ZIHUI ZHAO

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Tel: +86-188-1110-5705

EDUCATION BACKGROUND

Beihang University **2019.09–now**

- Major: Physics
- Minor: Applied Mathematics
- GPA: 91.0287
- IELTS: 7.5
- GRE: 324 (Verbal Reasoning-155 Quantitative Reasoning-169 Analytical Writing-3.5)

RESEARCH EXPERIENCE

Task Scheduling in Cloud Environment Based on Deep Reinforcement Learning **ongoing**

(Accepted by ICSOC 2022 meeting)

Mentoring Professor: Prof. Xiaoyu Shi, Chinese Academy of Sciences

- Used the Deep Deterministic Policy Gradient (DDPG) algorithm to realize the virtual machine computing resource scheduling for real task flow in the cloud computing environment.
- Optimized the task response time and total operating cost, which achieved higher performance than the traditional algorithm and the Deep Q Network (DQN) algorithm.

Nonlocality Without Device Independent Randomness **2022.06-ongoing**

Mentoring Professor: Prof. Ravishankar Ramanathan The University of Hong Kong

- Used the software "polymake" to characterize the polytope, i.e., generate the facets of the polytope and study the quantum violations.
- Study the simplest Bell scenario to see that this phenomenon of "Bell inequality violation without randomness" is not possible unless we go to many parties and settings like we have done.
- Study the idea of "Partially Deterministic Polytopes".

Quantum Software: Grover's Algorithm in IBM Qiskit **2021.06-2021.08**

NC State University GEARS Summer Research Project Mentoring Professor: Prof. Huiyang Zhou

- Used Qiskit, the IBM quantum computing platform, to implement the basic quantum algorithms.
- Applied the Grover algorithm to solve the max cut problem and map color problem, minimized the qubit resources of the call through optimization for specific application scenarios.

Prediction of System Temperature Distribution Based on Machine Learning **2021.10- 2021.12**

Mentoring Professor: Prof. Xingkun Man

- For elliptical rings and hollow ellipsoids of any shape, carried out neural network training according to the data of sampling models to predict the temperature distribution of each point in the system based on the temperature of its inner and outer edges.
- The results showed that the accuracy had reached the level of traditional methods , and the

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speed had also been greatly improved.

The Motion of Multiple Droplets **2020.12-2021.03**

Mentoring Professor: Prof. Xingkun Man

- Simulated the evolution of the droplet on the substrate caused by evaporation using python, and calculated the evolution of the droplet volume and the angle between the edge and the plane over time.
- Used python to simulate the evolution of the movement of multiple droplets on the substrate due to the vapor concentration gradient, and realized the evolution prediction of the arrangement of multiple droplets.

INTERNSHIP

Pi2Star Technology Ltd.

Instruction Aid Tool Development **2021.07-2021.08**

- Built the chip instruction compilation algorithm and developed the interactive instruction compilation software based on PyQt5.
- Compiled and decoded the instructions according to different instruction protocols, and allowed developers to modify the decoded instructions immediately and compile them according to specific requirements.

Image Classification Based on SIFT Features and SVM **2021.07-2021.08**

- Trained the Support Vector Machine (SVM) to recognize the corresponding objects in the satellite cloud image through the transport ship and aircraft database in the satellite cloud image.
- Used Scale-Invariant Feature Transform (SIFT) algorithm to extract image features, and then used word frequency to train SVM.

HONORS & AWARDS

Second prize, the 31st Beijing University Mathematics Competition	2020.12
Second prize, the 12th National College Students Mathematics Competition	2020.12
Fifth place, Baseball and Softball Beijing Game (Baseball Group)	2020.10
Forth place, Baseball and Softball Beijing Game (Baseball Group)	2021.06
First prize, School-level Outstanding Athlete Scholarship	2020.11
First prize, School-level Study Outstanding Scholarship	2020.11

OTHERS

Computer skills: C, C++, Python, Pytorch, Matlab, R, orange

School activities: Q&A lecturer, Baseball and Softball Association