

Yuan Chen

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EDUCATION

B.E. Environmental Science

HOHAI UNIVERSITY

June 2019

Nanjing, China

- **GPA:** 90.7/100; **Rank:** the 1st place
- **Coursera:** Bayesian Statistics I & II (WITH HONORS), Time Series Analysis, C++ Programming
- **OpenCourseWare:** Mathematical Statistics I & II, 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, (2019).
An Immersed Finite Element Method for Elliptic Interface Problems with Multi-domain and Triple Junction Points. *Advances in Applied Mathematics and Mechanics*, 11(2019), pp. 1005-1021.
doi: 10.4208/aamm.0A-2018-0175
2. **YUAN CHEN**, HUA WANG, HUAIYU YAN, DONGFANG LIANG, RUOSHUI LI, (2019).
Relation of Energy to Temporal and Spatial Variations of Nutrient Distribution in Binhu Network, *in submission*.

PROFESSIONAL EXPERIENCES

Beijing Mobike Technology Co., Ltd. (Meituan.com)

Beijing, China

Intern in Department of Data Analysis & Business Intelligence

June 2018 – Sept. 2018

- Retrieved and aggregated 1 million 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 Project, Louisiana Tech University

Remote

Co-researcher, Continuous Elliptic Interface Problems

July 2017 – Jan. 2018

- 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 optimal order convergence in L_2 and H_1 norm

Co-researcher, Discontinuous Elliptic Interface Problems

Apr. 2018 – Aug. 2018

- 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 optimal order conver-

gence in L_2 and H_1 norm

Co-researcher, *Parital Penalize IFEM*

Jan. 2019 – Present

- Employed a new weak formulation based on partial penalized treatment on interface elements to solve 2-domain continuous elliptic interface problems with non-homogeneous flux jump
- Implemented proposed method on numerical examples with Python & NumPy to show the optimal order convergence in L_∞ , L_2 and H_1 norm

Bachelor's Degree 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
- Developed a data operate system that supports data sheet calculation and data visualization to cleanse, manipulate and visualized 5 million rows of spatial hydraulic and water quality data by Python.

Project of National Natural Science Foundation of China

Nanjing, China

Undergraduate Research Asistant

Apr. 2018 – Dec. 2018

- 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 Asistant

Dec. 2017 – Feb. 2019

- 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 Python, explored drivers and resistances in mitigating CO_2 emission of Beijing's thermal plants and advised on future eco-friendly energy policy
- Collected approx. 12 million rows of data on African nitrogenous plant trade volume, 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

- 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

HONORS & AWARDS

- HOHAI UNIVERSITY Honored Student Scholarship 2016, 2017, 2019
- 3rd Prize of China Undergraduate Mathematical Contest in Modeling 2017
- HOHAI UNIVERSITY Science & Technology Innovation Scholarship 2019

SKILLS

- **Coding** C, C++, Python, SQL, L^AT_EX, VBA
- **Data Analysis** Python (pandas, matplotlib), R, QGIS, ECHARTS
- **Algorithm** Python (NumPy, SciPy), MATLAB
- **Misc.** Academic Research, MS Office & VBA, Axure RP, Markdown
- **Language** Mandarin Chinese, English