Yuan Chen

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EDUCATION

M.S. in Statistics — **Expected 2021**
The George Washington University — *Washington, DC, USA*

B.E. Environmental Science — **June 2019**
Hohai University — *Nanjing, China*

- **GPA**: 90.7/100; **Math-GPA**: 99.3/100; **Rank**: the 1^{st} place
- **Coursera**: Bayesian Statistics I & II (With Honors), Time Series Analysis, C++ Programming
- **OpenCourseWare**: Real Analysis, Measure Theory & Functional Analysis, Discrete Stochastic Process, Machine Learning, Intro. to Partial Differential Equations, Micro & Macroeconomics

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.OA-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, *Hydrological Processes, under review*.

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

RESEARCH EXPERIENCES

Partial Differential Equations Project, Lousiana Tech University — **Remote**
Co-researcher, Partially Penalized IFEM — *Jan. 2019 – Aug. 2019*

- Extended Partially Penalized Immersed Finite Element method with an extra jump term to solve 2-domain continuous elliptic interface problems with non-homogeneous flux jump
- Implemented proposed method on numerical examples with Python & NumPy, SciPy to show the optimal order convergence in L_2, semi-H_1 and L_∞ norm
- Established a weak formulation base on Partially Penalized Immersed Finite Element Method to solve elliptic interface problems with multi-domains and triple junction points
- Proved trace inequalities and verified optimal order convergence in L_2, semi-H_1 and L_∞ norm of the method numerically

Co-researcher, Continuous Elliptic Interface Problems *July 2017 – Feb. 2018*

- Solved continuous elliptic interface problems with multi-domains and triple junction points by establishing an interpolation scheme based on immersed finite element method
- Implemented proposed method on three numerical examples in Python & NumPy to show the optimal order convergence of numerical results in L_2 and semi-H_1 norm
- Solved elliptic interface problems with discontinuous jump condition on two domains by equipping immersed finite element method with an extra discontinuous term and verified the optimal convergence in L_2 and semi-H_1 norm numerically

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 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

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

Undergraduate Research Assistant *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
- Established a method based on Index Decomposition Analysis (IDA) with driving factors of water quality to explore the quantitative fluctuation of the factors

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
- 3^{rd} Prize of China Undergraduate Mathematical Contest in Modeling 2017
- Hohai University Science & Technology Innovation Scholarship 2019

SKILLS

- **Coding** C, C++, Python, Sql, LaTeX, VBA
- **Data Analysis** Python (pandas,matplotlib), R (ggplot), Qgis, Echarts, D3
- **Algorithm** C, C++, Python (NumPy, SciPy), Matlab
- **Misc.** Academic Research, MS Office & VBA, Axure RP, Markdown
- **Language** Mandarin Chinese, English