**Jia Lin Hau**

**Department of Computer Science (Ph.D. Candidate)**

**University of New Hampshire,** Durham, NH

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| **Research Interests** | Reinforcement learning, machine learning, Bayesian method, risk-averse optimization, financial mathematics, and actuarial science. | | |
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| **Education** | University of New Hampshire | Advisor: Marek Petrik | 2019 - present |
|  | Ph.D in Computer Science |  | GPA: 4.00/4.00 |
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|  | University of New Hampshire | Advisor: Marek Petrik | 2019 - 2022 |
|  | M.S. in Computer Science.  *Project: Risk-Averse Soft-Robust MDPs with EVaR and Entropic Risk* | | GPA: 4.00/4.00 |
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|  | University of New Hampshire | Advisor: Linyuan Li | 2015 - 2018 |
|  | B.S. in Applied Mathematics: Economics.  *Project: MDP on Blackjack* | | GPA: 3.89/4.00 |
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| **Professional Experience** | UNH Computer Science Department | |  |
| ***Research Assistant*** - [Reinforcement Learning and Robustness Lab](http://rl2.cs.unh.edu/lab/) | | 2020 - present |
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|  | ***Teaching Assistant*** | |  |
|  | CS 520 - Assembly language programming and machine organization | | Spring 2020 |
|  | CS 410P - Introduction to scientific programming in Python | | Spring 2020 |
|  | CS 410C - Introduction to scientific programming in C | | Fall 2019 |
|  | CS 725 - Computer networks | | Fall 2019 |
|  | CS 410P - Introduction to scientific programming in Python | | Spring 2019 |
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|  | Idea Math | |  |
|  | ***Junior Instructor/ Summer Camp Resident Assistant*** | | 2018 - 2019 |
|  | * Enhance elementary school students' problem-solving skills for Mathematics competition. * Created study plans for the class and conducted group activities with students. * Structured activities and events for residential students. | | |
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|  | UNH International Student Organization | |  |
|  | ***Vice President*** | | 2017 - 2018 |
|  | * Collaborated with other organizations to spread culture awareness. * Allocated tasks for volunteers and executive members based on their unique advantages. | | |
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|  | UNH Mathematics Center | |  |
|  | ***Mathematics Center Tutor*** | | 2017- 2018 |
|  | * Clarified Mathematics concepts and assisted students with their homework. * Organized a study plan and helped students to catch up with class content. * Conducted review sessions to help students prepare for quizzes and exams. | | |
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|  | UNH Residential Life | |  |
|  | ***Resident Assistant*** | | 2016 - 2017 |
|  | * Structured social activities, created a safe and supportive environment for 500 residents. * Responsible for proper protocol involving responding to alcohol intoxication and roommate issues. | | |
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| **Publications** | [***RASR: Risk-Averse Soft-Robust MDPs with EVaR and Entropic Risk***](https://arxiv.org/abs/2209.04067)**.** **Jia Lin Hau**, Marek Petrik, Mohammad Ghavamzadeh, Reazul Russel | | ArXiv 2022 |
|  | Currently available Risk Averse MDP algorithm suffers from either computational efficiency or large approximation error. We provided algorithms for ERM and EVaR-MDP and proof that they are accurate, consistent and can be computed efficiently in polynomial time. Our algorithm consistently outperforms other risk averse algorithms over a variety of tabular domains in (VaR, CVaR, EVaR) the risk of test returns. | | |
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| **Workshops** | [***Robust pest management using reinforcement learning***](https://df660d53-db22-4dff-8899-56fa7ce1f7a8.filesusr.com/ugd/729039_08045e06d83f42ec8d5c2841dc362312.pdf)**.** Talha Siddique, **Jia Lin Hau**, Shadi Atallah, Marek Petrik | | RLDM 2019 |
|  | We provided a robust framework to behave risk aversely for domains with limited data. We utilized STAN Bayesian statistical inference along with MCMC sampling to capture prior knowledge, generate posterior datasets, and compute the optimal Robust MDP policy via policy iteration. | | |
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| **Reviewing** | International Conference on Machine Learning 2022 (ICML) | | |
|  | NeurIPS 2021 Workshop on Safe and Robust Control of Uncertain Systems | | |
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| **Projects** | [***Cryptocurrency Forecasting Analytics***](https://df660d53-db22-4dff-8899-56fa7ce1f7a8.filesusr.com/ugd/729039_1c7854460c1a4afe934fea28dce63e3b.pdf)***.*** **Jia Lin Hau**, Gerasimos Mouikis, Spencer Pope | | May 2018 |  |
| Forecasted cryptocurrency with Vector AutoRegression on the log of log-return of the closing price. | | |  |
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| [***MDP on Blackjack***](https://df660d53-db22-4dff-8899-56fa7ce1f7a8.filesusr.com/ugd/729039_8dec113dd0004c57bbc56f772a8b0a17.pdf)***.*** **Jia Lin Hau**, Marek Petrik | | Jul 2018 |  |
|  | Utilized MDP (Value Iteration) to solve for the optimal action (Stand, Hit, Split, Double, or Surrender) for BlackJack with R. | | |  |
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|  | [***WTI -*** *UNH 2017 Fall stock pitch competition (Semifinal)*](https://df660d53-db22-4dff-8899-56fa7ce1f7a8.filesusr.com/ugd/729039_3a409e12dbaf47a592db46ea6de923da.pdf)***.* Jia Lin Hau** | | Oct 2017 |
|  | Selected high profit stock with Advance Technical Indicator. | | |
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|  | [***EMOAI -*** *UNH 2019 Holloway prize competition (Semi Final)*](https://www.youtube.com/watch?v=CrPHfAZ59tE)***.*** Shayan Amani, **Jia Lin Hau**, Chao Chi Cheng, Lekyang Sai | | Apr 2018 |
|  | Deep Learning facial recognition to avoid depression. | | |
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| **Other Involvement** | | |  |
|  | *Manchester City* **Marathon** by SNHU (1st in Co-ed Relay) | | 2016 |
|  | *Seacoast* **Half Marathon** in Portsmouth (4th in division) | | 2015 |
|  | Certified *PADI* Advanced Open Water **Scuba Diver** | | 2013 |
|  | Certified *NAUI* Open Water **Scuba Diver** | | 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 - 2018 |
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| **Skills** | **Programming Languages**: Python, R, MATLAB, Julia, C, C++, SQL | |  |
|  | **Tools**: Git, Excel, JMP, BMC, Tableau | |  |
|  | **Languages**: English, Malay, Mandarin, Cantonese. | |  |
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| **Citizenship** | Malaysia | |  |
| **VISA status** | F-1 student (eligible to work under CPT and 3-years OPT) | |  |
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