

HOUSHI HE

School of Mathematics, Jilin University, Changchun, Jilin, 130012, China

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EDUCATION

Jilin University - School of Mathematics

Bachelor of Science Degree, Major in Statistics GPA: 89.22/100 (Top 10%)

Jilin, China

Sep 2020 - Jun 2024

University of Victoria - Department of Mathematics and Statistics

British Columbia, Canada

Mitacs Globalink Research Internship (Fully Funded)

Aug 2023 - Nov 2023

RELEVANT SKILLS

Languages: Chinese (Native), English (Fluent), German (Basic)

Computer Skills: Python, R Language, SQL, C Language, \LaTeX , Microsoft Office

Machine Learning Frameworks Skills: Scikit-learn, SciPy, Pandas, NumPy

Interpersonal: Leadership, Communication, Problem-solving, Multi-tasking, Time management

RESEARCH & PROJECTS

Bayesian Estimation of Covariance Matrices Using Aggregate Data

Victoria, Canada

Advisor: Prof. Xuekui Zhang

Aug 2023 - Nov 2023

- Collected aggregate data from tests of different medications for similar symptoms; employed Bayesian hierarchical modeling to unveil correlations between indicators, such as age and height.
- Utilized the inverse Wishart distribution as the prior distribution for Σ , ensuring conjugacy in Bayesian statistics, facilitating the derivation of the posterior distribution form, and simplifying the computation of Bayesian inference.
- Derived the likelihood function based on the prior distribution and available information.

Application of Machine Learning for Auto Insurance Pricing

Changchun, China

Advisor: Prof. Jianhua Cheng

Apr 2023 - May 2023

- Collected and analyzed auto insurance claims data, incorporating factors such as the driver's age, car age, brand, etc.
- Cleaned raw data to ensure accuracy and reliability in the analysis.
- Applied various ML methods, including logistic regression, XGBoost, random forest, decision trees, and K-NN for predicting claim occurrences; assessed and compared the performance of these models.
- Dealt with 500,000+ data; utilized various data science libraries, including Scikit-learn, NumPy, and Pandas data frames.

Application of Propensity Score Matching for Intervention Effects Estimating

Shenzhen, China

Advisor: Dr. Dong Fang

Jun 2022 - Jul 2022

- Selected confounding variables and extracted 2,000,000+ data by SQL; cleaned and processed data in Python.
- Applied logistic regression to calculate propensity score and predict exposure probability to create virtual control groups.
- Matched experimental groups and control groups; applied bucket matching to improve matching efficiency.
- Calculated the average treatment effect of exposure on the return rate of churned users.

INTERNSHIP EXPERIENCE

Tencent

Shenzhen, China

Data Analyst Intern, Data Platform Department

Jun 2022—Aug 2022

- Leveraged SQL and Python to collect and analyze key data metrics related to retention, user activity, etc. from specific gaming apps; modeled player characteristics and behaviors, enabling targeted insights and strategic decision-making.
- Designed A/B tests based on North Star metrics to foster product iteration and enhance user quantity and quality; performed hypothesis testing to check the statistical significance of the results.
- Structured and established a comprehensive framework for business data metrics and analysis; implemented an intelligent decision-making methodology; identified key business revenue growth opportunities.

General Electric

Tianjin, China

Project Consultant, Hydro Center of Excellence

Jul 2021 - Aug 2021

- Developed a virtual factory tour solution for clients unable to visit during the COVID-19 pandemic, saving the factories an estimated annual cost of 150,000 yuan in client visit expenses and reducing carbon emissions by 365,000 kg per year.
- Conducted on-site visits to factories, engaged with factory officials, gathered display elements, standardized the elements, visualized the displays, and designed the online factory tour webpage and process.
- Cooperated with 7 members effectively; assigned tasks based on members' strengths and scheduled the meetings.

AWARDS

- **Mitacs Globalink** Research Internship Award (**10,000 Canadian\$**)
- **Second Class** Scholarship in the academic year of 2022-2023
- **Second prize** in the Chinese Mathematical Contest in Modelling, Jilin Division
- **Second prize** in the Chinese Mathematics Competitions, Jilin Division
- **The College Excellent Student** in the academic year of 2021-2022
- **Second Class** Scholarship in the academic year of 2021-2022
- **Third Class** Scholarship in the academic year of 2020-2021

EXTRACURRICULAR ACTIVITIES

Science Summer Camp

Hong Kong, China

Camper, Fully Funded by College of Science at CityU

Jul 2023

- Visited state-of-the-art research facilities, conducted a comprehensive campus tour, attended departmental research seminars led by esteemed faculty members, and engaged in informative meetings with current Ph.D. students.
- Participated in information talks on research education opportunities at the Department of Biostatistics.

Red Bird Online Challenge Camp

Online

Camper, HKUST (Guangzhou)

Jun 2023

- Explored how emerging technologies reshape global landscapes through real case studies and interactive sessions with industry experts, actively contributing to cross-disciplinary collaboration for a comprehensive understanding.
- Introduced BianqueGPT, a large-scale Chinese language model for medical consultations, employing intelligent algorithms to analyze user-input symptoms and medical histories, and providing medical recommendations.

Love Tiecheng Youth Volunteer Association

Changchun, China

Peer Advisor, School of Mathematics, Jilin University

Mar 2021 – Jun 2022

- Contributed to a collaborative team focused on promoting academic success within a diverse student body.
- Provided guidance on effective study techniques and problem-solving strategies; assisted in solving mathematical problems and clarifying mathematical definitions and theories, fostering a supportive learning environment.

Chinese Volunteer Federation

Changchun, China

Membership, Jilin University

Oct 2020 - Jun 2021

- Collaborated with the Changchun Meow-Love Stray Cat Rescue Team to conduct stray cat rescue operations, including weekly visits to clean and care for the cat shelter, actively contributing to stray cat welfare.
- Collaborated with Jilin University Nanling Campus Library to organize weekly book organizing sessions and public book exchange markets, fostering a culture of knowledge sharing and accessibility.