WANMENG LIU

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EDUCATION

GEORGIA INSTITUTE OF TECHNOLOGY Jan. 2021 - Expected Graduation: May 2022
Master of Science, Health Systems (GPA: 3.71/4.0) Atlanta, Georgia
Coursework: Regression Analysis, Computational Statistics, Simulation, Biostatistics, Time Series Analysis, Deterministic Optimization, Engineering Economy, Healthcare Design of Future, Healthcare Delivery, Public Impact Applications of Operations Research

GEORGE WASHINGTON UNIVERSITY Sept. 2017 - Dec. 2019
Bachelor of Arts, International Affairs (GPA: 3.56/4.0; Honors: Cum Laude) Washington, D.C.

SKILLS AND LANGUAGES

Python (Numpy, Pandas, Scikit-learn, Scipy, Matplotlib, PySpark, Plotly) | R | SQL | Spark | AWS | MATLAB | Arena | Mandarin Chinese

PROFESSIONAL EXPERIENCE

GEORGIA INSTITUTE OF TECHNOLOGY Aug. 2021 - Present
Graduate Assistant, Health Analytics Group, H. Milton Stewart School of Industrial and Systems Engineering Atlanta, Georgia
Pediatric Mental Health Treatment Project:

- Developed python program to build large-scale medical event tables
- Applied regression analysis, two-sample statistical tests, and Markov renewal process (MRP) to study costs and variations in mental health treatment for children from different socioeconomic backgrounds in Southeastern United States
- Extracted 500 millions of rows of Medicaid claims data from the Centers for Medicare and Medicaid Services (CMS) for 50 U.S. states and provided descriptive information about psychotherapy services for Medicaid-insured children
- Improved the efficiency of data extraction process by 200% through testing and performance evaluation in python
- Performed data wrangling, cleaning, and merging techniques on 5-year statewide electronic health records(EHRs)
- Mentored new team members on understanding and processing Medicaid data

GEORGIA INSTITUTE OF TECHNOLOGY July 2021 - Aug. 2021
Research Assistant, H. Milton Stewart School of Industrial and Systems Engineering Atlanta, Georgia

- Conducted regression analysis on state of Georgia Covid-19 data from March 2020 to June 2021 to study associations between socioeconomic factors and Covid-19 cases, deaths, hospitalizations and vaccination rates
- Developed 30+ interactive maps and 50+ temporal plots to identify Covid-19 hotspots and trends in 159 counties in Georgia
- Delivered scientific reports and presentations to communicate results of statistical modeling and policy implications with audience from both technical and non-technical backgrounds

NATIONAL LGBT CHAMBER OF COMMERCE (NGLCC) June 2018 - July 2018
Intern, NGLCC Global Washington, D.C.

- Produced social media content, newsletters, invitation letters for donors, and blog posts
- Researched and recommended 10+ grant programs to fund NGLCC Global projects

BEIJING INSTITUTE OF TECHNOLOGY Sept. 2016 - June 2017
Assistant to the Vice Dean, School of Design and Art Beijing, China

- Served as interpreter and personal assistant to Dr. Marie-Theres Albert, the former United Nations Educational, Scientific and Cultural Organization (UNESCO) Chair in Heritage Studies, ensuring a successful visit
- Served as interpreter (Chinese to English and vice versa) in 20+ academic and administrative conferences

PROJECT EXPERIENCE

CDC Cruise Ship Covid-19 Spread, Simulation Project Jan. 2022 - Present

- Collaborating with Center for Disease Control and Prevention (CDC) Quarantine and Border Health Services (QBHS) branch on simulating the spread of Covid-19 on cruise ships to estimate the risk of cruise ship voyages
- Collaborating with Georgia Department of Public health to simulate the spread of Covid-19 Omicron Variant in K-12 school settings to help school decision makers adjust mask-wearing and Covid-19 testing policy

Google Customer Revenue Prediction, Machine Learning Project May 2021 - June 2021

- Preprocessed high-dimensional Google customer data with Principal Component Analysis
- Predicted future transaction revenue with linear regression model and tree-based models (random forest and gradient boosting)
- Optimized predictive models with parameter tuning and cross-validation

Stroke Prediction, Regression Analysis Project Feb. 2021 - May 2021

- Carried out data preprocessing for outlier removal and missing value imputation
- Executed different logistic regression models, tuned it with grid search, AIC, BIC, and assessed performance to compare models with baseline resulting in best-performing model with an accuracy of 92%
- Conducted hypothesis tests to analyze associations between clinical factors such as age, gender, hypertension status, heart disease history and the occurrence of stroke

NBA Game Outcome Prediction, Machine Learning Project Feb. 2021 - May 2021

- Preprocessed data with variable transformation and missing value removal
- Employed random forest, logistic regression, support vector machine models to show whether home court effects were different in pre-pandemic and post-pandemic games and to quantify the change in the strength of each team in each year from 2003 to 2020
- Tuned models utilizing cross-validation and selected the optimized model with 85% accuracy

Pandemic Flu Spread, Simulation Project Feb. 2021 - March 2021

- Applied analytical and simulation methods to estimate the average amount of infected students in a classroom of elementary school in a 30-day period
- Built simulation models to show details of the spread of flu under different transmission rates and durations of infection