

Yuan Chen

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EDUCATION

Hohai University (HHU)

Nanjing, China

Bachelor of Engineering in Environmental Science (GPA: 91.4/100; Rank: the 1st place)

Expected July 2019

- **Coursework:** Advanced Calculus, Geometry & Linear Algebra, Probability & Statistics, Programming (C)
- **Honors & Awards:** HHU Honored Student Scholarship (top 1%, 2016 & 2018), HHU Progressive Student Scholarship (top 1%, 2016), 3rd Prize of China Undergraduate Mathematical Contest in Modeling (2017)
- **Coursera:** Bayesian Statistics I & II, Time Series Analysis, C++ Programming
- **OpenCourseWare:** Discrete Stochastic Process, Real Analysis, Machine Learning, Introduction to Partial Differential Equations, Microeconomics, Macroeconomics, Intermediate Microeconomics, Monetary Banking, Political Economics

PUBLICATIONS

1. **Yuan Chen**, Songming Hou, Xu Zhang
Immersed Finite Element Methods for Elliptic Interface Problems with Multi-domain and Triple Junction Points.
Adv. Appl. Math. Mech., in press, (2019)

PROFESSIONAL EXPERIENCE

Beijing Mobike Technology Co., Ltd.

Beijing, China

Intern in Department of Data Analysis & Business Intelligence

June 2018 – Sept. 2018

- Retrieved and aggregated 1million rows of raw data from mobile app to analyze users behavior for optimizing function design
- Developed a user classification function on mobike internal platform to filtrate user data according to constraints including users' personal backgrounds, physical&value characteristics and past orders for optimizing effects of targeted campaigns
- Visualized and analyzed label data on malfunction of different bike types by using Circos and Sankey diagrams in Echarts&D3 to detect the association between a specific bike type and particular cause
- Isolated the testing and formal data production environments to decrease the risk of data production failure
- Predicted the bike demand under extreme natural conditions based on BNN algorithm

RESEARCH EXPERIENCES

Partial Differential Equations and Numerical Analysis Project, Louisiana Tech University

Remote

Co-researcher

July 2017 – Present

– Continuous Elliptic Interface Problems

- Established a continuous method based on immersed finite element to solve continuous elliptic interface problems with multi-domains and triple junction points
- Implemented proposed method on three numerical examples in Python & NumPy to show the second-order convergence
- Paper accepted by Journal Adv. Appl. Math. Mech.

– Discontinuous Elliptic Interface Problems

- Solved discontinuous elliptic interface problems with two domains by developing a new discontinuous immersed finite element method
- Tested the method by extensive simulation in Python & NumPy to show the second order convergence and explore the adaptability of the method for multi-domain discontinuous interface problems with triple junction points
- Manuscript in preparation: “Discontinuous Immersed Finite Element Method for Elliptic Interface Problems”

Bachelor Dissertation

Nanjing, China

Advised by Dr. Hua Wang

Feb. 2019 – June 2019

- Developed an estimator for river mechanism energy and calculated mechanism energy of 103 sections of Binhu network by Python with measured hydrology data
- Established a negative exponential relationship between river mechanic energy and nutrient concentration using curve fitting equipped with least square method, implemented with Python

Project of National Natural Science Foundation of China, National Key Shallow Lake Lab

Nanjing, China

Undergraduate Research Assistant

Apr. 2018 – Dec. 2018

– Evaluation of the Driving Factors of Water Quality at Lower Reaches of Yangtze River

- Hypothesized wet-dry deposition, self-purification and sediment release are major factors impacting water quality
- Processed 2,000 rows of experimental data by using linear regression and ANOVA in R to evaluate the association between the factors and water quality, and compared the effects of different driving factors on water quality with linear coefficients

- Applied Recurrent Neural Network and Time Series models in Python and R to analyze the yearly dependence of water quality on its previous pollutant concentration
- Established an innovative method by modifying Index Decomposition Analysis (IDA) with driving factors of water quality to explore the quantitative fluctuation of the factors on a yearly basis

Project of Statistical Analysis on Energy Policy, Hohai University

Nanjing, China

Undergraduate Research Assistant

Dec. 2017 – Feb. 2019

- Research on Beijing's Air Pollution caused by Thermal Power Plants
- Used Logarithmic Mean Divisia Index (LMDI) model to decompose the amount of carbon emission from thermal power plants in Beijing into five social-economic and environmental indexes in Python
- Visualized the trends of five indexes from 1997 to 2015 in Matplotlib & Python, explored drivers and resistances in mitigating carbon dioxide emission in Beijing's thermal plants and advised on future eco-friendly energy policy
- Research on Global Nitrogen Trade
- Collected approx. 12 million rows of data on African nitrogenous plant trade volume, and cleansed and manipulated the data to produce nine input-output tables with Pandas & Python to analyze the scale of nitrogen commerce between Africa and other continents

2018 Innovation and Entrepreneurship Program of HHU

Nanjing, China

Project Leader

Mar. 2017 – June 2018

- Optimal Management of Bicycle-sharing System on Campus
- Applied Seasonal ARIMA forecast model in R to process 2,000 pieces of field bike data to predict the bike demands in each control area at any given time of the day
- Adjusted the number of available bicycles based on the forecast results to meet the fluctuating demands of specific areas

SKILLS & INTERESTS

Computer Skills: C, C++, R, MATLAB, Python (NumPy, Matplotlib, Scipy & Pandas), SQL, VBA, L^AT_EX, MS Office, Axure RP

Language Skills: Mandarin(mother language), English

Interests: Jogging, Swimming, Gym, Film, Reading(literature and Philosophy), Music