

DAVID (ZIQI) JIANG

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EDUCATION

Bachelor of Science in Chemical Engineering

September 2016-June 2020

University of Washington, Seattle

GPA: 3.68 / 4.0

RESEARCH EXPERIENCE

Holmberg Group, Department of Chemical Engineering, University of Washington

Undergraduate Researcher

September 2017-Present

- Synthesized novel earth-abundant and nontoxic fluorescent nanomaterials for improving clean energy applications.
- Created a novel protocol for synthesizing a CuFeS₂-CuS heterostructure through cation exchange.
- Tuned nanocrystal size, morphology, and composition to isolate variables affecting unique optical peak positions.
- Evaluated nanoparticle candidates under solar simulation via use of polyurethane foam as a model substrate.
- Mastered the use of ultraviolet-visible (UV) spectroscopy and X-ray diffraction (XRD) for nanoparticle evaluation.
- Developed new procedures for hot injection Schlenk line technique to produce of high-quality gold, CuS, CuFeS₂, and CuSe nanocrystals.

Jen Group, Department of Materials Science and Engineering, University of Washington

Undergraduate Researcher

June 2016-September 2016

- Created P&IDs to illustrate the retuning and purging of the Schlenk line apparatus.
- Mastered high-performance liquid chromatography (HPLC) to measure nanoparticle levels in serum, plasma, and cerebrospinal fluid.
- Developed standard operating procedures for synthesizing a superparamagnetic nanoparticle modified with folate acid and consisting of a propylene glycol coating.

Woodrow Group, Department of Bioengineering, University of Washington

High School Researcher

May 2015-September 2015

- Mastered histological dehydrating, staining and mounting of mouse genital tracts.
- Homogenized monkey tissue for enhanced HIV drug recovery.
- Ran liquid chromatography–mass spectrometry to characterize drug candidates.

PROJECTS

Synthesis of Novel Copper Chalcogenide Nanocrystal Heterostructures for Efficient Solar Steam Generation, University of Washington Clean Energy Institute (completed)

- Culmination of research in developing a solar to steam generation device for sterilization of medical instruments.
- Presented at University of Washington Research Symposium (2019).
- Received Mary Gates Research Endowed Scholarship (2019).

Development of Taste Masked Drug Delivery for Pediatric and Veterinary Therapeutics, University of Washington Foster School of Business (ongoing)

- Capstone project involving taste masked pharmaceutical formulation with high drug loading of distasteful drug by use of natural deep eutectic solvents (DES).
- Synthesized tertiary DES of isoniazid (anti-tuberculosis drug), citric acid and fructose to maximize drug loading of isoniazid.

AWARDS

- Henry K. Benson Endowed Scholarship (2018 and 2019) from Department of Chemical Engineering, University of Washington
- Mary Gates Research Endowed Scholarship (2019) from University of Washington Office of Merit Scholarships, Fellowships, and Awards

VOLUNTEER

- Drug Services Volunteer, University of Washington Medical Center (May 2016-September 2016)
- Families for Effective Autism Treatment (FEAT) of Washington (January 2016-April 2016)
- Friends of the Seattle Public Libraries (June 2014-September 2014)