

Arpit Kapoor

Data Scientist

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EXPERIENCE

3Qi Labs, Hyderabad—Data Scientist

NOV 2019 - Present

Key Responsibilities:

- Machine Learning for anomaly detection in large scale data.
- Highlight data quality issues such as referential integrity failure.
- Exploratory Data Analysis (EDA).
- Develop Big data analysis pipelines in PySpark and hadoop.
- Create and maintain visualization and analysis suite in Kibana and elasticsearch.

Bomotix, Hyderabad— Machine Learning Developer

JAN 2019 - NOV 2019

Project: Player Tracking and Pose Estimation in Sports Videos

Key Responsibilities:

- Deep learning for Computer vision applications including object detection, object tracking and human pose estimation.
- Productionising the machine learning code with containerised deployment.
- Develop new procedures for requirements gathering, testing, scripting and documentation to strengthen quality and functionality of application.

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

JUN 2018 - AUG 2018

Area of Research: **Bayesian Neural Networks using MCMC**

Supervisor: Prof Sally Cripps and Dr Rohitash Chandra

Key Responsibilities:

- Research and develop Bayesian machine learning models including deep neural networks using Markov Chain Monte Carlo samplers.
- Part of three research project; all published in reputed high impact-factor Journals

SKILLS

Programming languages

Python, C++, and R

Data Technologies

Hadoop, PySpark, ElasticSearch

Machine Learning

TensorFlow, PyTorch, Apache MxNet, Scikit-learn

Computer Vision

OpenCV

Data Visualization

Kibana, Tableau

ACHIEVEMENTS

Completed 3 months fully compensated Research Internship at USyd

Secured a **Gold, 2 silver and a bronze** medal in **RoboGames'17, USA** in humanoid league

Secured **3rd position** in IEEE/RSJ IROS 2017 Humanoid Application Challenge, held in Vancouver, Canada.

Recipient of **WATConsult Innovation Award** in BITS ATMOS'16 for Humanoid Teleoperation project.

Selected for **Engineering the Eye 5 Hackathon**(June 2016), organised by LVPEI, Hyd

3 Publications in International Journals including IEEE and Elsevier

EDUCATION

SRM Institute of Science and Technology, Chennai — *B.Tech Computer Science and Engineering*

JUL 2015 - MAY 2019

CGPA: 9.05

Delhi Public School, Agra, Uttar Pradesh — CBSE Sr. Secondary

APRIL 2013 - MARCH 2015

Stream: Science (94.6%)

CO-ACADEMIC ACTIVITIES

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

SEP 2015 - PRESENT

Managed the University Humanoid Robotics Team

Developed software packages for humanoid robotic systems.

Represented the University and won several accolades in various international humanoid robotics competitions.

PROJECTS

Smart Device Grouping

Determine the owners of various smart devices in a home using advanced feature engineering and clustering techniques on device usage patterns.

Person Detection and Tracking

Developed an end-to-end pipeline for detecting players in sports videos and tracking them throughout the videos. Trained Yolo V3 for person detection while a Siamese Re-Id Network and DeepSORT was used for tracking.

Deep RL Humanoid Maze solver

Hierarchical Reinforcement learning inspired approach used to teach a higher order complex task, such as solving a maze, to a humanoid.

Bayesian neural Transfer Learning

Transfer Learning for Bayesian neural networks using Markov Chain Monte Carlo (MCMC) sampling scheme published in Neuroevolution.

Bayeslands: Bayesian inference for Badlands

Parallel Tempering MCMC Bayesian inference for uncertainty quantification in parameters of landscape evolution Model called Badlands

PUBLICATIONS

"Bayesian neuroevolution: synergy of swarm optimisation with tempered MCMC via parallel computing", submitted to *Neurocomputing* (Nov 2020)

"Surrogate-assisted Bayesian inversion for landscape and basin evolution models." *Geoscientific Model Development* 13, no. 7 (2020): 2959-2979.

"Surrogate-assisted parallel tempering for Bayesian neural learning." *Engineering Applications of Artificial Intelligence* 94 (2020): 103700.

"Bayesian neural multi-source transfer learning." *Neurocomputing* 378 (2020): 54-64.

"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, 2018.

"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..

"Reinforcement Learning Methods and Approaches for Humanoid Robotics", 4th *International Conference on Artificial Intelligence and Evolutionary Computations in Engineering Systems. (Conference Presentation)*