Arshika Lalan

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Education

Carnegie Mellon University *December 2025*
Masters of Science in Machine Learning
Current courses: Advanced Introduction to Machine Learning, Intermediate Statistics, Deep Reinforcement Learning and Control

Birla Institute of Technology And Science (BITS), Pilani *July 2022*
Bachelors of Engineering, Computer Science and Masters of Science, Economics

Work Experience

Google DeepMind (Previously Google Research) *Aug 2022 – Jun 2024*
Pre-Doctoral Researcher in Multi-Agent Systems for Societal Impact (MASSI) Lab *Bangalore, India*
Reinforcement Learning and Multi-Agent Systems Research

- Co-formulated novel non-Markovian Time-Series Restless Bandits for optimizing multiple interventions.
- Showcased non-Markovian behavior (which complicated adoption of prior SoTA Markovian RMAB systems) in the nationwide Kilkari maternal health program with 3.2 million active beneficiaries. **[KDD-WS'23]**
- Developed the CHAHAK framework leveraging Time-Series Restless Bandits and UCB Monte-Carlo sampling to increase Kilkari's engagement and minimize automated dropouts through strategic intervention allocation.
- Demonstrated ability for CHAHAK to increase content exposure of cohort by 57% and preventing dropouts by 33% over a random policy. **[AAAI'24]**
- Co-developed "Adherence Bandits", a specialized Restless Multi-Armed Bandits (RMABs) tailored to address engagement challenges in public health. **[AAAI-WS'23]**

Harvard University *Aug 2021 – Jul 2022*
Research Assistant in Kreiman Lab *Boston, MA*
Continual Learning (CL) Research

- Investigated interplay between catastrophic forgetting (CF) and OOD generalization ability using 3D modeling.
- Examined adaptability of CL algorithms to continuous domains and demonstrated that models exhibit a saturation point in performance with respect to CF and generalization as number of tasks increases. **[Thesis]**

Microsoft *May 2021 – Jul 2021*
Software Development Intern in Cloud+Artificial Intelligence team *Hyderabad, India*

- Built an End-to-End service providing user insights to reporting services of the Playwright tool, on track for feature release in six months.

Selected Publications

1. **Improving Health Information Access in the World's Largest Maternal Mobile Health Program via Bandit Algorithms.** ***Oral Presentation*** *@ The Association for the Advancement of Artificial Intelligence Conference [Track: IAAI] 2024.* **[AAAI'24]**
2. **Analyzing and Predicting Low-Listenership Trends in a Large-Scale Mobile Health Program: A Preliminary Investigation.** ***Oral Presentation*** *@ Data Science for Social Good Workshop, KDD 2023.* **[KDD-WS'23]**
3. **Adherence Bandits.** *Artificial Intelligence for Social Good Workshop, AAAI 2023.* **[AAAI-WS'23]**
4. **Continual Learning and Out Of Domain Generalization in Continuous Domain Adaptation.** **[Thesis]**

Key Accomplishments and Experience

- Cleared Regional Mathematics Olympiad (RMO); Qualified for Indian National Mathematics Olympiad (INMO).
- Teaching Assistant for three courses: Object Oriented Programming, Database Systems, Econometric Methods.
- Volunteered in the Conference on Learning Theory (COLT) 2023.

Skills

Frameworks and libraries: Pytorch, Sklearn, Numpy, Pandas, React
Programming Languages: Python, Java, C++, R, Stata