

# ABIN SHOBY

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## Career Summary

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Solve socially relevant challenges through my expertise in Artificial Intelligence and Machine Learning, which enables me to grow professionally and enhances my research skills.

## Education

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**The University of Adelaide, Adelaide, Australia** *January 2024 – December 2025*

Master of Artificial Intelligence and Machine Learning

**Grade:** 6.909 / 7

**TKM College of Engineering, Kollam, India** *August 2016 – May 2020*

(APJ Abdul Kalam Technological University, Kerala)

Bachelor of Technology with Honours in Computer Science and Engineering

**Grade:** 9.36 / 10

## Professional Experience

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**Machine Learning Research Intern –** *January 2025 – April 2025*

**Australian Institute for Machine Learning (AIML), Adelaide**

- Analysed Multimodal Large-Language Models for medical report generation, zero-shot classification, and fine-tuned them for classification, regression and segmentation.
- The work is accepted for the MICCAI 2025 conference.

**AI Trainer (part-time) – *Outlier.ai, Adelaide*** *February 2024 – Current*

- Collaborated in training and evaluating generative AI models (LLMs), code analysis, prompt synthesis and prompt engineering.

**Systems Engineer – *TATA Consultancy Services, Kochi*** *September 2020 – January 2024*

- Acted as the Tech lead for JAMstack web development projects.
- Proposed novel JAMstack architecture using Drupal and Next.js to automate the web development process and delivered 7 websites in a year.

**Machine Learning Intern – *ICFOSS, Thiruvananthapuram*** *July 2018 – July 2018*

- Designed an LSTM network for the Malayalam question suggestion application.

## Publications

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- Huy, T.D. & **Shoby A.** et al. (2025), PedCLIP: A Vision-Language model for Pediatric X-rays with Mixture of Body part Experts, in *proceedings of Medical Image Computing and Computer Assisted Intervention – MICCAI 2025*, pp.487-497. Springer Nature Switzerland. doi:10.1007/978-3-032-04971-1\_46
- Shoby, A.**, Francis, J., John, A., Raju, J., & Ushadevi Amma, C. (2023), A Novel Deep Learning Approach for b-value Optimization in Intravoxel Incoherent Motion Magnetic Resonance Imaging on Simulated Data. *International Journal of Medical Engineering and Informatics*, 1(1). doi:10.1504/ijmei.2023.10058833

## Projects

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### Interpreting Vision-Language Models for Hallucination Mitigation

April 2025

Identified the key reasons for hallucination in the Vision-Language Models (VLM) via Logit lens, yielding the best explanation accuracy (45.58%) compared to DeCo, VCD and OPERA. The work is submitted for the CVPR (2026) conference.

### PedCLIP: A Vision-Language model for Pediatric X-rays with Mixture of Body Part Experts

January 2025

A novel pediatric Vision-Language Model (VLM) was developed for downstream medical imaging tasks, including medical report generation and zero-shot classification, achieving the best performance compared to SOTA VLMs, such as MedCLIP, MGCA, PRIOR, UniMed-CLIP, and GLoRIA. The work is accepted for the MICCAI 2025 conference.

### Intra-Voxel Incoherent Motion MRI Image Reconstruction

September 2019

IVIM MRI Images of brain tissue were reconstructed using the Bi-LSTM network, with an SSIM score ranging from 0.89 – 1 for various samples. It is helpful for the fast diagnosis of tumours.

## Skills

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**Languages:** Python, Java, C, C++, PHP, JavaScript, TypeScript, MySQL

**Tech:** Machine Learning, Deep Learning, Computer Vision, Natural Language Processing (NLP), Generative AI, PyTorch, Tensorflow, Scikit-learn, Pandas, Matplotlib, Linux, LLMs, VLMs, Docker, CI/CD, IaaC, OpenCV, GCP, AWS, OpenAI API, GPT-OSS, Prompt Engineering, DevOps, Agentic AI, LangChain, LangGraph, Pydantic AI, RAG, Git, React, GraphQL, REST, HF models, Next.js, Node.js.

**Non-tech:** Analysis and Research, Professional Communication, Team Management, Problem-solving, Quick Learner, Technical Report Writing, Leadership, Critical Thinking, Agile framework.

## Awards

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- Winner of the GovHack hackathon, Australia 2025
- Recipient of the University of Adelaide 30% Global Citizens Scholarship 2024
- Received the On the Spot (Team) Award from TCS 2023
- Acquired the top 2% rank in the APJ Abdul Kalam Technological University 2020
- Secured first place in the Fischacken hackathon organised by IEEE 2018
- Finalist of Microsoft AI Challenge 2018
- Selected by ACM for the national-level research poster presentation 2018

## Work References

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### Dr Vu Minh Hieu Phan

Research Scientist

Google, Sydney, Australia

Relationship: Internship supervisor at Australian Institute for Machine Learning

### Mr. Aniruddha Banerjee

Project Manager

TATA Consultancy Services, India

Relationship: Project manager at TATA Consultancy Services

*Note: The contact number will be provided upon request.*