Arpit Kapoor

PhD Candidate

+61 412 982 005
arpit.kapoor@unsw.edu.au
www.arpit-kapoor.com
Google Scholar
GitHub: arpit-kapoor

A driven PhD candidate and Data Scientist with 4+ years of experience developing AI/ML solutions to address complex challenges across diverse industries. With a strong focus on building scalable, end-to-end machine learning pipelines, I have successfully deployed adaptive AI systems for business applications. My expertise spans deep learning, anomaly detection, computer vision, and robotics. My research has been published in top-tier journals, and I aim to push the boundaries of AI/ML in academic and industry settings.

EDUCATION

University of New South Wales, Sydney — *Doctor of Philosophy*

AUG 2022 - PRESENT (Expected FEB 2026)

School of Mathematics & Statistics - *Deep Learning for applications in environmental process modelling*
Jointly funded by **UNSW Sydney** and **ARC Training Centre in Data Analytics for Resources and Environment (DARE Centre)**

SRM Institute of Science and Technology, Chennai — *Bachelor of Technology*

JUL 2015 - MAY 2019

Major in ***Computer Science and Engineering*** with standing CGPA: **9.01**

EXPERIENCE

Bureau of Meteorology, Australia — *Research Support Scientist*

FEB 2023 - PRESENT, Part-Time

Key Responsibilities:

- Implementation of multivariate bias correction methods for the Australian Climate Service
- Building a Python wrapper for the MRNBC bias correction method originally written in FORTRAN

Quince, Hyderabad, India —*Data Scientist - 2*

MAR 2022 - AUG 2022, Full-Time

Key Responsibilities:

- Machine learning for identification of key drivers of repeat customer behaviour aimed at customer retention
- Build regressive models for predicting and optimising logistics costs in online retail

3Qi Labs, Hyderabad, India—*Data Scientist*

NOV 2019 - NOV 2021, Full-Time

Key Responsibilities:

- Implemented an LSTM-based time-series anomaly detection approach that improved the overall performance by 40% over the previous approach
- Developed ML workflows to automate the detection of anomalous

SKILLS

Programming
Python, C/ C++ and R

Machine Learning Expertise
Bayesian methods - Bayesian Deep Learning, MCMC and Variational Inference
Deep Neural Networks - CNN, LSTM, Autoencoders, Seq2Seq models
Tree-based models - Random Forrest and Gradient Boosting
Deep Reinforcement Learning

Frameworks
Deep Learning - Tensorflow, PyTorch, and Flax
ML and numerical computing - Jax, Scikit-learn, Apache Spark MLlib,
MLOps - MLFlow
Model Interpretation- LIME, SHAP

Cloud Technologies
AWS cloud, Azure cloud

Other Skills/Technologies
High Performance Computing (HPC), Dask, Xarray, Docker, Bash

PUBLICATIONS

Kapoor, A., Pathiraja, S., Marshall, L., & Chandra, R. (2023). **DeepGR4J: A deep learning hybridization approach for conceptual rainfall-runoff modelling.** *Environmental Modelling & Software, 169, 105831*

Kapoor, A., Negi, A., Marshall, L., & Chandra, R. (2023). **Cyclone trajectory and intensity prediction with**

data in ETL data pipelines
- Incorporated MLOps practices to optimize the ML workflow

Bomotix, Hyderabad, India— *Machine Learning Developer*

JAN 2019 - NOV 2019

Project: **Player Tracking and Pose Estimation in Sports Videos**

Key Responsibilities:

- Developed Deep Learning based Computer Vision models for object detection, object tracking and human pose estimation
- Maintained the CI/CD pipelines for various deep learning model deployment
- Led the Module documentation and requirement-gathering effort

The University of Sydney, Australia— *Research Intern (Machine Learning)*

JUN 2018 - AUG 2018

Area of Research: **Bayesian Machine Learning**
Supervisor: Prof Sally Cripps and Dr Rohitash Chandra

Key Responsibilities:

- Developed Bayesian methods for neural networks and geoscientific models using parallel Markov Chain Monte Carlo (MCMC) methods
- Projects worked on: Parallel MCMC methods for Neural Learning, Bayesian Transfer Learning, and Surrogate-assisted parallel MCMC

LEADERSHIP

SRM Team Humanoid, SRM Institute of Science and Technology — *Team Leader*

SEP 2015 - JUN 2019

- Led the University Humanoid Robotics team of 22 members at several international events
- Represented the University and won several accolades in various international robotics competitions.

ACHIEVEMENTS

- Participated and facilitated the Theyr Challenge at the Data Study Group in May 2024 organised by the **Alan Turing Institute London**
- PhD scholarship from the Australian Research Council Training Centre in Data Analytics for Resources and Environments (DARE Centre).
- Recipient of **research internship grant** from the **University of Sydney**
- In the top **1% of students** who received University Excellence scholarship during my undergraduate studies
- Secured **a Gold, 2 silver and a bronze** medal in the humanoid league at **RoboGames'17**, held in the **USA**
- Secured **3rd position** in IEEE/RSJ IROS 2017 Humanoid Application Challenge, held in Vancouver, Canada.

uncertainty quantification using variational recurrent neural networks. *Environmental Modelling & Software, 162, 105654.*

Kapoor, A., Nukala, E., & Chandra, R. (2022). **Bayesian neuroevolution using distributed swarm optimization and tempered MCMC.** *Applied Soft Computing, 129, 109528.*

Chandra, R., Azam, D., **Kapoor, A.**, & Müller, R. D. (2020). **Surrogate-assisted Bayesian inversion for landscape and basin evolution models.** *Geoscientific Model Development, 13(7), 2959-2979.*

Chandra, R., Jain, K., **Kapoor, A.**, & Aman, A. (2020). **Surrogate-assisted parallel tempering for Bayesian neural learning.** *Engineering Applications of Artificial Intelligence, 94, 103700.*

Chandra, R., & **Kapoor, A.** (2020). **Bayesian neural multi-source transfer learning**. *Neurocomputing, 378, 54-64.*

Sripada, A., Asokan, H., Warrier, A., **Kapoor, A.**, Gaur, H., Patel, R., & Sridhar, R. (2018, July). **Teleoperation of a humanoid robot with motion imitation and legged locomotion**. *In 2018 3rd International Conference on Advanced Robotics and Mechatronics (ICARM) (pp. 375-379). IEEE.*

Sripada, A., Warrier, A., **Kapoor, A.**, Gaur, H., and Hemalatha, B**. Dynamic lateral balance of humanoid robots on unstable surfaces.** In 2017 *International Conference on Electrical, Electronics, Communication, Computer, and Optimization Techniques (ICEECCOT)*, pp. 1-6. IEEE, 2017.