

## Summary

A competitive individual in the hydrogen industry with various experiences from research and publication of a peer-reviewed journal article and employment at the industrial gas company as a process and project engineer. Currently commencing Master of Philosophy degree in the University of New South Wales, Australia, researching numerical designs of innovative and efficient metal hydride hydrogen storage tanks based on computational fluid dynamics.

## Education

### Master of Philosophy (M.Phil.) - Chemical Engineering

UNIVERSITY OF NEW SOUTH WALES

*Sydney, Australia*

*Aug. 2022 - Current*

### Bachelor of Engineering (B.E.) - Honours, Chemical Engineering

UNIVERSITY OF NEW SOUTH WALES

*Sydney, Australia*

*Feb. 2013 - Jan. 2019*

## Academic Experience

### Research Assistant

FACULTY OF CHEMICAL ENGINEERING, UNIVERSITY OF NEW SOUTH WALES

*Sydney, Australia*

*Aug. 2022 - Current*

- Project title : LAVO Hydrogen Storage Tank Modelling
- Industry-funded project RG222908 (\$111k) collaborated with the Australian start-up hydrogen company, LAVO
- Responsibility #1 : Numerical simulation and validation of LAVO's metal hydride hydrogen storage tanks, including modifications of operating parameters, boundary conditions, governing equations, etc.
- Responsibility #2 : Numerical simulation and optimization of heat transfer management systems of LAVO's metal hydride hydrogen storage tanks, including geometry of tanks, internal coils & tubes, etc.

### Poster Presentation

1ST UNIVERSITY OF SYDNEY NET ZERO INITIATIVE (NZI) CONFERENCE AND 3RD AUSTRALIAN CIRCULAR ECONOMY CONFERENCES (ACEC)

*Sydney, Australia*

*Nov. 2022*

- Numerical Modelling and Design of an Efficient Hydrogen Storage Tank Embedded with Copper Fins and Aluminium Foam

### Poster Presentation

THE 2ND INTERNATIONAL SYMPOSIUM ON COMPUTATIONAL PARTICLE TECHNOLOGY

*Melbourne, Australia*

*Dec. 2018*

- Numerical Modelling and Design of an Efficient Hydrogen Storage Tank Embedded with Copper Fins and Aluminium Foam

### Honours Thesis

FACULTY OF CHEMICAL ENGINEERING, UNIVERSITY OF NEW SOUTH WALES

*Sydney, Australia*

*2018*

- Numerical Modelling and Design of an Efficient Hydrogen Storage Tank Embedded with Copper Fins and Aluminium Foam

## Employment Experience

### Project Engineer (Engineers Australia Accredited)

AIR LIQUIDE KOREA. CO., LTD.

*Yeosu, S.Korea*

*Jul. 2020 - Apr. 2022*

- Effectively managed the overall project activities during engineering, procurement, construction, commissioning and start-up phases.
- Managed on-site construction activities as per the project contractual scope until handing-over to the operation team.
- Participated in the project execution phase and created, modified and reviewed the technical documentation (P&ID, RFQ, PFD and others).
- Set up and supported cost estimation for new projects or modifications of existing plants.
- Responsible for technical decisions concerning construction, design, and selection of material, contractors and suppliers
- Coordinated legal permits related to KGS (Korea Gas Safety Corporation) and KOSHA (Korea Occupational Safety and Health Agency)
- Key project #1 - Y4 CO<sub>2</sub> Recycle Compressor Project - CAPEX 6.1 mUSD from Dec. 2020 to Feb. 2022
- Key project #2 - H<sub>2</sub> Filling Compressor Project - CAPEX 1.4 mUSD from Jul. 2020 to Dec. 2020

### Process Engineer (Engineers Australia Accredited)

AIR LIQUIDE KOREA. CO., LTD.

*Yeosu, S.Korea*

*Apr. 2019 - Jun. 2020*

- Participated in the commissioning of a new plant project (Y4) - pre-commissioning, commissioning, start-up and stabilizing.
- Issued and updated technical documents, such as SOP and P&ID, of existing and the commissioning plant.
- Experienced field and board operations of new and existing plants in shifts for seven months.
- Modified and updated DCS (YOKOGAWA) and SCADA graphics.
- Managed safety and efficiency of plants.

## Internship

BASF COMPANY LTD.

Seoul, S.Korea

Oct. 2016 - Dec. 2016

- Worked as an intern in the finance & procurement team that mainly focuses on costs and expenses of BASF Korea for functional, sub-regional and business units.

## Publications

Yuting, Z., **Siwoo, J.**, Yansong, S. (2021). Numerical Study of Hydrogen Desorption in an Innovative Metal Hydride Hydrogen Storage Tank. ACS Energy Fuels, 35 (13), 10908–10917. <https://doi.org/10.1021/acs.energyfuels.1c00666>

## Honours & Awards

### UNSW Tuition Fee Scholarship (TFS)

Sydney, Australia

FACULTY OF CHEMICAL ENGINEERING, UNIVERSITY OF NEW SOUTH WALES

2021

- A Tuition Fee Scholarship (TFS) for study towards a Masters in the Faculty of Engineering in the University of New South Wales. TFS covers the entire tuition fee and the stipend valued at AUD 35,500 per annum for 2 years

## Extracurricular Activity

### Violinist

VARIOUS ORCHESTRA ORGANIZATIONS

2001 - 2013

- Hwarang-elementary School Orchestra, South Korea (2001 - 2006)
- Nown-district Youth Sympony Orchestra, South Korea (2007 - 2009)
- Happy Jakarta Youth Orchestra, Indonesia (2010 - 2012)
- University of New South Wales Orchestra, Australia (2013)

### Sergeant Soldier

S.Korea

FULL-TIME NATIONAL MILITARY SERVICE

Nov. 2014 - Aug. 2016

### Dispatched interpreter Soldier

S.Korea

CONSEIL INTERNATIONAL DU SPORT MILITAIRE

Oct. 2015

### Charity group member

Australia

MISOJIDA, KOREAN STUDENT ASSOCIATION, UNIVERSITY OF NEW SOUTH WALES

Feb. 2017 - Nov. 2017

### CSESoc 23T3 Trainee

Australia

UNIVERSITY OF NEW SOUTH WALES

Sep. 2023 - Current

- Training session for selected individuals by Computer Science & Engineering Society of University of New South Wales
- Full-stack web development through a group project

## Technical Skills

COMPUTER SOFTWARE

- Ansys Fluent
- COMSOL Multiphysics
- AutoCAD
- High-Performance-Computing (HPC) : Gadi of NCI Australia and KATANA of UNSW

PROGRAMMING LANGUAGE

- Python
- Java
- C
- HTML
- CSS
- JavaScript