Hao-Li Huang

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PhD candidate with proven analytical and communication skills developed from 9 years of research experience

Experience

Yale University — New Haven, CT
Graduate Researcher — *June 2016 - Present*

- Conducted 2 end-to-end projects independently under minimal supervision on photosynthesis research; effectively revolved problems and roadblocks as they occurred; designed experiments to collect new data as needed
- Programmed using MATLAB and Python to draw insights from experimental data sets and automate data analysis, resulting in a >90% improvement of productivity
- Collaborated with cross-functional teams, from chemists and biologists to glassblowers and mechanists on 5+ projects
- Communicated effectively both verbally and in writing: regularly presented summary of data analysis using clear visualizations to stakeholders (advisor and collaborators) and to diverse audiences; authored 5+ publications, including book chapters accessible by interdisciplinary audiences
- Modeled Markov process time series to construct complex enzyme kinetic models, and implemented the model using MATLAB scripts to analyze experimental data, leading to new mechanistic insights
- Mentored undergraduate student on senior research project from designing and conducting experiments to writing up and editing manuscript, resulting in a publication; taught basic scripting using MATLAB to process and visualize data
- Prioritized and coordinated under time constraint: met deadlines for various responsibilities, such as teaching, research, presentation, and writing

Yale University — New Haven, CT
Teaching Fellow, 4 Semesters — *September 2015 – May 2017*

- Led weekly discussion sections for 10-16 students; prepared handouts to clarify important concepts; catalyzed productive group discussions; advised students individually

Academia Sinica (National Academy of Taiwan), Institute of Atomic and Molecular Sciences — Taipei, Taiwan
Research Assistant — *July 2014 - June 2015*

- Solved challenging problems creatively: designed innovative apparatuses to enable measurements on short-lived molecules; wrote MATLAB script to efficiently process spectral data; published a first-author paper cited 120+ times

Selected Data Science Projects

- Predicted if property maintenance fines in Detroit would be paid on time using Random Forest and XGBoost Classifiers; built pipeline and customized transformation class to validate the models without data leakage (scikit-learn, xgboost)
- Built recommendation system using Alternating Least Squares (ALS) algorithm on Apache Spark (PySpark, MLlib)
- Predicted if text message is spam using Support Vector Machine and Logistic Regression models (scikit-learn)
- Built linear regression model (statsmodels) to analyze multi-dimensional Covid-19 dataset and translated insights into recommendations; cleaned and combined data from multiple sources (NumPy, pandas, RegEx)
- Visualized median housing sale prices in New York City on interactive map (plotly)

Education

Yale University — New Haven, CT
Ph.D. Physical Chemistry (GPA: 3.96/4.00) — *Expected July 2021*

- Taiwan Government Scholarship, one of 125 recipients nationwide

National Taiwan University (Ranks 1st in Taiwan) — Taipei, Taiwan
B.S. Chemistry (GPA: 3.94/4.00) — *June 2013*

- Top 5% of the 70-student class: Presidential Award (twice) & Phi Tau Phi Scholastic Honor Society
- Outstanding Poster Award for undergraduate research

Technical Skills

- **Coursework:** Probability and Statistics, Linear Algebra, Machine Learning, Text Mining, Social Network Analysis
- **Programming Languages:** Python (NumPy, pandas, matplotlib, seaborn, scikit-learn, RegEx, plotly, SciPy, statsmodels, NLTK, NetworkX), R (rjags), MATLAB, SQL (Relational Database), Spark (PySpark, MLlib)
- **Statistical Tools:** Bayesian statistics, Markov chain Monte Carlo, Numerical simulation, Bootstrapping, A/B testing

Activities and Interests

- Board games (collection of 60+), Singing (8+ years choral experience), Travel (10+ countries visited)