Jia Lin Hau

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EDUCATION

University of New Hampshire, Advisor: Marek Petrik 01/2019 - present
M.S / Ph.D. in Computer Science GPA: 4.00
Relevant Coursework: Reinforcement Learning, Advance Machine Learning, Mathematical Optimization, Algorithms, Computer Graphics, Assembly Language, System Programming, Formal Specification, Database System.

University of New Hampshire, Advisor: Linyuan Li 09/2015 - 09/2018
B.S. in Applied Mathematics: Economics GPA: 3.89
Relevant Coursework: Machine Learning, Forecasting Analysis, Numerical Methods, Multi-Dimensional Calculus, Econometrics, Probability Theory, Statistical Inference, Financial Mathematics.

EXPERIENCE

UNH Computer Science Department - *Research Assistant* 06/2020 - present
Research interest: Reinforcement learning, risk-averse optimization, machine learning, Bayesian method.
UNH Computer Science Department - *Teaching Assistant* 01/2019 - 05/2020
Assembly Language and Machine Organization (CS 520), Scientific Programming in Python and C (CS 410P & C), Computer networks (CS 725)

EMOAI Emotion recognition application to avoid depression **– *Developer and Use Case Finder*** 02/2019 - 04/2019
- 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.

Boston Road Runner – *Data Analyst* 09/2018 - 12/2018
- Preprocessed (handle missing values, duplicates, and apply consistent formatting) data of participants and sponsors.
- Developed auto-regression time series models in R to predict future trends 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.

CRACC A social application that connect people to play sports together **– *Analyst / Android Developer*** 01/2017 - 01/2018
- Collected data from various sources (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.

RESEARCH PUBLICATIONS AND PREPRINTS

Entropic Risk Optimization in Discounted MDPs. **Jia Lin Hau**, Marek Petrik, Mohammad Ghavamzadeh AISTATS 2023
- Contributed to advancing risk averse Markov decision processes (MDPs) by providing new theoretical results and practical algorithms.
- Proposed new polynomial time MDPs algorithms for Entropic Risk Measure (ERM) and Entropic Value at Risk (EVaR) objectives.
- Proved our algorithms return the optimal policy for finite horizon MDPs and delta-optimal policy for infinite horizon MDPs.
- Implemented these algorithms and conducted extensive experimentation to evaluate their accuracy and efficiency using Julia and R.

RASR: Risk-Averse Soft-Robust MDPs. **Jia Lin Hau**, Marek Petrik, Mohammad Ghavamzadeh, Reazul Russel ArXiv 2022
- Proposed a novel framework to jointly model the epistemic and aleatory uncertainties in safe Reinforcement Learning (RL).
- Proved that entropic risk-aversion can be solved optimally and efficiently in RASR setting with time-dependent dynamic program.

Robust pest management using RL. Talha Siddique, **Jia Lin Hau**, Shadi Atallah, Marek Petrik RLDM 2019
- Leveraged reinforcement learning techniques to develop a robust framework for risk-averse decision-making in pest management.
- Applied natural splines regression model to predict pest growth and STAN Bayesian inference language to generate posterior datasets, which were used to compute the optimal Robust MDP policy.
- Demonstrated the effectiveness of our framework by solving various domains including Cartpole (OpenAI) with limited data in Python

OTHER ONGOING PROJECTS

Risk measure decompositions analysis 01/2023 - present
Multi-Layered chemical diffusion 3D simulation 02/2023 - present

SKILLS

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