Xing Gao

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EDUCATION

Wuhan University, Wuhan, China   09/2019 — 06/2023
Bachelor of Science in Physic   Overall GPA: 3.23
Major in Physics
University of California, Santa Barbara, CA, USA   09/2022 — 06/2023
Core courses: Many-body system, Condensed Matter Physics, Behavioral Neuroscience
Graduate Academic Preparation Program
Oxford University (summer school), Online   06/2020 — 07/2020
Course: Academic Skills and Research

RESEARCH EXPERIENCE

Volunteer works in SLAB
Advisor: Professor Spencer Lavere Smith, College of Engineering, UCSB

- Generating mimic two-photon images similar to actual scence from Diesel2P by Neural anatomy and optical microscopy (NAOMi) Simulation
- Assisting the constructions of the optical system

Stimulation of skyrmions in different materials by GPU-accelerated micromagnetic simulation program
Advisor: Professor Li Vanessa Zhang, School of Physics and Technology, WHU   12/2022-05/2023

- Find the potential 2D ferromagnetic material on which skyrmions and other spin configurations can be created by applying external conditions
- Transfer the parameters used in micromagnetic stimulation from the results of the density theory or the first principle calculations
- Use Mumax3 in Go language to simulate skyrmion phenomenons
- Accomplish Senior Thesis on an overview of advanced skyrmions in 2D WdV material

Numerical Recipes in Physics and Astronomy
Advisor: Professor Yuansheng Jun, School of Physics and Technology, WHU   09/2021 - 01/2022

- Wrote a program to generate the series of Bessel functions by using the recurrence relation and sum identity
- Applied Python to implement the Fast Fourier Transform (FFT) of complex data
- Solved the time-dependent partial differential equations for classical or quantum physics by Python

PROJECTS

Simulation of the Fermi-Pasta-Ulam-Tsingou model
Advisor: Professor Cai Hao, School of Physics and Technology, WHU   09/2021 - 01/2022

- Completed the simulation of the Fermi-Pasta-Ulam-Tsingou model in molecular dynamics by the Verlet method using Lisp language
- Showing the motion of molecules in the form of animation by Lisp language
- Simulated energy distribution of a few of the lowest modes of an FPUT system
- Implemented the Shor algorithm on a classical computer by Python

Analyzed the Horse Colic Data Set with Machine Learning
Advisor: Professor Yuanyuan Zeng, Electronic Information School, WHU   09/2021 - 01/2022

- Completed examples of classification, forecasting numeric values with regression, unsupervised learning in *Machine Learning in Action*
- Improved the accuracy of predicting mortality in sick horses through the combined use of the methods(decision tree, adaboost) from about 40% to 89.7%

ACTIVITIES

COMAP's Mathematical Contest in Modeling (MCM)
Advisor: Professor Zhuangchu Luo, School of Mathematics and Statistics, WHU   09/2021 - 01/2022

- Completed the simulation of the Fermi-Pasta-Ulam-Tsingou model in molecular dynamics by the Verlet method using Lisp language
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SKILLS

- Python, C/C++, Matlab to help with courses and research works
- Building personal website by Html, CSS