

# Yuxuan Jin

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## EDUCATION

<b>University of Cambridge</b> <i>PhD changed to MPhil in Physics</i> <i>Supervisor: Prof. Suchitra Sebastian</i> <i>Research Focus: Quantum Oscillations in Unconventional Insulators</i>	Cambridge, United Kingdom 10/2022-09/2025
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<b>University of California, Santa Barbara</b> <i>Bachelor of Science in Physics</i> GPA: 3.75/4.00	Santa Barbara, California 09/2018-12/2021
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## INTERNSHIP

<b>Lingjun Investment</b> <i>Quantitative Research Intern – Machine Learning Track</i> <ul style="list-style-type: none"><li>Alpha combo with time series deep learning models (e.g. Transformer, GRU), achieving a backtested annualized excess return of 25% from 2019 to 2022, with low correlation to cross-sectional model signals.</li><li>Designed a dedicated framework for feature selection and data augmentation based on state-of-the-art methods.</li><li>Working on integrating time series and cross-sectional signals to further improve predicted returns.</li></ul>	Shanghai, China 01/2025-present
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<b>Lingjun Investment</b> <i>Quantitative Research Intern – Machine Learning Track</i> <ul style="list-style-type: none"><li>Alpha combo with cross sectional models (e.g. LGBM, DNN), achieving a backtested annualized excess return exceeding 30% from 2019 to 2022.</li><li>Tested if deep learning models (e.g. GNNs) can learn different mathematical operators (in other words, functions written by the Alpha team)</li><li>Reproduce MSCI risk factors.</li></ul>	Shanghai, China 05/2024-09/2024
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<b>Russel Robust Investment</b> <i>Quantitative Research Intern – Machine Learning Track</i> <ul style="list-style-type: none"><li>Developed a modular framework using NumPy for quantifying factorized returns (IC, CIR, turnover), based on high-frequency data, improving turnover efficiency and dynamic factor weight adjustments</li><li>Utilize genetic algorithm for feature enhancement.</li><li>Designed a deep learning model for validating 30 high-frequency features, enhancing model generalization and performance, with IC increasing by 0.4% and annual returns by 2.73.</li></ul>	Shenzhen, China 02/2024-05/2024
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## RESEARCH EXPERIENCE

<b>Multimodal large language model to tackle sarcastic content in image</b> <i>Research Team Leader</i> <ul style="list-style-type: none"><li>Created a task-specific dataset using GPT-4o.</li><li>Added customized MOE modules into LLaVA for task-specific training (parameter-efficient finetuning with LoRA).</li><li>Baseline comparison and ablation study.</li></ul>	Shanghai, China 08/2024-present
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<b>Wearable intelligent throat enables natural speech in stroke patients with dysarthria</b> <i>Research Assistant</i> <ul style="list-style-type: none"><li>Used model distillation module that enables the creation of efficient models while maintaining performance.</li><li>Created a unified framework for deep learning models, supporting baseline and advanced time-series classification models based on state-of-the-art techniques.</li><li>Integrated fine-tuning and transfer learning capabilities, allowing for minimal code modification and seamless model adaptation</li></ul>	Cambridge, United Kingdom 07/2024-11/2024
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A deep learning-enabled smart garment for versatile sleep behaviour monitoring

Research Assistant

Cambridge, United Kingdom

01/2024-06/2024

- Developed a novel deep learning model for accurately classifying sleep patterns using vibration-based electrical signals collected from patients' throats.
- Preprocessed complex time-series data, extracting key features for model input, resulting in improved signal interpretation.
- Leveraged cutting-edge architectures such as BiLSTM/Transformer/CNN to enhance feature extraction and classification accuracy.
- Achieved high classification accuracy (>95%) through extensive model tuning and optimization.

Quantum Oscillations in Unconventional Insulators

Research Team Member

Cambridge, United Kingdom

10/2022-11/2023

- Performed Capacitive Torque Magnetometry under extremely low temperatures and high magnetic fields (all experiments were carried out in the National High Magnetic Field Laboratory located in Tallahassee, USA).
- Extracted quantum oscillation signals from high field data, and analyzed them with multiple mathematical approaches, including LK fit, Landau index, and DFT to understand the geometry of the charge-neutral Fermi Surface (Python/OriginLab as main tools for analyzing data).
- Performed Heat capacity measurement on strongly correlated insulators to observe the existence of charge-neutral quasi-particles.
- Built a dedicated probe for capacitive torque measurement.
- Used Chemical Vapor Transport method to grow high-quality unconventional insulators (mainly FeSb2)

Thermodynamic Properties of High Entropy Alloy (Supervisor: Dr. Jamie Marian)

Research Assistant

Los Angeles, California

09/2021-03/2022

- Applied atomistic simulations to study the thermodynamic properties of Nb-Ta-Mo-W alloys
- Designed a molecular dynamic route, i.e., verlet integrator, fit a cluster expansion Hamiltonian, and run Monte Carlo situations of alloy stability

PUBLICATIONS

[1] Tang, Chenyu, et al. “Wearable intelligent throat enables natural speech in stroke patients with dysarthria.” Nature Machine Intelligence: Under Review

[2] Tang, Chenyu, et al. “A deep learning-enabled smart garment for accurate and versatile sleep conditions monitoring in daily life.” Proceedings of the National Academy of Sciences: Published

ACHIEVEMENTS/AWARDS

- Kaggle Silver Medal: HMS – Harmful Brain Activity Classification

04/2024

• Dean’s Honor, UCSB College of Letters and Science

04/2021

EXTRACURRICULAR EXPERIENCE

Stanford Cosmology Summer Camp

Participant

Palo Alto, California

06/2017-08/2017

- Learned basic knowledge of cosmic background radiation
- Gave the final presentation for an independent topic, i.e., Lorentz Transformation and Special Relativity

TECHNICAL PROFICIENCIES

- Language: Chinese (native) & English (Proficient)
- Computer: Python, Pytorch, TensorFlow, SKlearn, LGBM