LOGAN GE

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EDUCATION

University of Chicago Expected Jun, 2023
B.A. in Physics, Honors | GPA 3.74/4.00

- **Relevant Coursework**: Solid State Physics, Adv. Quantum Mechanics, Statistical & Thermal Physics, Computational Physics, Machine Learning, Statistical Models & Methods, Quantitative Portfolio Management & Algorithmic Trading.
- **Honors & Awards**: Honors Degree, James Franck Institute Research Fellowship, Metcalf Fellowship.

EXPERIENCE

Kang Group at the University of Chicago October 2021 - Present
Research Assistant *Chicago, IL*

- Developed and deployed scientific simulation program in Python to model quantum Hall condensed matter systems, utilizing exact diagonalization and numerical linear algebra algorithms with Numpy and Scipy.
- Implemented numerical modelling pipeline that consolidated data collection/generation, theoretical modelling, and information visualization, reducing time spent coding by lab members and increasing lab research efficiency by 60%
- Integrated multicore parallel computing capabilities through Linux bash scripts, increasing simulation speed by 150% and enabling the analysis of 40% larger data sets.
- **Honors Thesis**: *Exact diagonalization of the $\nu = 5/2$ FQHE state and machine learning study of disordered Hamiltonian.*
  - Spearheaded independent honors thesis project conducting computational numerical research of the effectiveness of the Pfaffian class wave functions for the $\nu = 5/2$ fractional quantum Hall effect.
  - Creating artificial neural network-based phase detection program using TensorFlow and Keras for disordered FQHE.
  - Presented several projects and numerical results to leading experts and University of Chicago faculty.

James Franck Institute June 2022 - September 2022
Summer Undergraduate Researcher *Chicago, IL*

- Proposed and implemented more efficient simulation framework using advanced mathematical physics by exploiting geometric symmetries, capable of simulating systems 67% more complex.
- Implemented an experimental data verification Python script using Linux that improved efficiency by 50%, enabling the lab group to analyze data more effectively.
- Configured efficient experimental layout and improved ultra-high vacuum efficiency in collaboration with faculty.

PROJECTS AND PROFESSIONAL DEVELOPMENT

Boston Consulting Group March 2023
Data Science & Advanced Analytics Virtual Experience Participant at The Forage

- Identified key business insights for client needs by performing EDA and feature engineering in BCG's simulated project.
- Delivered forecast analysis for customer churn savings using random forest models with scikit-learn, achieved 91% target accuracy in identifying potential churned users.

Tomography Data Processing and Image Reconstruction April 2022 - May 2022

- Designed and built discrete particle data collection trials for two dimension radioactive tomography imaging.
- Integrated statistical and data fitting models that pinpointed feature locations with 500% higher accuracy.
- Performed raw data processing, spatial image reconstruction, and data visualization that significantly improved resolution by 105% in Python.

Mean Variance Portfolio Management August 2021

- Led a team of 4 undergraduate students to design and develop a multifunctional portfolio management tool.
- Implemented portfolio management tool for risk management and asset allocation strategies such as regression toolkit for multivariate regression analysis and forecasting with data visualization capabilities.

LEADERSHIP

The Campanile Project July 2020 - July 2021
Board Member

- Coordinated collaborative effort between six students to create volunteer platform resulting in increased accessibility of program outreach by ten folds at 75% cost savings compared to the voluntourism industry.
- Installed database system to house over 500 volunteer opportunity listings, improved efficiency by 300%.

SKILLS

Programming and Technology	Python(Pandas, Scikit-Learn, TensorFlow, Keras), R Studios, SQL, Fortran, Linux
Algorithms and Modeling	Supervised machine learning, Regression analysis, Numerical linear algebra
Interests	Electric Guitar, Skiing, Formula 1, Chicago Bulls