ZUN LI

⋄ Email: lizun@umich.edu   Phone: 1-734-834-3870

EDUCATION

University of Michigan, Ann Arbor   *Sept. 2018 - Now*
Ph.D. in Computer Science and Engineering
Thesis committee: Prof. Michael P. Wellman, Prof. Mingyan Liu, Prof. Satinder Singh, Prof. Yevgeniy Vorobeychik, Dr. Marc Lanctot
Advisor: Prof. Michael P. Wellman
Research: Computational Game Theory and Artificial Intelligence

Shanghai Jiao Tong University   *Sept. 2014 - June 2018*
B.S.E. in Computer Science (IEEE Honored Class)
Advisor: Prof. Fan Wu & Prof. Zhenzhe Zheng
Research: Ad Auctions and Mechanism Design

INTEREST AREAS

- Computational Economics, *e.g.*, computational game theory, auction theory, network economics
- Artificial Intelligence, *e.g.* distributed multiagent systems, search/planning in games, reinforcement learning, statistical learning, deep learning, evolutionary computation, probabilistic graphical models
- Applications, *e.g.* computational advertising, game-playing AI, trading

RESEARCH PAPERS

Conference Publications

[6] **Zun Li**, Marc Lanctot, Kevin McKee, Luke Marris, Ian Gemp, Daniel Hennes, Paul Muller, Kate Larson, Yoram Bachrach, Michael P. Wellman, "Search-Improved Game-Theoretic Multiagent Reinforcement Learning in General and Negotiation Games (Extended Abstract)", *Twenty-Second International Conference on Autonomous Agents and Multiagent Systems* (AAMAS), 2023.

[5] **Zun Li**, Feiran Jia, Aditya Mate, Shahin Jabbari, Mithun Chakraborty, Milind Tambe, Yevgeniy Vorobeychik, "Solving Structured Hierarchical Games Using Differential Backward Induction", *Thirty-Eighth Conference on Uncertainty in Artificial Intelligence (UAI)*, Netherland, 2022

[4] **Zun Li**, Michael P. Wellman, "Evolution Strategies for Approximate Solution of Bayesian Games", *Thirty-Fifth AAAI Conference on Artificial Intelligence (AAAI)*, Virtual Online, 2021

[3] **Zun Li**, Michael P. Wellman, "Structure Learning for Approximate Solution of Many-Player Games", *Thirty-Fourth AAAI Conference on Artificial Intelligence (AAAI)*, New York, 2020

[2] Steven Jecmen, Arunesh Sinha, **Zun Li**, Long Tran-Thanh, "Bounding Regret in Empirical Games", *Thirty-Fourth AAAI Conference on Artificial Intelligence (AAAI)*, New York, 2020

[1] **Zun Li**, Zhenzhe Zheng, Fan Wu, Guihai Chen, "On Designing Optimal Data Purchasing Strategies for Online Ad Auctions", *Seventeenth International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, Stockholm, 2018

Journal Publications

[1] Qinya Li, **Zun Li**, Zhenzhe Zheng, Fan Wu, Shaojie Tang, Zhao Zhang, Guihai Chen, "Capitalize Your Data: Optimal Selling Mechanisms for IoT Data Exchange", *IEEE Transactions on Mobile Computing*, DOI: 10.1109/TMC.2021.3113387, 2021

Manuscript

[2] **Zun Li**, Michael P. Wellman, "A Meta-Game Evaluation Framework for Deep Multi-Agent Reinforcement Learning", *In Submission*

[1] Marc Lanctot, Kate Larson, Yoram Bachrach, Luke Marris, **Zun Li**, Avishkar Bhoopchand, Thomas Anthony, Brian Tanner, Anna Koop, "Evaluating Agents using Social Choice Theory", *In Submission*

WORKING EXPERIENCE

- Research Scientist Intern, DeepMind Alberta, Jun. 2022 – Nov. 2022. Mentor: Dr. Marc Lanctot.
  - Worked on extending AlphaZero-styled RL+search methods to general-sum imperfect information games, by augmenting a deep belief generative model at the root of the search tree
  - Combined the new search technique with a population-based RL training framework and build a decision-time AI bot that can conduct test-time search and Bayesian opponent modeling
  - Implemented a distributed deep multiagent + MCTS system with an actor-learner architecture for each agent using a wide range of tools including JAX, Launchpad, and Reverb
  - Evaluated the bot against humans and achieved human-level results in negotiation games
- Software Engineer Intern, Google Inc, Core Google Display Ad Team, Jun. 2021 – Aug. 2021
  - Analyzed advertisers' behavioral pattern (CTR, CVR, spend-ratio distributions and language match ratio) in Google Display Ad Auction using Google Flume C++ pipeline, GoogleSQL and statistical learning methods

HONORS & REWARDS

Finalist, Automated Negotiation Agent Competition, Oneshot Track@SCM League	*2021*
Student Scholarship	*AAAI 2020, AAMAS 2023, 2018*
Meritorious Winners (Top 15% Worldwide), International Mathematical Contest in Modeling	*2016*
First Class Prize (Top 2% Provincial Level), National Undergraduate Physics Contest	*2015*

CONTRIBUTION TO COMMUNITIES

- Program committee/Reviewer: TMLR, ICLR(24), NeurIPS (23), AAAI(21, 22, 23), AAMAS(23, 24), AAMAS-GAIW(21, 22), UAI(23)
- Invited Talk:
  - Berkeley Multi-Agent Learning Seminar, Jun 30th, 2023, *Combining Tree-Search, Generative Models, and Nash Bargaining Concepts in Game-Theoretic Reinforcement Learning*

- Open source project: I am an active contributor (sometimes an internal reviewer) to DeepMind's multi-agent game library OpenSpiel. I contributed:
  - Algorithms: tabular multi-agent RL algorithms (joint-action Q-learners, WoLF-PHC), Nash averaging, Stackelberg equilibrium solver, MIP-Nash, policy gradient methods in JAX, information-set MCTS in Python and other minor fixes.
  - Game engines (in C++): Dou Dizhu, Crazy Eights.

TEACHING EXPERIENCE

Graduate Student Instructor: EECS 592@UMich, AI Foundations, Fall'21

- Duties include creating homework & exam problems, leading weekly discussion sessions, office hours, and grading management.

PROGRAMMING SKILLS

- Languages: Python, C++, Go, Java, LISP • Tools: Mathematica • Machine learning/Deep learning framework: JAX, Ray, PyTorch, Tensorflow

COURSEWORK

- At UMich:

EECS 545: Machine Learning	EECS 598: Reinforcement Learning	EECS 692: Advanced AI
EECS 586: Algorithms	EECS 591: Distributed Systems	CMPLXSYS 535: Networks
EECS 598: Quantum Computation	MATH 558: Nonlinear ODE	EECS 598: Artificial General Intelligence