Zhiping WANG

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Education

School of Physical Science and Technology, Lanzhou University(Project 985) *Lanzhou, China*
National Training Base for Research and Teaching Talents in Basic Science Disciplines *Sep 2020 – Present*
***Major**: Physics (Bachelor of Science degree expected in July 2024)*
***GPA**: 84.6/100, **Ranking**: 4/20*
***Major courses:**Fourier optics(89), Computational Physics (100), Methods of Mathematical Physics II (99), Optoelectronic Technology and Applications(94), AI and Big Data(97), Theoretical Mechanics, Statistical Physics, Electrodynamics, Quantum Mechanics, Ferro Magnetism, Magnetic Materials and Measurements, Linear Algebra.*

Research/Projects Experience

Here are several representative ongoing or completed research. For more information, please visit my personal website.

Research on Fast Fourier Ptychographic Based on Illumination Control *Aug 2023–present*
Research Internship, Supervisor: Dr. An Pan, Pioneering Interdiscipline Center of CAS

- Studied articles related to the principles of Fourier Ptychographic Microscopy and actively participated in experiments to gain insights into the details.
- Performed numerical simulations to assess the effect of various led on image restoration, explored relevant literature and theory to seek support for reducing overlap rates; experiment still in the planning.

Exploring the Performance of Coherent Ising Machine in weighted NP-Hard Problems *Dec 2022–Aug 2023*
Independent Study, Advisor: Jie Zhu, School of ECE, Purdue University

- Replicated prior research using an Optical Parametric Oscillators (OPO)-based coherent Ising machine for numerical simulations, utilizing theoretical equations, and applying the Runge-Kutta method to solve differential equations in Python.
- Utilized coherent Ising machine to address number partitioning problems and MAX-CUT in unweighted graphs, for MAX-CUT problem, the success possibility of the Ising machine approach was higher.
- Applied the MaxCut problem to weighted graphs and found similar trends, suggesting that the success possibility might be associated with the weights.

Reproduction of Reverse Design of Nano-Optical Structures By Neural Networks *Apr 2022–Mar 2023*
Research Assistant, Advisor: Dr. Hao Jia, Lanzhou University & KAUST

- Carried out literature research on the reverse design methods for optoelectronics devices and their applications.
- Created an optical system employing a tandem architecture that combines forward modeling and inverse design based on the work of Yu Zongfu's team.
- Coded in Python using TensorFlow to capture the trends mentioned in the paper using a small sample dataset.

Honors and Awards

Outstanding Student Scholarship		*2022*
China Undergraduate Physics Tournament(Northwest Region)	Second Prize	*2022*
China Undergraduate Physics Tournament(Northwest Region)	First Prize	*2021*

Publication

Preprints: *Performance of Coherent Ising Machine on weighted NP-hard Problems*

Teaching Experience

School of Physical Science and Technology, Lanzhou University *Lanzhou, China*
Teaching Assistant for the Computational Physics Class *September 2021 – January 2022*

- Reviewed and graded student assignments, provided constructive feedback to students, and helped teachers with ongoing evaluation.
- Assisted students with course and answered questions during regular office hours I held or in the class.