HOUSHI HE

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EDUCATION

Jilin University - School of Mathematics   **Jilin, China**
Bachelor of Science Degree, Major in Statistics   GPA: 89.22/100 (Top 10%)   *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, Full 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.