Yanxin Chen

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Education

Johns Hopkins University — Washington D.C., United States
Master of Science in Applied Economics — *Aug. 2023 – Aug. 2024*

- Key Coursework: Time Series Forecasting, Cost-Benefit Analysis, Financial Management, Statistics

Donghua University — Shanghai, China
Bachelor of Management in Accounting: GPA:3.9/4.0 — *Sept. 2018 – Jun. 2022*

- Supervised by Xiaokang Zhao
- Honors: Excellent Graduate (2022); Excellent Academic Performance (2019-2020); First-class Scholarship (2019-2020; 2018-2019); Outstanding Student (2018-2019); University Scholarship (2018-2019)

Research Experience

Zhejiang University School of Medicine — Apr. 2025 - Present
Research Assistant, Computational Neuroscience Lab (Advisor: Xiongjie Yu) — *Hangzhou, China*

- Modeled cortical circuits for auditory temporal integration using delay-based synapses in BrainPy
- Simulated and analyzed offset response behaviors using LIF neurons with PSTH and raster evaluation
- Designed deep neural network models (CNN-LSTM) to classify attention and fatigue levels from EEG datasets
- Performed STFT- and wavelet-based feature extraction to improve classification accuracy ($> 85\%$)
- Developed data pipelines for multi-channel EEG analysis using PyTorch, and NumPy
- Created visualizations and automated analysis workflows to support experimental and clinical data studies

Carnegie Mellon University Department of Mathematical Sciences — Jun. 2025 – Present
Research Assistant (Advisor: Shlomo Ta'asan) — *Online*

- Conducting ICU-based medical time-series modeling for early detection of sepsis using a Kaggle dataset (45,000 samples, 40+ clinical features)
- Developed a full machine learning pipeline for preprocessing, including temporal alignment, missing value imputation, and outlier handling
- Built LSTM and XGBoost models to classify high-risk patients up to 6 hours before onset; improved recall through sequential feature engineering
- Extracted features such as temporal gradients, moving statistics, and frequency-domain descriptors to enhance model sensitivity
- Validated models using stratified cross-validation, AUC optimization, and confusion matrix analysis
- Created interactive visualizations for data exploration and model interpretation

University of Illinois Urbana-Champaign NCSA — Jan. 2024 – Jun. 2024
Research Assistant — *Online*

- Developed a deep learning-based analytical pipeline (SpiceMix + Louvain/GMM) to identify latent metagenes and cluster cell types from spatial transcriptomics data.
- Conducted alignment of ST slices using LDDMM and restored 3D tissue structures via interpolation (linear, spline methods) and rasterization-based complexity reduction.
- Validated clustering results with manual annotation using STdeconvolve and correlation analysis on Beta/Theta matrices.
- Constructed 3D spatial neighborhoods and performed statistical hotspot analysis (LISA: Moran's I, Geary's C) to localize functionally enriched regions.
- Applied FDR correction and cosine similarity metrics to evaluate resampling methods, optimizing 3D gene expression fidelity.

Professional Experience

Hangzhou Wenyi Holarte Technology Development Co., Ltd. Sept. 2024 - Apr. 2025
Healthcare Data Analyst Intern - Python, Pandas, Seaborn, Excel *Hangzhou, China*

- Analyzed structured clinical trial data using Python and built pipelines for data quality assurance
- Developed summary dashboards using Seaborn and Streamlit for research communication
- Automated batch cleaning of device logs and metadata from 20,000+ patient files

Yongjia Rural Commercial Bank Co., Ltd. Sept. 2022 – Feb. 2023
Banking Data Intern - Python, Excel VBA, SQL, Pandas *Wenzhou, China*

- Developed Excel macros and Python scripts to automate daily transaction summaries and risk audits
- Maintained structured client transaction logs using CSV-to-SQL conversion for downstream analytics
- Supported backend data cleaning and batch processing for 10,000+ customer profiles

State Grid Yongjia Power Supply Company Jul. 2022 – Sept. 2022
Financial Data Analyst Intern - Python, Pandas, Excel (macros) *Wenzhou, China*

- Designed automated Excel models and Python scripts to batch-process 7,000+ revenue and 11,000+ expenditure records
- Created dashboards to visualize transformer asset usage cycles and detect underutilized resources
- Built rule-based anomaly detection system for expenditure approval logic

BDO China Shu Lun Pan CPAs Dec. 2020 – Mar. 2021
Audit Intern (Data Analytics Group) - Python, Excel, PivotTables, NumPy *Shanghai, China*

- Used Python and Excel to audit financial reports and trace inconsistencies across 14 companies
- Built sampling models and variance calculators to highlight possible misstatements
- Assisted in automated generation of audit evidence logs and cross-period financial consistency checks

Projects

Financial Analysis of Yili Group | *Python, Pandas, NumPy, Matplotlib, Seaborn, Excel* May. 2021 – Jun. 2021

- Retrieved and cleaned 10 years of financial data from public reports using Python scripts
- Applied Pandas and NumPy to compute profitability, solvency, and efficiency ratios across time
- Implemented a DuPont decomposition model and visualized KPIs using Matplotlib and Seaborn
- Built a forecasting module for net profit growth using linear regression and time series smoothing

Blockchain-Based Accounting Reform | *Python, Web3.py, JSON, Excel, LaTeX* Nov. 2020 – Nov. 2021

- Conducted research on smart contract-based accounting models using Python + Web3 simulation tools
- Designed prototypes of automated transaction logging and triple-entry ledgers using dummy JSON data
- Interviewed blockchain industry experts to validate feasibility of decentralized accounting processes
- Documented findings in LaTeX and produced interactive visual explanations of process flows

Publications

[1] Yanxin Chen and et al. Hierarchical temporal processing in the primate thalamocortical system. Manuscript under review at *Research*, 2025.

[2] Yanxin Chen and et al. A neural indicator of temporal integration in the human auditory brain. Manuscript under review at *Communications Biology*, 2025.

Skills

Programming: Python, BrainPy, PyTorch, Pandas, NumPy
Data Tools: STATA, Excel (macros, dashboards), SPSS
Medical Data: EEG, time-series modeling, classification
Languages: English (Fluent), Chinese (Native)
Online Coursework: HarvardX CS50x (Intro to CS), CS50AI (Intro to AI with Python)