David Jinher **Zhu**

CHEMICAL AND PROCESS ENGINEERING PhD CANDIDATE

✉ david.zhu@research.uwa.edu.au | ⬡ davidzhuuwa | in davidzhuu

Edu**cation**

The University of Western Australia (UWA)
DOCTOR OF PHILOSOPHY

Crawley, Western Australia

Jan. 2020 - Present

- Supervisors: Prof. Zachary M. Aman, Prof. Eric F. May, Dr. Bruce W.E. Norris
- Focus on thermophysical modelling in context of gas hydrate phase equilibria
- Lead hydrate model developer for ThermoFAST in a team of six. ThermoFAST is a thermodynamic property calculator for natural gas, LNG, ammonia and hydrogen with the ability to perform vapour-liquid-solid equilibrium calculations
- Developed and implemented novel description of hydrate phase equilibrium model in ThermoFAST, with draft journal paper under review
- Implemented the Cubic Plus Association Equation of State in ThermoFAST for vapour-liquid-solid-hydrate equilibrium calculations
- Developed pseudocomponent handling in ThermoFAST to extend hydrate model to capture complex reservoir fluids

The University of Western Australia (UWA)
MASTER OF PROFESSIONAL ENGINEERING: CHEMICAL ENGINEERING

Crawley, Western Australia

Jul. 2017 - Dec. 2019

- GPA: 7.000; WAM: 92.0
- Final year design project on an ammonia synthesis plant with a natural gas feedstock located in Onslow, Western Australia

The University of Western Australia (UWA)
BACHELOR OF PHILOSOPHY (HONS)

Crawley, Western Australia

Feb. 2014 - Jul. 2018

- First Class Honours in Engineering Science (Chemical Engineering); Second Major in Mandarin Chinese (Beginner)
- Thesis: The effect of Mono-ethylene Glycol on Hydrocarbon Cloud Points via Differential Scanning Calorimetry, with Prof. Zachary Aman (83%)

Exp**erience**

Academic Tutor / Facilitator
THE UNIVERSITY OF WESTERN AUSTRALIA (UWA)

Crawley, Western Australia

Feb. 2019 - Present

- Designed new laboratory demonstrations and accompanying assignments for ENSC3006: Chemical Engineering Thermodynamics (3 labs) and ENSC3019: Unit Operations and Unit Processes (4 labs) in (2020 - Present), ensuring flexibility for hybrid-learning mode
- Conducted weekly open hybrid-consultations for students, assisting with laboratory-related conceptual queries and/or technical assistance with engineering software (MultiFlash, AspenHYSYS)
- Assisted students in developing an understanding of how theoretical concepts introduced in lectures and labs are linked to the implementation of technical solutions in industrial contexts
- Presented personalised and tailored feedback for individual students on each laboratory assignment, including quality of scientific figures, calculation structure and overall report presentation (>100 per semester)
- 2019: Tutor for GENG4402: Control Engineering, CHPR5521: Flow Assurance and Gathering, and CHPR5522: Treating and LNG Production

Research Assistant
THE UNIVERSITY OF WESTERN AUSTRALIA (UWA)

Crawley, Western Australia

Dec. 2018 - Jan. 2020

- Full-time summer vacation student transitioned into casual work under Chevron-Woodside established Centre for Long Subsea Tiebacks
- Built a hydrate database tool using VBA in Excel containing over 10,000 hydrate equilibrium data points from literature
- Analysed trends in error margins from MultiFlash and CSMGem hydrate models to quantify and improve safety margins deployed in industrial thermodynamic hydrate inhibition strategies, with potential to save six figures annually in inhibition cost
- Researched and delivered monthly critical review presentations on topical journal articles for "Hydrates Interfacial Science" reading group meetings, which were consistently received well by 3 senior academics in the group

Project Team Member
UWA YOUNG ENGINEERS

Perth, Western Australia

Jun. 2017 - Present

- UWA Young Engineers is the student chapter of Engineers Australia and our mission is to aid in the professional development of all our club members through the organisation of various events
- Facilitated club's transition from Google services to Microsoft 365 (emails and cloud storage) in 2021
- Organised >150 people as an usher for UWAYE's Industry Analysis Night, directing people to and from auditorium at scheduled timing
- Created scheduled marketing posts for Facebook and printing and distribution of >50 posters for multiple hackathon events (2018 - WorleyParsons, 2022 - Accenture)

Visual-Audio Coordinator | Pianist
THE REVIVAL FELLOWSHIP

Perth, Western Australia

Jan. 2019 - Present

- Trained and coordinated a team of >6 people to run visual/audio in church services, including streaming live Zoom meetings and balancing audio feedback. Includes organisation of weekly rosters and training new volunteers
- Active pianist for church band. Rostered on Sundays and Wednesdays weekly

Postgraduate UniMentor

Crawley, Western Australia

THE UNIVERSITY OF WESTERN AUSTRALIA

Jun. 2018 - May. 2019

- Enhanced and supported transition of commencing postgraduate students by drawing on experience and knowledge of Perth and UWA
- Organised weekly correspondence with mentees online or in-person to assist in transition during mentees' first semester
- Applied active listening and problem solving skills to assist with mentee's queries and problems, redirecting mentees to appropriate university services and facilities
- Conducted a walking tour group of ten international students, showcasing cultural highlights and providing practical knowledge of Perth CBD and surrounds
- Mentored three commencing international chemical engineering students

Maintenance Research Intern

Perth, Western Australia

DOWNER GROUP

Sep. 2016 - Mar. 2017

- Researched and developed a holistic understanding of maintenance strategies, namely how predictive maintenance is used in conjunction with condition monitoring and other maintenance strategies
- Collected and categorised examples of common failure modes in equipment, and respective common condition monitoring techniques used in context of electric motors
- Researched wireless technology use, namely sensors, and compiled information about costs, availability, benefits and drawbacks in condition monitoring applications
- Compiled an analysis report (30 pages) and gave a 20 minute presentation on key findings and lessons learned to senior management

Technical Skills

Proficient	Python, Microsoft Office, Fortran, VBA, MATLAB, AspenHYSYS, OLGA, LaTeX, ANSYS Fluent
Limited	R, C#

Publications

Summary

- 1 Q4 2022 Journal Publication
- 5 Conference Proceedings
- **Full details of journal publications and conference proceedings can be provided on request**

Honors & Awards

Nominee	UWA School of Engineering Teaching Award - Citation for Outstanding Contributions to Student Learning (Facilitator): ENSC3019	*2021*
Prize Winner	BCG GAMMA Prize in Introduction to Data Science - Top student in CITS4009: Exploratory Data Analysis	*2020*
Prize Winner	Chevron Woodside Chair in Subsea Tieback Engineering Prize- Gas Processing - Top 5 in CHPR5521 Gas Processing 1: Flow Assurance and Gathering and CHPR5522 Gas Processing 2: Treating and LNG Production	*2018*
Prize Winner	Chevron Chair Prize in Gas Process Engineering - Top 5 in ENSC3005 Mass and Energy Balances	*2017*
Prize Winner	Dr Wang Yi Prize in Chinese - Top student in Beginners Stream Mandarin Chinese Major	*2016*
Prize winner	Convocation of UWA Graduates Prize - Top student in ENSC1001 Global Challenges in an Engineering World	*2014*

Professional Memberships

Student Member	Engineers Australia	*2018 - Present*
Student Member	Society of Petroleum Engineers	*2018 - Present*
Student Member	Golden Key Society	*2019 - Present*

Referees are available upon request