HanHoupu

Personal Information

Email: hanhoupu@msu.edu | Phone: +1 (517) 302- 8744 or (+86) 18199123756

Personal website: https://hanhoupu.github.io/

Education

Michigan State University, East Lansing, Mi, US

Bachelor of Science in Physics, Minor: Economics | Expected Graduation: May 2025

GPA: 3.32/4.0 | Dean's List:Spring 2023, Summer 2024

Academic Projects

Fabrication of Type-I Superconductors via Chemical Vapor Deposition (CVD)

March 2024 - May 2024

Fabricated SIS and SSS thin films using a CVD system and verified SSS superconducting properties via four-point probe measurements (Tc ~7.2 K).

Conducted quantum tunneling experiments on SIS junctions; tunneling effects were not observed, prompting process refinements.

Gained experience in thin-film fabrication, resistivity measurements, and troubleshooting experimental setups.

Experimental Investigation of Optical Pumping in Rubidium

January 2024 - March 2024

Performed optical pumping experiments on rubidium atoms with magnetic shielding to eliminate Earth's magnetic field.

Verified theoretical predictions of spin dynamics by observing expected signal patterns on an oscilloscope.

Acquired experience in experimental optimization, magnetic field calibration, and data acquisition.

Supported laboratory setup and mechanical assembly for ongoing research projects

May 2024 – May 2025

Designed and constructed a precision-adjustable support frame for a vacuum chamber, enabling fine alignment along the X, Y, and Z axes to accommodate experimental constraints.

Designed and built two custom laser table frames using SolidWorks; integrated procured components to meet experimental requirements.

Simulated magnetic field distributions of magnet assemblies in COMSOL Multiphysics, gaining proficiency in finite element analysis and parameterized modeling.

Contributed to the integration and alignment of experimental apparatus, ensuring mechanical stability and compatibility with lab setups.

Developed hands-on skills in CAD modeling, mechanical assembly, and magnetic simulation techniques.

Federal Reserve University Challenge

January 2024 – May 2025

Researched macroeconomic indicators (inflation, GDP, unemployment) to support monetary policy analysis.

Analyzed data to evaluate real-world impacts of Federal Reserve policies and proposed actionable strategies.

Collaborated on a team report aligning with Federal Reserve objectives, contributing research and policy insights.

Skills

Programming Languages: Python, R

Software Tools: COMSOL, SolidWorks

Languages: Fluent in Mandarin Chinese and English

Programming Projects

Bitcoin Price Forecasting with LSTM

Python, TensorFlow, Keras, yfinance, Matplotlib

Designed a multivariate LSTM model using BTC and macro indicators (S&P 500, GLD) to explore short-term price movement patterns. Applied data normalization, sliding window preprocessing, and visualization to assess model behavior and limitations.