JINQIU DU

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EDUCATION

Hong Kong Baptist University United International College (HKBU)
Bachelor of Science (Honors) in Statistics (First Class) 09/2020-06/2024
Cumulative GPA: **3.61/4.0** | Senior GPA: **3.82/4.0**
Minor: Computer Science and Technology
Honors: President's Honour Roll (7 semesters), Dean's List (1 semester)
HKBU First Class Academic Scholarship, top 5% (USD 1,420) 12/2022
HKBU Student Internship Scholarship 12/2021

Oxford Study Abroad Program, University of Oxford 08/2022
Summer School Courses in Data Science (150 study hours)

PUBLICATIONS

Jinqiu Du, Yaxin Zheng, Shuaijun Liu, Jieping Luo, Jiaying Yin, Yuhui Deng, Jingjin Wu. Optimizing Vaccine and Ventilator Allocation to Minimize Health Risks and Costs During Pandemics. Under Review. *Health Care Management Science.*

Shuaijun Liu, **Jinqiu Du**, Yaxin Zheng, Yinjia Yin, Yuhui Deng, Jingjin Wu. A Holistic Optimization Framework for Energy Efficient UAV-assisted Fog Computing: Attitude Control, Trajectory Planning and Task Assignment. Under Review. *IEEE Transactions on Green Communications and Networking.*

BIOSTATISTICS EXPERIENCE

Optimization of Healthcare Recourse Allocation During the COVID-19 Pandemic 03/2023-Now
Undergraduate Thesis, Supervised by Assoc Prof Jingjin Wu and Yuhui Deng Guangdong, China

- Development of a joint optimization model for healthcare resource allocation and patient transfers during the COVID-19 pandemic to minimize the mortality rate and resource costs
- Create a SIR-based SVUIR (Susceptible, Vaccinated, Unprotected, Infected and Recovered) model in R to compute the theoretical number of affected patients and patients who recovered from two doses of the vaccine
- Apply bionic algorithms such as Ant Colony Optimization and Particle Swarm Optimization to solve the model in Python; perform simulations with Bootstrap data sets to test the model's performance and robustness
- Achieve a 12% decrease in the mortality rate of affected patients compared with the benchmark

Risk Factors of Coronary Heart Disease 02-06/2023
Supervised by Asst Prof Zhijian Li Guangdong, China

- Performed logistic regression on 10+ variables that were associated with cholesterol detection, smoking history, and other symptoms to screen out significant variables ($P<0.05$)
- Predicted the incidence of coronary heart disease among patients; conducted residual analysis and assessed model assumptions to validate the model's applicability
- Estimated bias and standard errors of the model parameters using Jackknife Method and Bootstrap Method, and verified the feasibility of estimation

Multivariate Analysis of National Track Records for Women 09/2022-02/2023
Supervised by Assoc Prof Jiajuan Liang Guangdong, China

- Conducted Factor Analysis on covariance and correlation matrices of the dataset using Principle Component Analysis (PCA) and Maximum Likelihood Estimation (MLE) to estimate model parameters
- Performed factor rotation to identify key factors while minimizing interaction to better interpret the influence of each factor on the track records

RELATED RESEARCH

Analysis and Optimization of UAV Energy Consumption for Fog Computing 06/2022-09/2023
Program Director, Supervised by Assoc Prof Jingjin WU and Yuhui Deng Guangdong, China

- Developed a fuzzy PID attitude control system to facilitate the UAV in accomplishing the tasks of takeoff, stable flight, and smooth landings
- Proposed an anti-locking Ant Colony Optimization algorithm with decoupling and safety to identify the optimal path with an improving the convergence speed
- Conducted stability testing of the model by simulating real-time UAV flight data and user's computing demand data in Matlab
- Analyzed the performance of the optimized implementation, achieving a ≥34% increase in total network consumption efficiency compared to an existing model
- The project received individual funding support through the 'Climbing Plan' special fund of the Guangdong Provincial Government, granting a personal funding of USD 2,120.

AWARDS

Finalist, COMAP Mathematical Contest in Modeling (05/2022), top 1%
Meritorious Winner, COMAP Mathematical Contest in Modeling (05/2023), top 6%
Second Prize (Provincial Level), China Undergraduate Mathematical Contest in Modeling (11/2023) (11/2022)
Second Prize (Provincial Level), The 2020 "Greater Bay Area Cup" Guangdong-Hongkong-Macao Financial Mathematical Modeling Competition (12/2020)

WORK EXPERIENCE

National Bureau of Statistics, Sichuan Office (42.5hrs/week) 07-09/2023
Data Analysis Intern, Agricultural Survey Division Chengdu, China
Project 1: Land Use Analysis

- Utilized a regression model for rural land use calculation
- Visualized the modeling results and contributed to creating an official 50-page statistical atlas

Project 2: Trend Analysis and Prediction of Sichuan's Liquor Purchasing Managers' Index (PMI)

- Conducted a correlation analysis to explore the association between PMI and variables in the first half of 2023
- Utilized an ARIMA model to forecast future PMI indexes, suggesting an overall moderate increase with the maximum growth in January

Research Assistant, Department of Statistics, BNU-HKBU UIC **8/2022-Now**

- Assisted in drafting research proposals, mathematical reasoning, and running validation models using online test datasets

China Construction Bank, Jinhe Branch (40hrs/week) 07-08/2021
Data Analysis Intern, Personal Banking Division Chengdu, China

- Used Excel to conduct data gathering, cleansing, and visualization of clients' banking data
- Assisted in the preparation and review of financial and payroll statements

SKILLS

Software: LaTex, SPSS, Excel
Programming: C, Python, R, MATLAB, SQL
Languages: Mandarin (Native), Cantonese (Native), English (Advanced), Japanese (Intermediate)

VOLUNTEER

China International Aviation & Aerospace Exhibition (Airshow China) 11/2022

- Guided guests from different countries and introduced exhibitions and activities at each venue
- Led the reception team in their respective tasks to ensure the overall service offering

United Innovation Charity Club, BNU-HKBU UIC 09/2020-10/2021

- Contributed 90+ hours of tutoring services, instructing Mathematics and English every weekend to children of migrant workers at Jinding Community, Zhuhai