# LOGAN GE

+1(312) 826-9860 ◇ Chicago, IL ◇ gelogan@uchicago.edu ◇ github.com/geloganu

## EDUCATION

**University of Chicago** Expected Jun, 2023

B.A. in Physics, Honors | Major GPA 3.84/4.00 | Cumulative GPA 3.74/4.00

**Relevant Coursework**: Machine Learning, Statistical Models & Methods, Computational Physics, Abstract Linear Algebra, Adv. Quantum Mechanics, Statistical Physics, Solid State Physics, Quantitative Portfolio Management & Algorithmic Trading.

**Honors Thesis**: Numerical Exact Diagonalization and Entanglement Spectrum Study of the $\nu = 5/2$ State under Gaussian Background Disorder (supervised by Prof. Woowon Kang).

## EXPERIENCE

**Kang Group at the University of Chicago** October 2021 - Present

*Computational Research Assistant* *Chicago, IL*

- Developed and deployed scientific simulation program to model quantum Hall condensed matter systems, utilizing state-of-the-art exact diagonalization techniques and algorithms in Python and Julia, adopted as lab group simulation method.
- Integrated multicore parallel computing capabilities through Linux bash scripting, increasing simulation speed by 150%.
- Implemented standardized data visualization templates for energy and entanglement spectrums graphs for lab group.
- Collaborated with a cross-functional team of researchers, including faculty, and delivered project-specific functionality.

**James Franck Institute** June 2022 - September 2022

*Summer Undergraduate Researcher* *Chicago, IL*

- Overhauled outdated programs from Fortran to Python and implemented numerical modeling pipeline that consolidated data generation, preprocessing, and modeling, streamlining experimental trials and data analysis times by up to 40%.
- Configured efficient experimental layout in collaboration with faculty and installed ultra-high vacuum and dilution fridge.

**S.Y. Industrial Designs** July 2021 - August 2021

*Product Development Intern* *Vancouver, Canada (Remote)*

- Conducted market research to identify consumer preferences and trends in China, Taiwan, and Japan to develop and launch a new product line of teaware across the three countries with a revenue of $5 million USD within the first year.
- Identified and negotiated with more cost-efficient production sites for product packaging, facilitating cost savings of $250K.

## PROJECTS

**Neural Network-Based Disordered Phase Transition Detector** April 2023 - May 2023

- Preprocessed and initialized model dataset for disordered pfaffian state simulating highly accurate experimental conditions.
- Training artificial neural network using TensorFlow/Keras to predict properties and phase transitions of topological states.

**NBA Over/Under Prediction** March 2023

- Developed a Python-based API scraping tool using Requests library for live/historical NBA statistics and bookkeeper odds.
- Implemented a data cleaning and preprocessing pipeline ensuring consistency of collected data into SQLite3 database.
- Trained deep neural network and random forest classifier to predict O/U outcomes, achieved 62% with backtesting script.

**Mean Variance Portfolio Management** August 2021

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

## LEADERSHIP AND PROFESSIONAL DEVELOPMENT

**Boston Consulting Group** March 2023

*Data Science & Advanced Analytics Virtual Experience Participant at The Forage*

- Participated in BCG's simulated project at the Forage, identified key business insights for client needs through data analysis.
- Delivered forecast analysis with random forest model in Scikit-Learn, achieved 91% accuracy in identifying churned users.

**The Campanile Project** July 2020 - January 2022

*Board Member*

- Coordinated collaborative effort between six undergraduate students to create a volunteer platform resulting in increased accessibility of volunteer program outreach by ten folds at 75% cost savings compared to the voluntourism industry.
- Conducted client outreach to identify hundreds of potential partner organizations and establish long term relationships.

## SKILLS

| | |
|---|---|
| **Programming Languages** | Python, Fortran, Julia, R Studios, Linux, COMSOL |
| **Technologies** | SQLite, TensorFlow/Keras, Scikit-Learn, SciPy, Pandas/NumPy, Matplotlib, Git |
| **Interests** | Electric Guitar, Skiing, F1, Chicago Bulls |