8051 Microcontroller 2022

- Built an RC car controlled from an android device using Bluetooth.
- Coded the 8051 Microcontroller in ASM to serially receive instructions from the HC-05 Bluetooth module.

Automatic Vacuum Cleaning Bot using Arduino UNO 2021

- Built automatic vacuum cleaning bot using Arduino UNO, HC-SR04, and L293D Motor Driver.
- Used the ultrasonic and IR sensors to detect obstacles and navigate accordingly.

Awards

6th rank out of 229 students in the BTech ECE class of 2024 at VIT Chennai
Certificate Link: https://drive.google.com/file/d/1XpoW9KQWZl3j_CSmETf34C1USUu0uZNg/view?usp=sharing

Certificate of Excellence in Samsung PRISM Project
Certificate Link: https://www.samsungprism.com/Profile/Document/223VIS01VITC31272.pdf

6th Rank out of 229 in B.Tech. ECE in the fourth year (2023-24) at VIT Chennai
Certificate Link: https://drive.google.com/file/d/1DPUN5E5tqU46ytMz9WnKOLYHZyGOj1uv/view?usp=sharing

2nd Rank out of 229 in B.Tech. ECE in the second year (2021-22) at VIT Chennai
Certificate Link: https://drive.google.com/file/d/1MYBiQ5qKIAGveGhr-BmJautrWVBBJTE3/view?usp=sharing

7th Rank out of 229 in B.Tech. ECE in the first year (2020-21) at VIT Chennai
Certificate Link: https://drive.google.com/file/d/1MYgDhxQo9T_ULX1m-j7epRo9pQMxWFyi/view?usp=sharing

Innovation Award in International Rover Design Challenge 2021
Designed the Communication System of the innovative Assistive Bot for Mars Exploration
Certificate Link: https://drive.google.com/file/d/1pk_xbjxez9r7-fIjoQcTCrbyHuKsAj5U/view?usp=sharing

Skills

Languages: Python, MATLAB, C, C++, Embedded C, Assembly Language, Core Java, R

Technologies: PyTorch, SNNTorch, ROS, Cadence Virtuoso, Autodesk Eagle

Position of Responsibility

Captain of Team Technocrats Robotics Sep 2022 - Jun 2023

A robotics team of VIT Chennai University focused on competitions like Robocon, IRDC, IRC and URC.

- Worked on designing the communication system of rover in IRDC 2021
- Designed PCB for rover power distribution considering safety measures and back EMF from motors as the Electrical head.
- As the captain, revitalized the team after Covid-19 break to start working for competitions by: eliminating inactive members; recruiting members through social media marketing, desk marketing, workshops, showcasing older projects; selection through quiz and interview and new component procurement.

Certifications

Deep Learning Specialization July 2022

A series of courses on DL and NN taught by Andrew Ng of DeepLearning.AI

- Strategies for error reduction in ML systems, and apply end-to-end, transfer, and multi-task learning
- CNN for visual detection and recognition tasks, use neural style transfer to generate art, Semantic Segmentation
- RNN, GRUs and LSTMs, apply RNNs to character-level language modeling, NLP and Word Embeddings
- Certificate Link: https://coursera.org/share/1f31cc470503c141c37dd4d6095af39d

Data Analytics May 2022 - July 2022

Externship program on Applied Data Science powered by IBM

- Built a Machine Learning model using Scikit-learn to predict possibility of flood based on the rainfall
- Designed a web application using HTML, CSS and Bootstrap and deployed it using IBM Cloud
- Certificate Link: https://drive.google.com/file/d/1f5BEAyxM8JDxw3IK3D5aQp09it0eNxEZ/view?usp=sharing