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*

- 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 School of Information Science — Jul. 2025 – Present
Research Assistant (Advisor: Robert J. Brunner) — *Online*

- Explored dynamic community structures in SP 500 company networks derived from stock price time series
- Analyzed information flow between companies using Transfer Entropy (TE), followed by temporal network construction at 30-minute and weekly intervals
- Applied six community detection algorithms (e.g., modularity maximization, label propagation) across time-evolving graphs
- Focused on interactive and multi-perspective network visualizations to reveal structural evolution in financial networks
- Designed dynamic visual formats (e.g., GIF animations, Plotly slider graphs, multi-timepoint comparisons) to show changes in community structures
- Developed new metrics and visual dashboards to track temporal trends in community count, node centrality, and TE strength
- Created interactive tools enabling users to explore node neighbors, compare community structures across time, and interpret lifecycle dynamics of communities

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

Stock Trading Web Application | *Python, Flask, SQLite, Jinja, HTML, Bootstrap* Jun. 2025 – Jul. 2025

- Built a stock trading simulator with user registration, session control, and transaction validation
- Integrated real-time stock quote retrieval and dynamic portfolio updates
- Designed a responsive dashboard to visualize stock holdings and cash balance

Budget Tracker Application | *Python, Tkinter, SQLite, Plotly, Pandas* Jul. 2025

- Developed a personal finance app with full CRUD operations and category filtering
- Built interactive charts to visualize expenses by category using Plotly
- Modularized codebase for GUI, data logic, and front-end integration

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

- Cleaned and analyzed 10 years of financial statements using Python
- Conducted ratio analysis and DuPont decomposition across time periods
- Visualized key indicators and built net profit forecasting using linear regression

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

- Simulated blockchain-based accounting models with smart contract prototypes
- Built dummy triple-entry ledgers and automated transaction logs
- Summarized findings and feasibility assessments in an interactive LaTeX report

Publications

[1] Yanxin Chen and et al. EEG neural indicator of temporal integration in the human auditory brain with clinical implications. *Communications Biology*, 8(1109), 2025.

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

Skills

Programming and Tools: Python (Pandas, NumPy, PyTorch, scikit-learn), SQL, STATA, SPSS, HTML, Excel
Languages: English (Fluent), Chinese (Native)
Online Coursework: HarvardX CS50x (Intro to CS), CS50AI (Intro to AI with Python)