Liang Zhao

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REASERCH INTEREST

Intelligent Decision-Making; Path Planning; Reinforcement Learning; Optimizing Algorithms; Data Analytics

EDUCATION

Changsha University of Science and Technology(CSUST) Sep 2021 - Jun 2024

Master of Science (MSc) in Statistics

GPA:3.7/4 (93/100) **Ranking: top 3%**

Core Courses: Advanced Mathematical Statistics(95); Data mining and machine learning(93); Regression analysis and linear modeling(91); Advanced Statistical calculations(97); Experimental design and analysis(95)

Changsha University of Science and Technology(CSUST) Oct 2018 - Jun 2021

Bachelor of Science (BSc) in Statistics

GPA:3.52/4 (89/100) **Ranking: top 1%**

Core Modules:Random Processes(90); Time series(95); Mathematical statistics(90); Multivariate statistics(85); Regression analysis(83); Experimental design(93); Sample surveys(96), Statistical calculations(96)

LanZhou University(LZU)(transferred) Sep 2016 - Dec 2017

Completed 63 credits in Pure Mathematics

PUBLICATIONS

[1] Zhu,EW., **Liang Z.**, et al. Research on Small Object Detection Based on MDS-YOLO Model[J].Journal of Hunan University (Natural Sciences),2024,51(12):78-86.DOI:10.16339/j.cnki.hdxbzkb.2024285.

[2] Zhu, E., Deng, Z., Liu, X., & **Liang, Z.** On the sieve M-estimation for a special bilinear time series model with time-functional variance noises. Communications in Statistics-Theory and Methods, 2025, 54(7), 2067-2091.

[3] Liang, X., Huang, Y., Liu, W., Zhu, H., **Liang, Z.**, & Chen, L. (2022, July). TRICAN: Multi-modal hateful memes detection with triplet-relation information cross-attention network. In 2022 International Joint Conference on Neural Networks (IJCNN) (pp. 1-8). IEEE.

RESEARCH EXPERIENCE

Research on Path Planning of Low Speed Autonomous Underwater Vehicles Based on Reinforcement Learning Oct 2021 - Apr 2024

Provincial-Level Graduate Innovation Project [Principal Investigator]

- Adopted a path searching model that utilizes a searching algorithm to accumulate initial samples and an improved Vanilla Policy Gradient (VPG) algorithm as an optimization method
- Incorporated probabilistic random exploration actions to facilitate deep interaction with the environment
- Tested the model in 37 simulated scenarios, consistently surpassing the Baseline algorithm

Analysis of Factors Influencing Economic Development in Hunan Province Based on Quantile Regression Oct 2019 - Apr 2021

college students Innovation Project [Principal Investigator]

- Utilized quantile regression algorithms to assess Hunan's economic growth, delivering the project on schedule.

HONORS & AWARDS

- Outstanding Master's Thesis 2024
- National Graduate Statistical Modeling Competition [Provincial First Prize, National Third Prize] 2023
- First Class Scholarship, Individual Scholarship 2021; 2022
- National College Student Mathematical Modeling Competition [Provincial First Prize, National Second Prize] 2022
- Provincial Outstanding Graduate, [Hunan Province] 2021
- National College Student Mathematics Competition[Provincial First Prize,National Third Prize] 2019
- First-Class Scholarship 2018; 2019;2020
- School's “Three Good” Students 2018;2019

WORKING EXPERIENCES

- Hunan Institute of Engineering Position: Trainee Lecturer Oct 2024 - now
  Teaching courses：Advanced Math, Linear Algebra
- China Datang Corporation Ltd. Position: Algorithm engineer Jul 2024 - Oct 2024

SKILLS

- Matlab, Python (Pytorch, TensorFlow), R, SPSS data processing
- Reinforcement learning algorithms (Gym environment establishment, DQN, VPG, etc.)
- Mathematical modeling: Proficient in converting problems into mathematical models