Zhiyuan Xiao

zy.xiao.work@outlook.com · (+86) 0754-13822824769 ·

Education

South China University of Technology 2019 – 2023

Bachelor of Natural Science in Mathematics and Applied Mathematics, June 2023

- Majors in Mathematics and Applied Mathematics (Statistics)
- GPA: 3.47 / 4.0
- Major Courses: Mathematical Statistics, Linear Regression, Time Series Analysis, Stochastic Processes, Bayesian Statistics, Reinforcement Learning, Machine Learning, Data Mining, Numerical Optimization

Publications

X. Zhang, **Z. Xiao**, Q. Zhang, and W. Pan, "SYNLOCO: Synthesizing central pattern generator and reinforcement learning for quadruped locomotion" 2023.10

- Status: submitted to ICRA 2024 (under review)
- Webpage: https://synloco.github.io/
- DOI: https://doi.org/10.48550/arXiv.2310.06606

Awards and Honors

2023

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Recent Projects

SYNLOCO: Synthesizing Central Pattern Generator and Reinforcement Learning for Quadruped Locomotion 2023.07 – 2023.09

- Introduced performance-driven reward metrics that augment the learning of locomotion control and conducted simulation experiments in Isaac Gym.
- Conducted physical experiments and empirical evaluation on Unitree GO1 robot under varied conditions – including distinct velocities, terrains, and payload capacities – to showcase SYNLOCO's ability to produce consistent and clear-footed gaits across diverse scenarios.

EqPtStab: Matlab-based Stability Analysis of Equilibrium Points of Planar Autonomous Systems 2023.03 – 2023.04

- Developed a Matlab-based app EqPtStab to analyze the stability of equilibrium points of any given planar system, visualize the vector field, and visualize the region of attraction via the Krasovskii approach.
- Made a contribution to the MathWorks Community by fixing some bugs in Pplane8, a Matlab software program for the interactive analysis of ordinary differential equations, enabling it to run smoothly on Matlab R2018b.

Option Pricing 2022.03 – 2022.05

- Priced standard European and American options and weak path-dependence options via binary tree method.
- Priced strong path-dependent European put options via Monte Carlo numerical simulation method.
- Derived the partial differential equation of the European Up-and-out option and priced the option via the finite difference method.

Research Experience

Sun Yat-sen University, School of Aeronautics and Astronautics Shenzhen, Guangdong

Research Assistant 2023.07 – now