Ajsal Shereef Palattuparambil

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Professional Summary

Ph.D. Candidate in Artificial Intelligence with 3+ years of experience as a Machine Learning Engineer. My background bridges deep theoretical expertise in Reinforcement Learning with practical application in Generative AI and Computer Vision. I possess a strong command of the full AI lifecycle—from building RAG pipelines and Autonomous Agents to fine-tuning LLMs using QLoRA. Proficient in Python, PyTorch, LangChain, and C++, underpinned by a rigorous mathematical foundation.

Technical Skills

- **Core Languages:** Python, C++, R, SQL
- **Generative AI & LLM Engineering:**
  - **Architectures & Techniques:** RAG (Retrieval-Augmented Generation), Agents & Tool Use, QLoRA Fine-tuning, Prompt Engineering, Vector Embeddings.
  - **Frameworks & Tools:** LangChain, Hugging Face, Gradio, Frontier APIs, Open-Source Models.
  - **Application:** Multi-modal interaction (Text/Image/Audio), Function Calling, Model Evaluation.
- **AI/ML Expertise:**
  - **Computer Vision:** Object Detection, Segmentation (Yolact++, SoloV2, UNet), Image Registration
  - **Deep Learning:** Model Architecture Analysis, Regularization, GANs, VAEs, Diffusion Models
  - **Reinforcement Learning:** Policy Optimisation, Knowledge Transfer, Human-Agent Interaction
- **Model Optimisation & Deployment:**
  - On-device Deployment (Edge AI), Model Performance Benchmarking
  - Quantization
- **Developer Tools:** Git, LaTeX
- **Mathematical Foundations:** Probability & Statistics, Linear Algebra, Optimization

Industry Experience

Machine Learning Engineer **2020 – 2022**
Trenser Technology Solutions

- Engineered and deployed a real-time glare correction algorithm onto resource-constrained edge devices, managing the full model lifecycle from development (Python, OpenCV) to on-device inference.
- Analyzed, implemented, and benchmarked SOTA computer vision models (e.g., Yolact++, SoloV2, UNet) for medical image segmentation, focusing on performance and efficiency trade-offs.

Junior Data Scientist **2019 – 2020**
Lotus Interworks

- Developed a mathematical model to evaluate call centre agent performance and generated simulation data with Python.
- Contributed to an intelligent marketplace algorithm to match user queries with service providers.

Project Associate **2018 – 2019**
IIT Madras

- Contributed to the ESPN Cricinfo smart stats project by modelling wicket probability and optimising constraints using Python.
- Performed data analysis, statistical inference, and visualisation for an environmental monitoring project using R.

Education

Ph.D. in Reinforcement Learning **2022 – 2026**
Deakin University, Geelong, VIC
Thesis: Towards adapting Reinforcement Learning Agents.

BS-MS, Mathematics as Major and Physics as Minor **2013 – 2018**
Indian Institute of Science Education and Research (IISER), Trivandrum, Kerala
Thesis: AKS primality testing and cryptography.

Research Publications

Conference Proceedings

- A. S. Palattuparambil, T. G. Karimpanal, and S. Rana, "Magik: Mapping to analogous goals via imagination-enabled knowledge transfer," In *Proceedings of the European Conference on Artificial Intelligence (ECAI)*, 2025.
- A. Shereef Palattuparambil, T. Karimpanal George, and S. Rana, "Personalisation via dynamic policy fusion," in *Proceedings of the 12th International Conference on Human-Agent Interaction*, 2024.

- A. Shereef, T. G. Karimpanal, and S. Rana, "ASPECT:Analogical Semantic Policy Execution via Language Conditioned Transfer" *ICML 2026*. [Submitted]

Journal Submissions

- A. Shereef, T. G. Karimpanal, and S. Rana, "Dynamic Policy Fusion for User Alignment Without Re-Interaction," *Journal of Ambient Intelligence and Humanized Computing*, 2025. [Under Review]

Teaching and Engagement

Graduate Research Teaching Fellow **Deakin University**

- Conducted workshop and marked the assessments.

Sessional Academic **Deakin University**

- Assisted the lecturer and handled QA sessions for course units.

Casual Research Assistant **Deakin University**

- Managed robotics lab equipment and demonstrated research prototypes to visiting school students.

Maths Tutor **EzyMaths**

- Private mathematics home tutoring for grade 9-12.

Technical Committee Member HARL Workshop

- Peer reviewed papers submitted to the HARL workshop

Reviewer AAMAS 2025

- Reviewed paper submitted to AAMAS 2026

Conference and Symposium

- International conference on Human Agent Interaction, 2024, Swansea, UK
- Australasian Join Conference on Artificial Intelligence 2025, Canberra, Australia
- DAIRNet Defence AI Symposium, Canberra, Australia

Awards and Scholarships

- **DUPR Scholarship**, Deakin University (2022-2025)
- **INSPIRE Fellowship**, Department of Science and Technology, India (2013-2018)

Certifications and Licenses

- Introduction to TensorFlow for Artificial Intelligence, Machine Learning, and Deep Learning (Coursera)
- Convolutional Neural Networks in TensorFlow (Coursera)
- Natural Language Processing in TensorFlow (Coursera)
- Sequences, Time Series and Prediction (Coursera)
- Data Science for Beginners using R (GITAA)
- Advanced Machine Learning using Python (GITAA)
- Valid Australian Driving License
- Employee Working With Children Check

References

Dr. Santu Rana
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