Lekhapriya Dheeraj Kashyap

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Summary

PhD researcher in Human-Centered AI and reinforcement learning, with a strong quantitative foundation in stochastic systems, machine learning, and probabilistic modeling. Research focuses on interpretable, learning-based decision models (MDPs, POMDPs, semi-Markov processes) to infer latent states, preferences, and policies from human behavioral data. Experience applying RL and multi-agent learning to human-centered systems, intelligent vehicle systems, finance, manufacturing, power grid operations, and data center operations, with industry experience at Wells Fargo and Hewlett Packard Enterprise.

Education

Texas A&M University — College Station, TX
PhD in Industrial & Systems Engineering — *2021 – 2026*

New Jersey Institute of Technology — Newark, NJ
M.S. in Industrial & Engineering Management — *2014 – 2016*

Visvesvaraya Technological University — Bangalore, India
B.Eng. in Electronics and Communication — *2010 – 2014*

Research Experience

Texas A&M University — College Station, TX
PhD Student, Industrial & Systems Engineering — *2021 - present*

- **State Representation and Preference Learning from Demonstrations** (*In preparation*)
  Developed deep learning methods to learn compact latent representations from high-dimensional, multimodal human behavioral data. Jointly inferred system dynamics, agent preferences, and utility functions from expert demonstrations to support interpretable human–AI decision modeling.
- **Personalized Driver Attention Modeling via Structural Inverse RL under Partial Observability** (*Accepted* , *Human Factors*)
  Formulated driver attention and multitasking as a Partially Observable Semi-Markov Decision Process and applied structural inverse reinforcement learning to infer latent distraction states, belief dynamics, and reward functions from behavioral data. Enabled personalized modeling and evaluation of in-vehicle human–AI interaction and intervention strategies.
- **Latent-State Modeling of Attention and Decision-Making from Behavioral Data** (*Published, Human Factors*) Developed probabilistic latent-state models to infer unobserved context, attentional effort, and reward trade-offs from large-scale, naturalistic human decision data. Applied Bayesian inference in partially observable settings to support interpretable evaluation of human performance, bias, and AI-assisted decision policies.
- **Multi-Agent Reinforcement Learning for Decentralized Power Systems** (*Github*)
  Applied multi-agent reinforcement learning to decentralized power systems, addressing coordination, scalability, and stochastic optimization under uncertainty while preserving local operational autonomy.
- **Reinforcement Learning with Digital Twins for Precision Manufacturing** (*Under review*)
  Developed an actor–critic (PPO) framework for constrained decision-making in multi-stage manufac-

turing. Integrated stochastic digital twins to enable adaptive control and joint optimization of process parameters to achieve precise surface roughness targets while minimizing energy and operational costs.

Indian Institute of Science *Bangalore, India*
Research Associate, Department of Management Studies *2019 - 2021*

- **Scalable Learning of Hawkes Processes for Event Modeling**(*Published, Journal of Computational Science*)
  Derived unbiased stochastic gradient estimators for maximum likelihood optimization of multi-dimensional Hawkes processes with neural network parameterization of excitation kernels. Validated the approach on real-world finance data, demonstrating strong performance in high-frequency event modeling.

Work Experience

Hewlett Packard Enterprise *Milpitas, CA*
Research Associate Intern, AI-RL Lab *2023*

- **SustainDC: Benchmarking for sustainable data center control** (*Published, Neurips*)
  Developed configurable benchmarking environments for multi-agent reinforcement learning in data center operations, modeling coordinated workload scheduling, cooling, and energy storage under shared constraints. Evaluated MARL algorithms to analyze system behavior, energy efficiency, and carbon-aware control strategies for real-world infrastructure.
- **PyDCM: Custom Data Center Models with Reinforcement Learning for Sustainability** (*Published, BuildSys*) Built a high-performance, configurable data center simulator with a Gymnasium-compatible interface, enabling rapid prototyping and evaluation of reinforcement learning–based cooling strategies for sustainable system design.

WellsFargo *Charlotte, NC*
Quantitative Intern, Market & Counterparty Risk Analytics *2022*

- Leveraged Bloomberg BVAL sector- and rating-level time series to model bond portfolio risk. Implemented Python-based risk engines to compute and assess Value at Risk (VaR) and SVaR. Built SQL pipelines for daily P&L computation and performed P&L attribution and backtesting against BVAL-derived risk factors. Analyzed and reported key drivers of material deviations relative to production benchmarks to senior management.

Teaching Experience

- Quality Engineering (TA) – *Fall 2021, Spring 2022, Fall 2022, Spring 2023, Fall 2025*
- Uncertainty Modeling for Industrial Engineering (TA) – *Fall 2023*
- Decision and Risk Analysis (TA) – *Spring 2025*

Skills

Programming: Python, MATLAB, R, C++, SQL
Libraries/Frameworks: PyTorch, TensorFlow, Gymnasium, pandas, scikit-learn
Tools: Git, Docker, Linux
Certification: Machine Learning Certificate offered by Coursera [pdf]
Languages: English