

# JIA FU

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## EDUCATION

- 09/2021 - Present **Penn State University** *PA, USA*  
Master of Engineering expected Dec.2022  
Major: Environmental Engineering  
GPA: 4.0/4.0
- 09/2018-06/2021 **Tongji University (985 Project)** *Shanghai, China*  
Degree: Master of Engineering  
Major: Environmental Engineering  
GPA: 4.08/5.0 (85.8/100)
- 09/2014-06/2018 **Hefei University of Technology (211 Project)** *Hefei, China*  
Degree: Bachelor of Engineering  
Major: Water Supply and Drainage Science and Engineering  
Overall GPA: 3.68/4.3 Senior GPA: 3.86/4.3 Ranking: 3/76

## PUBLICATIONS & CONFERENCE

- ♦ Wang, Sheng\*, **Jia Fu**, and Heng Wang. "Unified and rapid assessment of climate resilience of urban drainage system by means of resilience profile graphs for synthetic and real (persistent) rains." **Water research** 162 (2019): 11-21. (With advisor Dr. Wang as 1<sup>st</sup> and corresponding author, Jia doing most experiment)
- ♦ Wang, Sheng\*, Feitian Min, and **Jia Fu**. "A method to measure hydrologic restoration attributed to low impact development by computing similarity between runoff frequency spectra." **Journal of Hydrology** 588 (2020): 125134.
- ♦ 11/2019, The 14<sup>th</sup> International Conference on China Urban Water Development
- ♦ 05/2019, Arctic Circle

## RESEARCH EXPERIENCE

- 11/2021-present ***Zero-gap Microbial Electrolysis Cell (MEC) Design for Efficient Hydrogen Generation from Wastewaters (DOE funded project), PSU***
- ♦ Investigated performance of zero-gap MEC with gas-chamber cubic MEC, and proved the excellent performance zero-gap configuration
  - ♦ Tested impacts of operation parameters (anolyte and catholyte flow rate) on reactor performance (with current density, columbic efficiency hydrogen production rate as evaluation parameter), and determined optimal and cost-effective operation conditions
  - ♦ Identified the clogging problem of bioanode impeding long term operation and proposed feasible solutions to solve clogging problem
- 08/2019-06/2021 ***A Modeling Approach for Urban Stormwater Drainage System Design Using Rational Method***

- ◆ Proposed a mathematical modeling approach of urban drainage system design based on the Rational Method in the design stage, solving the challenge of hydrological parameter determination when building mathematical model
- ◆ Built a mathematical model of urban drainage system based on Rational Method design using the approach above
- ◆ Tested the urban drainage system performance under multiple storm water conditions using dynamic wave to calculate hydraulic process in pipe systems, so that design of urban drainage system is no longer restricted to the assumptions of rational method

*11/2018-07/2019                      Resilience Assessment of Urban Drainage System - Resilience Profile Analysis*

- ◆ Established the resilience profile analysis methods, unifying the concepts of reliability, robustness, resilience, and failure, as well as the design standards for sewer surcharging, sewer flooding and property flooding into one resilience profile
- ◆ Built and calibrated the drainage network model of Tongji University utilizing the SWMM model and the statistical data of the urban drainage system
- ◆ Tested the impact of several low-impact development plan on resilience of urban drainage system under different stormwater event and realized the rapid evaluation of the resilience of persistent rain by using segmental and reference reliability metrics
- ◆ Proved that the threat of continuous rainfall was not the high rainfall intensity, but the large rainfall in total

*06/2016-05/2017                      Effect of Antibiotic Residues in Livestock Wastewater on Anaerobic Digestion (Lab Rotation), PROJECT LEADER*

- ◆ Tested the impact of different type and concentration of antibiotics on anaerobic digestion in batch reactor, using biogas production rate, volatile fatty acids concentration, COD removal as evaluation parameters
- ◆ Found the inhibitory effects and combined inhibitory effects of antibiotic residues (ceftiofur hydrochloride, florfenicol, and ceftiofur hydrochloride) on the process of anaerobic digestion
- ◆ Coordinated between tutors and my team members and reported the experimental progress periodically

*06/2015-05/2016                      Detection and Diagnosis of Up-flow Anaerobic Sludge Blanket Reactor (UASB) Performance Fed with Wastewater Containing Toxic Chemicals, PROJECT LEADER*

- ◆ Participated in construction of multi-parameter online monitoring system (realizing test of alkalinity, pH, gas partial pressure, and total gas production rate) to monitor reactor performance
- ◆ Identified sensitivity of different online and offline parameters (including alkalinity, pH, gas partial pressure, and total gas production rate, VFA, biogas production rate, COD) when the reactor was shocked by wastewater containing toxic chemicals with different concentration
- ◆ Acquired the sensitivity ranking of different parameters during toxic shock test and proposed the monitoring parameters
- ◆ Coordinated with tutors and the team members, assigned different tasks based on the research

contents, and contributed into the development of experimental plans

## EXTRACURRICULAR ACTIVITIES

- 09/2018-06/2019 **Secretary**, the Working Committee of Doctoral Students at Tongji University
- 09/2014-06/2016 **Deputy Director & Secretary**, Daily Management Department of School of Civil and Hydraulic Engineering at Hefei University of Technology
- 09/2014-06/2015 **Secretary**, Arts Department of School of Civil and Hydraulic Engineering at Hefei University of Technology
- 07/2015-08/2015 **Voluntary Activities:** launched community service, such as the tutorship for children and living environment improvement, etc.

## SKILLS

Computer Skills: CAD, Visual Basic

Lab Skills: Gas Chromatography, High Performance Liquid Chromatography, Ion Chromatography, Biologic potentiostat,, COD, BOD

## Honors & Awards

- ◆ **Excellent Graduate** of Shanghai City, China (8/180), 2021
- ◆ **National Scholarship** for Postgraduates in China (8/180), 2019
- ◆ **Excellent Student** of Tongji University (2/45), 2019
- ◆ **Excellent Student** of Anhui Province, China (for top 3% students), 2018
- ◆ **Excellent Graduate** honored by Hefei University of Technology (4/39), 2018
- ◆ The **2<sup>nd</sup> Scholarship** rewarded by Hefei University of Technology, 2017
- ◆ **Merit Student** honored by Hefei University of Technology, 2016
- ◆ The **1<sup>st</sup> Scholarship** rewarded by Hefei University of Technology, 2016
- ◆ The **1<sup>st</sup> Scholarship** rewarded by Hefei University of Technology, 2015
- ◆ Our voluntary team was honored as the “**Excellent Practice Team** of 2015 National Top 100 College Students’ Summer Practice”