

# XUAN LIU

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## 🎓 EDUCATION

**University of Illinois at Chicago**, Chicago, Illinois, U.S. 2019 – 2021 (expected)

Master of Science in Chemical Engineering, GPA: 3.87/4

**Xi'an Jiaotong University**: Xi'an, Shaanxi, China 2016 – 2020

Bachelor of Engineering in Chemical Engineering, GPA: 86.39/100

GREAT Winter Intensive Short Course in University of California, Davis (Feb. 2019)

- Class of 2020 Outstanding Graduates
- 2017 - 2018 Excellent Students

## 💡 RESEARCH EXPERIENCE

**Zwitterionic Polymer for Biomedical Materials** Aug. 2019 – Present

*Department of Chemical Engineering, UIC* Advisor: Prof. Gang Cheng

- Designed and executed experiments to synthesise zwitterionic polymer, and characterized its tunable surface and bulk properties
- Developed and conducted novel polyurethanes with antifouling and antimicrobial properties
- Collaborated with postdocs and graduate students across interdisciplinary field

**Development and Application of Lithium Sulfide Cathode Material** June 2019 – Aug. 2019

*School of Chemical Engineering and Technology, XJTU* Advisor: Prof. Long Qu

- Designed and synthesized Fe and S composites cathode by ball-milling method used for lithium-sulfur batteries, and assembled cells for testing
- Mentored and trained 2 undergraduate students in theoretical knowledge and experimental skills
- Achieved National Undergraduate Innovation Project Funding (¥10,000)

**Viologen Derivatives for Photodynamic Therapy** Dec. 2018 – June 2019

*Frontier Institute of Science and Technology, XJTU* Advisor: Prof. Gang He

- Designed and synthesized a new Thiophene-Ethynylene-Based Viologen Derivative
- Studied the photodynamic therapeutic properties of photosensitizer by *in vitro* bacteria experiment
- Achieved Provincial Undergraduate Innovation Project Funding (¥7,000)

**Selective Hydrogenation of Pt@Y Zeolite** May 2018 – Dec. 2018

*School of Chemical Engineering and Technology, XJTU* Advisor: Prof. Qiang Chen

- Developed a general method to synthesize encapsulated Pt nanoparticles into Y Zeolite (Pt@Y), and characterized its morphology and topography
- Attained almost 100% selectivity from aromatic ketones to aromatic alcohols and retarded hydrogenation of benzene rings via thermodynamically unfavorable end on adsorption conformation

**Optimization of Ethyl Tert-butyl Ether Production Process** Oct. 2017 – Apr. 2018

*School of Chemical Engineering and Technology, XJTU* Advisor: Prof. Gui-Lian Liu

- Simulated and optimized ETBE reactive distillation processes by using Aspen Plus
- Achieved Scholastic Undergraduate Innovation Project Funding (¥5,000)

## 📖 PUBLICATIONS AND CONFERENCE PRESENTATIONS

- **Xuan Liu**, Mengying Guo and Kun Zhou. Thiophene-Ethynylene-Based Viologen Derivatives: A Novel Platform of Photosensitizer for Photodynamic Antimicrobial Chemotherapy. *2019 Annual AIChE Student Conference* (Poster Presentation) (Abstract ID: 587714)
- Chen, Qiang, Haozhe Kang, **Xuan Liu**, Kun Jiang, Yunfei Bi, Yiming Zhou, Mengyue Wang et al. Selective Hydrogenation of Aromatic Ketone over Pt@Y Zeolite through Restricted Adsorption Conformation of Reactants by Zeolitic Micropores. *ChemCatChem* (2020). (DOI: 10.1002/cctc.201902302)

- **Xuan Liu**, Mengying Guo and Kun Zhou. Zwitterionic and Photosensitive Hydrogels Based on a Viologen Derivatives Cross-Linker. *2020 AIChE Midwest Regional Conference* (Poster Presentation)
- Chen, Qiang, Tianhao Li, Yiming Zhou, Yunfei Bi, Shuai Guo, **Xuan Liu**, Haozhe Kang et al. Selective Hydrogenation of 5-Hydroxymethylfurfural via Zeolite Encapsulation to Avoid Further Hydrodehydroxylation. *Industrial & Engineering Chemistry Research* (2020). (DOI: 10.1021/acs.iecr.0c01320)
- Mengyue Wang, **Xuan Liu**, Kui Ren, et al. Ultrasmall and Stable Platinum Group Nanoparticles in Zeolite Y with Enhanced Catalytic Selectivity via impregnation (Submitted)

## ★ HONORS AND AWARDS

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<b>1<sup>st</sup> Prize</b> , Lei Kuo Scholarship	Sept. 2019
<b>3<sup>rd</sup> Prize</b> , Scholastic Scholarship	Sept. 2019
XJTU 2018 - 2019 Excellent Social Worker	Sept. 2019
<b>Outstanding Student</b> , XJTU School of ChE 2020 Summer Camp for College Students	Aug. 2019
<b>Outstanding Teamwork Award &amp; Ranking 6<sup>th</sup></b> , China Chem-E-Car Competition	May 2019
<b>Honorable Mention</b> , XJTU Extracurricular Academic Science and Technology Competition	Apr. 2019
<b>2<sup>nd</sup> Prize</b> , Scholastic Scholarship	Sept. 2018
<b>Honorable Mention</b> , COMAP Interdisciplinary Contest In Modeling (ICM)	Apr. 2018
<b>3<sup>rd</sup> Prize</b> , Asia and Pacific Mathematical Contest in Modeling (APMCM)	Jan. 2018
<b>1<sup>st</sup> Prize</b> , National Mathematical Modeling Contest (Shaanxi Division)	Nov. 2017
<b>3<sup>rd</sup> Prize</b> , Scholastic Scholarship	Sept. 2017
XJTU Excellent Student Volunteer in Admissions Publicity	Sept. 2017
<b>2<sup>nd</sup> Prize</b> , Scholastic Mathematical Modeling Contest	May 2017

## 🐾 LEADERSHIP EXPERIENCE

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**XJTU Chemical Engineering Student Society** Feb. 2020 – May 2020

*Founder and Chairman of the Provisional Committee*

- Drafted bylaws and transition plan for the Society
- Prepared the register for AIChE Student Chapter and CIESC Student Chapter

**Volunteer Association for Office of Admissions**

Sept. 2016 – June 2019

*Successively served as Minister and Chairman*

- Organized and directed the "Campus Ambassador" activity in 2017 and 2018, respectively, which has a total of 6,000+ undergraduate students signed up and participated
- Aided directors with 30+ admission activities and administrative tasks
- Provided assistance to 500+ prospective undergraduate students on application process in 30+ lectures and consultation sessions

## 🔑 MISCELLANEOUS

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### • Laboratory Skills:

- Competent in organic synthesis, design of synthetic route, and characterization of compounds
- Proficient with laboratory equipment including GC-MS, GPC, NMR, XRD, et al.
- Proficient in techniques of chromatography column, Schlenk line

• **Computer Simulation:** Materials Studio, ANSYS, Aspen, GAMS

• **Data Analysis:** Origin, MATLAB, Python, R, SPSS

• **Mooc:** Udacity Data Analyst Nanodegree (Ongoing); Med Chem: The Molecular Basis of Drug Discovery (Certificated); Intro to Solid State Chemistry (Certificated); Writing in the Sciences (Certificated)

• **Design:** Adobe Photoshop, Adobe Illustrator, Cinema 4D, Adobe Premiere, HTML/CSS/JS