Yu-Jan Ting

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Education

Emory University Atlanta, GA
BS in Applied Math & Statistics June 2022
BA in Computer Science
Cumulative GPA: **3.941**/4.00
Honors: Dean's List (2019), Honor List (2018-2020), Honors Program Student (2021), MCM Meritorious Winner (2021)
Relevant Coursework: Machine Learning, Computer Science Practicum, Cloud Computing, Regression Analysis, Linear Optimization, Numerical Analysis, Data Structure & Algorithm, Analysis of Algorithms

Skills

- Programming Languages: Python (2 Years), R (3 Years), Java (3 Years), SQL, Swift, C, Django
- Software Skills: Xcode, MATLAB, Mathematica, Figma, Excel, PowerPoint, Google docs, Google Slides
- Language Skills: Mandarin (native), English (fluent), Korean (intermediate)

Internship Experience

Bytedance Shenzhen, China
Data Analyst/Data Operation Intern May 2021 - July 2021

- Evaluated matching algorithms used in POI data deduplication and optimized it with a 20% increase in recall rate
- Performed POI data cleaning, data labeling, and evaluated data quality on a regular basis
- Undertook an in-depth analysis of data from POI user feedback and Merchant Settle-In functionalities of the TikTok app, helping to improve the quality of POI data and upgrade the existing database
- Worked closely with R&D and PM teams to adjust product-side development roadmap and helped in testing and tracking bugs
- Implemented mechanisms to automate data management workflows at end-to-end, enhancing the efficiency of data operation and reducing manual workload

Math Center of Emory University Oxford, GA
Tutor September 2019 - December 2019

- Tutored an average of 6+ students in walk-in sessions and 3+ students in private sessions weekly and provided customized study guides, achieving 10-15% improvement in test scores
- Worked closely with professors to regularly update the individual student's progress and grades
- Organized monthly mock tests and review sessions to 60+ students and graded the exams with constructive feedbacks
- Increased the number of visiting students by 30% through targeted advertising, including sending emails to math students individually and distributing leaflets

Research Experience

Numerical Methods for Neural-Network-based Solution of High-dimensional Optimal Control Problems Emory, GA
Associate Professor, Lars Ruthotto, Emory University September 2021 - Present

- Implemented variance reduction methods including SAG, SAGA, SVRG, and SSVRG optimizers in Pytorch
- Applied variance reduction optimizers and the stochastic Newton method to train the neural-network-based model for solving high-dimensional optimal control problems and compare their effectiveness
- Fine-tuned the hyperparameters and conducted experiments to exploit that SSVRG converges faster with five to ten times fewer gradient counts than ADAM, effectively reducing the training cost of high-dimensional neural networks
- Currently writing a thesis with 30+ pages and preparing for its defense in March 2022

Estimating the COVID-19 Infection Rate by Causal Inference Emory, GA
Associate Professor, Adam Glynn, Emory University January 2021- March 2021

- Collected and cleaned 20+ datasets from Emory COVID-19 Dashboard and Georgia Department of Public Health
- Generalized the partial identification and monotonicity assumptions to bound the asymptomatic infection rate and population infection rate for the Emory community
- Established the baseline asymptomatic infection rate for Emory through February 2021, ranging from 0.1 to 0.4

Project Experience

Mobile App Development Event Finder Emory, GA
Programmer September 2021 - December 2021

- Worked in a team of 7 to design a social application for foreigners and immigrants to collect and share information about cultural events
- Used SwiftUI and Xcode to implement frontend pages, including the home page, profile page, post-event page, change preference page, search & filter functionalities, etc.
- Set up the Django backend framework, designed Event & User models, and implemented the restful APIs with API filters
- Deployed the backend using Nginx and Gunicorn on VPS, integrated the backend and frontend through restful APIs, and released a completely functional iOS app to Testflight in the Apple Store

Predicting Cryptocurrency Prices Using Machine Learning Emory, GA
Programmer & Researcher September 2021 - December 2021

- Combined LSTM, CNN, and random-forest as ensemble models to predict cryptocurrency prices at the minute level and compare their performances
- Applied sliding window algorithm to time-series data and performed feature scaling and feature expansion, including rolling window features, return value, lags, etc.
- Performed holdout-validation to select the best hybrid model, and the results showed that CNN-LSTM produced the most stable predictions, outperforming the baseline model LSTM by 40%

Detecting *Vespa Mandarinia* Among Hornets Atlanta, GA
Data Analyst & Researcher February 2021

- Constructed the time-series based Grey Markov Model GM(1, 1) to predict the spread of *Vespa mandarinia* and generated random noise to improve the model predictability
- Developed Natural Language Processing model based on word embedding, TF-IDF statistics measure, and SVC machine learning algorithm, to predict the classification of different hornets
- Used easy data augmentation and back-translation to overcome the classification imbalance
- Achieved 96.9% accuracy and 85.3% True Positive Rate at 14.6% Misclassification Rate

Mobile App Helping People Safely Back to School and Work Atlanta, GA
UI Designer January 2021

- Worked in a team of 3 to design a social application that encourages people to keep physical distance while maintaining weak social interaction during COVID-19
- Utilized Figma to practice prototyping from scratch with the Minimalism design style
- Made a 10-minute video to demonstrate the prototype and business plan and publicized it on Youtube
- Applied for $4,000 through the CREATE-X Startup program of Georgia Tech to launch the project from idea stage into fully functioning and viable startups

COVID-19 Death Rate by Multiple Factors in the United States Atlanta, GA
Analyst October 2020 - December 2020

- Collaborated with five members to collect 5+ million data from CDC official website
- Used R packages to analyze the correlation between COVID-19 death rate and sex, race, age, and create 10+ plots
- Created an HTML report to summarize the project analysis and provide suggestions, and presented to 100+ classmates

Inequality among School Dropouts Atlanta, GA
Analyst August 2020 - December 2020

- Applied Bayes' Theorem and Binomial Model to analyze the inequality of dropout rate among adolescence by ethnicity, age, and sex
- Built expected value model to measure the magnitude of inequality of school dropouts at the social level
- Visualized data in R and wrote 4+ separate reports to demonstrate the project progress and results

Volunteer Experience

OCIVA Chiang Mai, Thailand
Volunteer Teacher May 2019 - August 2019

- Collaborated with four teachers to design class materials and teaching plans
- Lectured 2+ English courses daily to 300+ primary school students
- Organized drawing and clay events for 100+ students

Covington First United Methodist Food Pantry Covington, GA
Volunteer October 2018 - November 2018

- Worked with six members to pack the food by different categories and distributed food to 70+ families in need
- Worked as an assistant in the warehouse to provide people in need with fresh food and grocery items