CHUAN (SOPHIE) DU

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EDUCATION

NORTHWESTERN UNIVERSITY — **EVANSTON, IL**
Master of Science in Analytics — *EXPECTED: SEP 2018 - DEC 2019*

UNIVERSITY OF ILLINOIS AT URBANA – CHAMPAIGN — **URBANA – CHAMPAIGN, IL**
Bachelor of Science in Applied Mathematics, Statistics; Minor in Informatics, Computational Science & Engineering — *AUG 2014 – MAY 2018*

- Graduated with High Distinctions, LAS Dean's List, Pi Mu Epsilon Mathematics Honor Society
- Meritorious Winner of 2017 Interdisciplinary Contest in Modeling (MCM/ICM)

SKILLS

- **Data Science:** Abstract Algebra, Advanced Data Analysis, Applied Complex Variables, Differential Equations, Linear Programming, Real Analysis, Statistical Data Management, Statistical Learning, Probabilistic Programming
- **Programming & Software:** R, Python, SQL, SAS, LaTeX, Microsoft Office
- **Language:** English – Fluent, Chinese Mandarin – Native, German – Intermediate

RESEARCH & PROJECTS

DISCRETE MORSE THEORY & VECTOR FIELDS – ILLINOIS GEOMETRY LAB, UNIVERSITY OF ILLINOIS — *JAN 2016 – FEB 2018*

- Preprint ***RGB image-based data analysis via discrete Morse theory and persistent homology***, (first author) with C. Szul, A. Manawa, N. Rasekh, R. Guzman, R. Davidson, **arXiv:1801.09530**
- Designed a converter using Python to convert RGB images into grayscale and generated data-informative persistence diagrams to extract key topological information from RGB images, enabling users to predict future image-based data behavior
- Applied Discrete Morse Theory and homology of persistent pairs to perform analysis on open-source heat maps of water scarcity variability and crime rates variability data
- Learned and comprehended the mathematical theories, instructed the programmers to expand the usage of Australian National University's code, and constructed a custom model of vector field of the discrete Morse function on a cubical complex

RANDOM WALK IN MICRORNA-DISEASE ASSOCIATIONS – CHINESE ACADEMY OF SCIENCES — *AUG 2017*

- Constructed mathematical models based on the corresponding integrated similarity of diseases and miRNA including Gaussian interaction profile kernel similarity, semantic similarity and functional similarity
- Developed the algorithm using Python for microRNA-disease associations
- Mastered the random walk algorithm as well as efficiency validation methods of LOOCV and K-fold cross validation

WAITING IN AIRPORT SECURITY CHECKPOINT: A PERSPECTIVE FROM QUEUEING THEORY – 2017 MCM/ICM — *JAN 2017*

- Led the group to build up a mathematical model for increasing checkpoint throughput and reducing variance in wait time
- Conducted empirical analysis using R, established the model with multiple functions, proposed and implemented a feasible method in estimating passenger volume at various times
- Developed two modifications to the current procedural model, with the first one incorporating a Bifurcation System and the second designing a Circular Line-up System

WORK EXPERIENCE

FUNCTION CAPITAL – SILICON VALLEY OFFICE — **REDWOOD CITY, CA**
Investment Analyst Summer Intern — *JUN 2017 – JUL 2017*

- Consolidated and analyzed financial data of target companies with Excel to generate reports for investment decision-making
- Investigated initial financing of target projects, mapped competitive landscape of each competitor to analyze technical barriers and competitiveness, and attended industry-related events to grasp industry prospects
- Completed trends reports for four projects in the fields of machine learning, deep learning, AI-AGV and robotics

HUAXIA BANK – BANKING DEPARTMENT — **SHENYANG, CHINA**
Manager Assistant Summer Intern — *JUN 2016 – AUG 2016*

- Calculated and checked corporation clients' accountings with their balance sheet, income statements and cash flow statements, and input data into the banking system; categorized and updated customer credit information in the system
- Performed pre-loan investigation and loan review

DEPARTMENTS OF STATISTICS AND ECONOMICS — **URBANA – CHAMPAIGN, IL**
Teaching and Course Assistant — *JAN 2016 – MAY 2018*