I am Jia Lin Hau, currently pursuing my Ph.D. as a Research Assistant at the University of New Hampshire, focusing on risk-sensitive sequential decision-making and reinforcement learning (RL). My research has resulted in two publications at esteemed conferences: AISTATS 2023 and NeurIPS 2023. My third paper is under review in AISTATS 2025 and I am working on a journal paper. These works highlight my deep understanding of the mathematical foundations underpinning ML/RL and demonstrate my ability to contribute to advancing theoretical RL research.

In addition to theoretical contributions, I excel in applying RL and ML techniques to real-world problems. Over the summer, I interned as an AI/Data Science Associate at JPMorgan Chase within the CCB Risk Fraud Modeling team. During this internship, I successfully completed multiple projects:

1) Fraud Prediction Models: I developed and optimized advanced ML models such as Random Forest, XGBoost, LightGBM, CatBoost, and Tab-Transformer. I also explored various categorical encoding techniques (e.g., frequency, target, ordered) and missing value imputation strategies (e.g., mean, extreme values, Random Forest, KNN, LightGBM, Bayesian Ridge) to enhance fraud prediction capabilities.

2) Deep RL for Strategy Optimization: I designed and implemented a minimum viable product using deep RL to identify vulnerabilities in existing fraud detection strategies and ML models. The RL agent simulates fraudster behavior, exposing gaps in the strategy rules, enabling the engineering and strategy teams to refine their models and improve fraud prevention effectiveness.

3) Developed distribution applier packages for internal use: This package utilizes PySpark to compare distribution for datasets with millions of rows and columns to identify whether there exists a distribution shift in any feature of the given datasets.

Beyond ML and RL, I have experience in computer graphics and simulation. One of my ongoing projects focuses on hyper-realistic 3D simulations of chemical diffusion processes to assist chemists in predicting experimental success rates. Using multi-layered particle properties (density and width), my program runs one million Monte Carlo simulations simultaneously. The tool provides detailed 3D visualizations of chemical penetration and calculates success probabilities, empowering chemists to make informed decisions before conducting physical experiments.