

# 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, General Relativity & Cosmology, Computational Physics, Machine Learning, Experimental Physics, Statistical Models & Methods, Abstract Linear Algebra, 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.
- Integrated multicore parallel computing capabilities through Linux bash scripts, increasing simulation speed by 150% and enabling the analysis of larger data sets.
- **Notable Projects**
  - **ANN Disordered Phase Transition** Apr 2023
    - \* Preprocessed and initialized model dataset for disordered pfaffian state in condensed matter physics.
    - \* Training artificial neural network using TensorFlow to predict properties and phase transitions of disordered fractional quantum Hall states for highly accurate experimental conditions.
  - **Thesis: Numerical study of the  $\nu = 5/2$  state and favourability of the Moore-Read wave function**
    - \* 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.
    - \* Presented projects and numerical results to leading experts and University of Chicago faculty.

### James Franck Institute

June 2022 - September 2022

*Summer Undergraduate Researcher*

*Chicago, IL*

- 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.
- Configured efficient experimental layout and improved ultra-high vacuum efficiency in collaboration with faculty.

## PROJECTS

### 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 for raw data reconstruction.

### Mean Variance Portfolio Management

August 2021

- Led team of 4 students to develop a multifunctional portfolio management tool and analyze portfolio performance.
- Conducted portfolio analysis for risk management and asset allocation strategies using multivariate regression analysis and forecasting with data visualization.

## LEADERSHIP 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.

### 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 Languages

Python, R Studios, Fortran, Linux shell scripting, COMSOL

### Technologies

SQL, TensorFlow, Scikit-Learn, SciPy, Pandas/NumPy, Matplotlib, Git

### Interests

Electric Guitar, Skiing, F1, Chicago Bulls