Jia Lin Hau

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Research Interest

Risk-averse reinforcement learning and decision making, deep reinforcement learning, machine learning, risk analysis, actuarial science, Bayesian method.

Education

M.S and Ph.D. in Computer Science, University of New Hampshire Jan 2019 - May 2025

Advisor : Marek Petrik GPA: 4.00/4.00

Thesis : Static Risk Sensitive Reinforcement Learning

B.S. in Applied Mathematics, University of New Hampshire Sep 2015 - Sep 2018

Advisor : Linyuan Li GPA: 3.89/4.00

Publications

Refereed Conference Publications

- Q-learning for Quantile MDPs: A Decomposition, Performance, and Convergence Analysis. **Jia Lin Hau**, Erick Delage, Esther Derman, Mohammad Ghavamzadeh, and Marek Petrik. International Conference on Artificial Intelligence and Statistics (AISTATS), 2025.
- On Dynamic Programming Decompositions of Static Risk Measures in Markov Decision Processes. **Jia Lin Hau**, Erick Delage, Marek Petrik, Mohammad Ghavamzadeh. Conference on Neural Information Processing Systems (NeurIPS), 2023.
- Entropic Risk Optimization in Discounted MDPs. **Jia Lin Hau**, Marek Petrik, Mohammad Ghavamzadeh. International Conference on Artificial Intelligence and Statistics (AISTATS), 2023.

Peer Reviewed Symposia

- Robust Pest Management Using Reinforcement Learning. Talha Siddique, **Jia Lin Hau**, Shadi Atallah, Marek Petrik. The Multi-disciplinary Conference on Reinforcement Learning and Decision Making (RLDM), 2019

Paper In Progress

- RASR: Risk-averse soft-robust mdps with evar and entropic risk. **Jia Lin Hau**, Marek Petrik, Erick Delage, Mohammad Ghavamzadeh. arXiv preprint: 2209.04067, 2019.

Reviewing Services

International Conference on Learning Representations (ICLR 2025)
International Conference on Machine Learning (ICML 2022, 2024, and 2025)
Journal of Artificial Intelligence Research (JAIR 2024 and 2025)
Artificial Intelligence and Statistics (AISTATS 2024 and 2025)
Conference and Workshop on Neural Information Processing Systems (NeurIPS 2021 and 2025)

Employment

JPMorgan Chase and Co. - AI and Data Science Associate Jun 2025 - present
JPMorgan Chase and Co. - AI and Data Science Summer Associate Jun 2024 - Aug 2024

- Proposed novel deep reinforcement learning (RL) approach to find gaps in strategy rules and models.
- Developed advanced machine learning (ML) models (i.e. Random Forest, XGBoost, LightGBM, CatBoost, Tab-transformer) and compared different encodings and imputations for fraud prediction.
- Developed code on AWS Cloud (SageMaker, Bitbucket), and utilized PySpark, Hadoop, EMR to optimize code for big data.

UNH Computer Science Department - Research Assistant Jun 2020 - May 2025

Research interest: Reinforcement learning, risk-averse optimization, machine learning, Bayesian method.

UNH Computer Science Department - Teaching Assistant Jan 2019 - May 2024

Machine Learning (CS 750/850), Computer networks (CS 725), Assembly Language and Machine Organization (CS 520), Scientific Programming in Python and C (CS 410).

Boston Road Runner – Data Analyst Sep 2018 - Dec 2018

- Preprocessed (handle duplicates and consistent formatting) data of participants and sponsors.
- Developed auto-regression time series models in R to predict in the number of participants for upcoming races.
- Designed 3NF database schema using ERD and relation schema to reduce anomalies and improve data quality and integrity.
- Created data visualizations using Tableau, which allow peers and sponsors easily interpret and understand data insights.

Idea Math - Junior Instructor/ Summer Camp Resident Assistant Jun 2018 - Aug 2019
UNH International Student Organization (ISO) - Vice President Aug 2017 - Jun 2018
UNH Mathematics Center - Mathematics Center Tutor Sep 2017 - Jun 2018
UNH Residential Life - Resident Assistant Aug 2016 - Aug 2017

Other Projects

Research Projects

- **Multi-Layered chemical diffusion 3D simulation**. Implemented complex 3D chemical simulation in Julia with GLMakie to visualize and identify the success rate of the chemical reaction. Utilize observable variables and broadcast function to speed up the continuous collision detection (CCD) by more than 10,000 times.

Software Development

- **EMOAI** Emotion recognition application to avoid depression – **Developer and Use Case Finder**.
  - Spearheaded Deep Learning (CNN) emotion recognition project with pre-trained models to accurately classify users' facial expressions.
  - Proposed groundbreaking application of the use of facial and emotion recognition technology to identify and prevent depression.
  - Implemented active learning by allowing users to verify/update labels of their own emotion which enable personalized classification.

- **CRACC** A social apps that connect people to play sports together – **Data / Android Developer**.
  - Collected data (from API, Kaggle, BLS), analyzed and created data visualizations with Python.
  - Communicated effectively with the IOS team to ensure consistent UI (XML) and functionality (Java) using Android Studio.
  - Integrated with Firebase for users' data, and developed features that query weathers and navigation data based on users' location.

Achievements

Received AISTATS 2025 Best Reviewer Award	2025
Received UNH Doctoral Dissertation Year Fellowship (DYF) Scholar Award	2024
Received NeurIPS 2023 Scholar Award	2023
Semi-finalist (EMOAI) UNH 2019 Holloway prize competition	2019
Passed Actuarial Science Exam P: Probability	2018
Bloomberg Market Concepts (BMC) Completion	2018
Member of Pi Mu Epsilon of National Honorary Mathematics Society	2017
Semi-finalist UNH 2017 Fall stock pitch competition	2017

Skills

Language	Python, R, Julia, C/C++, SQL, MATLAB, HTML, CSS, JavaScript, XML, Java
Tools	GLMakie, OpenGL, PyTorch, Numpy, Scikit-learn, Git, Excel, ERDPlus, Tableau, AWS

Relevant Coursework

Reinforcement Learning, Bandit Algorithms, Mathematical Optimization, Algorithms, Computer Graphics, Assembly Language, System Programming, Formal Specification, Database System, Machine Learning, Forecasting Analysis, Numerical Methods, Linear Algebra, Differential Equation, Multi-Dimensional Calculus, Econometrics, Probability Theory, Statistical Inference, Financial Mathematics.

References

Master / PhD advisor	Dr. Marek Petrik	mpetrik@cs.unh.edu
External Collaborators	Dr. Mohammad Ghavamzadeh	mohammad.ghavamzadeh51@gmail.com
	Dr. Erick Delage	erick.delage@hec.ca