

Chuhuan Huang 黄楚焕

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Available window May 15, 2023 to August 11, 2023

Education

Ph.D. in Mathematics @ Johns Hopkins University, starting from 08/2023

M.A. in Applied Mathematics @ University of Southern California, 08/2021 - 05/2023

B.S. in Math – Computer Science @ University of California, San Diego, 08/2016 - 03/2020

Thesis

A Survey on the Computational Hardness of Linear-structured Markov Decision Processes, ongoing,
advised by Professor Steven M. Heilman @ University of Southern California

- we are investigating i) the equivalent condition for computational and statistical gap in Reinforcement learning ii) the relationship between the computational hardness of the linear-structured Markov decision processes and the rank of the transition matrix in the corresponding Markov chain
- we typically need to carefully design a reduction from a linear-structured MDP to a well-known computationally hard problem.

Awards

Graduate Fellowship @ Department of Mathematics, Johns Hopkins University, starting from 08/2023

Graduate Teaching Assistantship w/ stipend and tuition remission @ Department of Mathematics, University of Southern California, 08/2022- 05/2023

Provost Honors of Thurgood Marshall College @ University of California, San Diego, 09/2017- 03/2019

Activities

Playoffs team in Men's Basketball A League, Intramural Sports, UCSD, Captain/Point Guard in 2018, 2019 and 2020 season

Elite 8 in China Amateur Athletic Union National Finals at Beijing, CHN, Captain/Point Guard

32/128 team in 2020 NBA 3X3 at Changsha, Hunan, CHN, Captain/ Point Guard

Internships

Founder Securities, Institute of Financial Technology: Data Analyst Assistant 01/2021- 04/2021

- analyzing the correlations and connections between and within the stock communities, using TensorFlow-implemented convolutional neural networks.

UC San Diego Health: Physical Therapist Assistant 12/2018- 01/2019, 04/2019- 06/2019

- assisting PT to analyze the structural weakness of the patient in rehabilitation phase, for further injuries prevention.

Recent Projects

Chuhuan Huang, [Approaching MAX-CUT thru reinforcement learning](#), supervised by Professor Steven Heilman, 2022

- Approaching MAX-CUT problem by using Actor-Critic algorithm-trained LSTM-based pointer networks and compared with known Semidefinite programming benchmarks, using LSTM framework in Keras.
- Our approach is averagely 33% faster SDP benchmark in training and reaches 86% accuracy of the benchmark.

Chuhuan Huang, [Simulation of MDP and Decision-generating thru Value Iteration](#), 2021

- modelling a stochastic process in a game using the Markov decision process, and implementing the policy generating mechanism through Value Iteration, a dynamic-programming-based algorithm, in Python.

Languages

Mandarin/Chinese	---	Native language
English	---	Daily working language with high proficiency
Python/LaTeX	---	Daily programming language with high proficiency
C++/java/R	---	Proficient degree-level training