

Eran Dodampe Gamage

Physics • Data Science • Scientific Machine Learning

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Portfolio: erankawinda.github.io • [GitHub](https://github.com/erangamage) • [LinkedIn](#)

Research Profile

Physics-trained data scientist with a Master of Data Science with Distinction from RMIT University. Research experience in efficient language-model adaptation, time-series forecasting, and model evaluation. Interested in applying machine learning to high-energy physics simulation and scientific computing.

Education

Master of Data Science with Distinction

2024–2026

RMIT University • Melbourne, Australia

- Degree conferred in July 2026.
- Relevant coursework: Computational Machine Learning; Big Data Processing; Algorithms and Analysis; Computing Research and Project Preparation.

Bachelor of Science Honours in Physics

2017–2021

University of Colombo • Colombo, Sri Lanka

- 120-credit honours degree covering physics, applied and pure mathematics, and computer science.
- Selected coursework: Nuclear and Particle Physics; Methods in Computational Physics; Quantum Mechanics; Statistical Physics; Numerical Analysis; Fundamentals of Programming.

Research Experience

Master's research: Efficient language-model adaptation

2025–2026

RMIT University • Supervisor: Associate Professor Ke Deng

- Investigated fine-tuning an 8B language model to generate advertising headlines and descriptions from URL text alone, using teacher-generated examples.
- Implemented a Python/PyTorch workflow comparing LoRA, QLoRA, reduced-rank, and adaptive low-rank methods on shared data splits grouped by URL.
- Evaluated teacher-text matching, output completeness, adapter cost, and GPU memory; used shuffled-target controls and bootstrap analysis over held-out URLs.
- Observed stronger matching to teacher examples than shuffled-target controls in the exploratory experiment; assessed generation completeness separately.

Deep Learning for Meteorological Drought Prediction

Mar 2020–Mar 2021

University of Colombo • Supervisor: Dr Siyath Gunawardene

- Developed a multivariate stacked LSTM model for drought-index prediction from gridded meteorological data in undergraduate honours research.
- Prepared features and sequences, trained and evaluated models, and documented the study. Presented the work at ICMAS 2021.
- Subsequently rebuilt a three-location historical benchmark with chronological evaluation, persistence baselines, and saved predictions; [code](#) and [results](#).

Relevant Research Training

JENNIFER2 Summer School

19–27 Jul 2021

Online programme • Eight scheduled days

- Attended lectures on theoretical and experimental particle physics, including heavy-flavour and neutrino physics, accelerators, detectors, statistics, and machine learning.

JENNIFER2 Summer Mentorship Programme

Aug 2021

Mentor: Professor Paolo Branchini • INFN Roma Tre • Virtual

- Implemented neural-network methods on FPGAs during the mentorship programme.

Selected Computational Projects

Australian electricity demand forecasting

Independent project • Repository

- Built a measured half-hour demand pipeline for Australia's National Electricity Market; compared random forest and XGBoost with three baselines in a historical pilot using chronological evaluation.

Investor Assistant: Retrieval-Augmented Generation Evaluation

RMIT team project • Evaluation contribution

- Authored evaluation code, summaries, and plots comparing retrieval depths of 1, 3, and 5 documents using ROUGE-Lsum and Sentence-BERT similarity; reported refusal indicators by question cohort.

Teaching Experience

Temporary Teaching Assistant

Jun 2021–Apr 2022

Department of Physics, University of Colombo • Colombo, Sri Lanka

- Supported General Physics laboratory classes, assessments, and remote-practical materials during COVID-19 teaching.
- Assisted undergraduate laboratory work and tutorials in Nuclear and Particle Physics.
- Attended CMS/GEM technical briefings with the university's particle physics team.

Selected Presentations and Academic Training

International Conference on Multidisciplinary Approaches in Sciences

Nov 2021

Presented undergraduate drought-prediction research • University of Colombo

Asian Science Camp

Aug 2018

Selected participant representing Sri Lanka • Indonesia

Technical Skills

Programming

Python; C; SQL; MATLAB/Octave; R; VHDL; LaTeX.

Machine learning

PyTorch; CNNs; RNNs/LSTMs; transformer fine-tuning; supervised learning; statistical modelling.

Research computing

NumPy; pandas; GPU/CUDA workflows; numerical modelling; model evaluation; data visualisation; Git.

Leadership and Service

Student–Staff Consultative Committee Representative

May–Jul 2026

Master of Data Science, RMIT University • Melbourne, Australia

- Represented students in communication with course coordinators and academic staff.

President, Physics Society

Feb 2020–Aug 2021

University of Colombo • Colombo, Sri Lanka

- Organised student discussions, guest lectures, and academic activities for physics undergraduates.

Languages

English • Sinhala • Japanese