GARY QIURUI MA

☎+85262315367 | qmaai@connect.ust.hk | qmaai.github.io | qmaai | gary-ma

EDUCATION

Hong Kong University of Science and Technology — Hong Kong
BEng in Computer Science & BBA in General Business Management — 09/2016 - 06/2021
- GPA: 4.025/4.3 (top 1%)
- Advisor: Prof. Tong Zhang, ML@HKUST

University of Michigan, Ann Arbor — Ann Arbor, USA
Exchange Student — 09/2019 - 12/2019
- GPA: 3.838/4.0
- All courses but one were Postgraduate level: ECON602 Microecon Theory II (1st in class); ECON604 Microecon Theory IV; ECON617 Game Theory; EECS558 Stochastic Control; Math663 Nonlinear Programming

AREA OF RESEARCH INTERESTS

Game Theory, No Regret Dynamics, Multi-agent Learning

PUBLICATION

Evaluating Strategy Exploration in Empirical Game-Theoretic Analysis
Yongzhao Wang*, Qiurui Ma*, Michael Wellman (* indicates equal contribution)
Recent Paper

Learning a Decision Module by Imitating Driver's Control Behaviors (Paper, Project Page, Code)
Junning Huang*, Sirui Xie*, Jiankai Sun, Qiurui Ma, Cunxiao Liu, Bolei Zhou (* indicates equal contribution)
Accepted by Conference on Robot Learning (CoRL) 2020

RESEARCH EXPERIENCE

Hong Kong University of Science and Technology (ML@HKUST) — Hong Kong
Final Year Project Supervised by Prof. Tong Zhang — 09/2020 - present
Identifying Nash Equilibrium in Stochastic Games with Game Theoretic Regret
- Propose an infinite-arm bandit model that identifies the mixed Nash Equilibrium in an unknown stochastic two-player game without minimax oracle
- Observe and analyze reasons for regret matching plus's ability to minimize swap regret despite only guaranteed to minimize external regret theoretically
- Compare and analyze performance differences between no-external-regret algorithms and their converted no-swap regret peers with conversion algorithm from *From External Regret to Internal Regret*

University of Michigan, Ann Arbor (Strategic Reasoning Group) — Ann Arbor, USA
Research Assistant to Prof. Michael Wellman — 10/2019 - 06/2020
Evaluating Strategy Exploration in Empirical Game-Theoretic Analysis
- Observe evaluation inconsistency in the literature when comparing strategy exploration algorithms; propose criterion to resolve the inconsistency and demonstrate its efficacy in synthetic and real-world games
- Propose Minimum Regret Constrained Profile as an optimal evaluation metrics and perspective meta-solver
- Migrate EgtaOnline, a comprehensive Equilibrium solver system, from Flux Cluster to Greatlakes Cluster with Ruby Rails framework (Code)

University of California, Los Angeles (Sriram Lab) — Los Angeles, USA
Research Assistant to Prof. Sriram Sankararaman — 07/2019 - 09/2019
TCA-TWAS: Identification of Cell-Type-Specific Genetic Regulation of Gene Expression for Transcriptome-Wide Association Studies (Poster, Code, Presentation)
- Deconvolute tissue-level gene expression into cell-type specific ones with Tensor Component Analysis
- Perform TWAS on the cell-type specific gene expression on UKBiobank data
- Optimize TWAS parameter estimation procedure to enforce sparsity on SNPs effect sizes
- Devise TWAS data simulation scheme to enforce heritability and genetics correlation (Report)

Sensetime Hong Kong: Hong Kong
Research Intern advised by Sirui Xie 02/2019 – 06/2019
Uncertainty-Aware Model-Based Reinforcement Learning in Autonomous Driving using PILCO

- Train Trust Region Policy Optimization and Generative Adversarial Imitation Learning in Carla simulator with way-point positions as inputs and throttle-break and steer as output. Vehicle is fully capable of navigating the town maps
- Incorporate uncertainty estimation into model-based reinforcement learning. Approximate PILCO with dropouts in Bayesian Neural Network for the model network. Further train a controller whose gradient could flow through the model network. Demonstrate that uncertainty towards less familiar terrain could be evaluated, and vehicle is able to safely navigate the town maps

Hong Kong University of Science and Technology Hong Kong
Undergraduate Research Opportunity Project advised by Prof James Tin-Yau Kwok 02/2018 - 05/2018
Double Q Learning for Long-Short Derivatives Trading (Code)

- Scrap 20 years of oil derivative data from Bloomberg and Yahoo Finance
- Construct a support-resistance line searching and plotting module to analyze stocks data
- Implement double Q learning to long or short the derivative, with its performance beating the benchmark buy-and-hold strategy

SELECTED AWARDS AND HONORS

- HKSAR Government Scholarship 2018 – present
- UCLA CSST Scholarship and Best Presentation Award (among 90 researchers) 08/2019
- HKUST One Million Dollar International Entrepreneurship Competition Winning Award 10/2018
- HSBC/HKU Hong Kong Business Case Competition Championship 06/2018
- HKSAR Government Scholarship Fund – Talent Development Scholarship 2016
- Dean List for every semester

WORK EXPERIENCE

Orient Overseas Container Lines (CargoSmart) Hong Kong
Data Science Intern 06/2018 - 09/2018

- Forecast empty-container daily release-return quantity for ports across the world with time series models; performance surpassed that developed by MSRA for Long Beach Port
- Predict vessel utility and empty container re-stowage with boosting. Attained performance gain upon existing implementation

PricewaterhouseCoopers Hong Kong
Tax Associate Trainee 07/2017 - 09/2017

- Draft Profits Tax Return, Tax Calculation letters for over ten clients; drafted IRD (Inland Revenue Office) letters and answered queries from IRD
- Involve in Transfer Pricing for an ICO, translated client's Master File for Transfer Pricing compliance
- Automate scanning process with Windows Batch Scripting, eliminate manual labor like sorting, grouping and renaming

ADDITIONAL INFORMATION

Additional Extracurricular and Volunteering Experience

- HKUST Engineering School Head Student Ambassador 2017 - present
- Volunteer at Boao Forum of Asia 2018 (One of the most influential conferences in Asia) 04/2018
- HKUST Case Analysis Team (Represents the University to international competitions) 02/2018 - 02/2019
- HKUST Student Ambassador 02/2018 - 02/2019
- Volunteer at Ocivia International Volunteering Project, Sri Lanka 05/2017

Language Skills

- **Mandarin:** Native Speaker
- **English:** IELTS: 8.5/9.0; TOFEL 113/120
- **Cantonese:** fluent