Yuan Chen

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EDUCATION

Hohai University **Nanjing, China**

Bachelor of Engineering in Environmental Science *Sept. 2015 – July 2019*

- **GPA**: 91.4/100; **Rank**: the 1^{st} place
- **Honors & Awards**: HHU Honored Student Scholarship (top 1%, 2016 & 2018 & 2019), HHU Progressive Student Scholarship (top 1%, 2016), Science & Technology Innovation Scholarship (top 1%, 2019), 3^{rd} Prize of China Undergraduate Mathematical Contest in Modeling (2017)
- **Coursera**: Bayesian Statistics I & II, Time Series Analysis, C++ Programming
- **OpenCourseWare**: Mathematical Statistics I & II, Discrete Stochastic Process, Real Analysis, Machine Learning, Introduction to Partial Differential Equations, Mircoeconomics, Macroeconomics, Intermediate Mircroeconomics, Monetary Banking, Polical 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), DOI: 10.4208/aamm.OA-2018-0175

PROFESSIONAL EXPERIENCE

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

Intern in Department of Data Analysis & Bussiness Intellgence *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, Lousiana Tech Univisity **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
- Paper published on journal Adv. Appl. Math. Mech.

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 and explore the adaptablility of the method for multi-domain discontinuous interface problems with triple junction points

Co-researcher, Paritial 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 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

Project of National Natural Science Foundation of China **Nanjing, China**

Undergraduate Research Asistant *Apr. 2018 – Dec. 2018*

- 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 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 Matplotlib & Python, explored drivers and resistances in mitigating carbon dioxide emission in 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

SKILLS

- **Computer Skills**: C, C++, R, MATLAB, Python (NumPy, Matplotlib, SciPy & Pandas), SQL,VBA, LaTeX, MS Office, Axure RP, QGIS
- **Language Skills**: Mandarin(mother langrage), English