Aryaman Reddi

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PhD Student in Reinforcement Learning & Game Theory Darmstadt, Germany

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EDUCATION

PhD Computer Science: Technical University of Darmstadt, Germany *Aug 2022 - Apr 2026*

Title: **Sample-efficient methods in multi-agent reinforcement learning using insights from game theory**

- Developing reinforcement learning algorithms for large-scale compute using Python, PyTorch, JAX, Numpy & GPUs
- Mathematical insights into policy gradients & stochastic optimization using probability theory, linear algebra, calculus, functional analysis & game theory
- Bridging the gap between game theoretical models & practical deep learning RL algorithms for applications such as multi-agent robot control & adversarial modelling

M. Eng. & B.A. University of Cambridge, UK *Oct 2017 - June 2021*

Information and Computer Engineering, Distinction (4.0 GPA equivalent)

- Received the **David Thompson Prize** for academic achievement
- Modules: probabilistic machine learning, deep learning, computational statistics, practical optimization, statistical signal analysis, computer systems, software engineering

EXPERIENCE

Machine Learning Research Engineer: Arm Holdings, UK *Aug 2021 - Jul 2022*

- Developed an open-source tool to optimise neural networks for inference on NPUs using Python (PyTorch, Numpy, Jupyter, Pandas), C++, Kubernetes & Docker
- Improved Arm NPU processing efficiency for floating point operations by **14%**

Machine Learning Intern: Arm Holdings, UK *Jun 2019, Jun 2020*

- Used machine learning clustering, kernel regression, and principal component analysis to improve verification coverage in an Arm CPU bridge by **11%**

PUBLICATIONS

Robust Adversarial Reinforcement Learning via Bounded Rationality Curricula:
Spotlight Award**, **Poster,** **International Conference on Learning Representations 2024

Dynamic Obstacle Avoidance with Bounded Rationality Adversarial Reinforcement Learning:
***Poster*, Conference on Robot Learning 2024 LocoLearn Workshop**

K-Level Policy Gradients for Multi-Agent Reinforcement Learning:
***Under Review,* International Conference on Machine Learning 2025**

The Power of Friendship: Dynamic Reward Sharing for Multi-Agent Reinforcement Learning:
***Under Review,* Reinforcement Learning Conference 2025**

Deep Learning Agents Trained for Avoidance Behave Like Hawks and Doves:
***Under Review,* Reinforcement Learning Conference 2025**

HONOURS AND AWARDS

- **Ranked 1st nationally** in Cambridge A-levels, Sri Lanka
- **MLH Award,** Oxford Hack 2019
- **National Olympiad Merit Awards -** Math, Physics, Chemistry, & Biology