Achara Tiong, P.Eng.

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Education

Ph.D.	**Oregon State University**, Corvallis, Oregon, USA Industrial Engineering, Minor Statistic	Expected 2021
M.Sc.	**University of Alberta**, Edmonton, Alberta, Canada Process Control, Chemical Engineering	2006
B.Sc.	**University of Alberta** Chemical Engineering, Computer Process Control	2004

Research Interests

- Optimization, network design, facility location, and linear programming with commercial applications in the energy, transportation, and logistics industries.

Research Experience

Oregon State University, School of Mechanical, Industrial, and Manufacturing Engineering

- **Ph.D. Research,** Resilient network design of interdependent critical infrastructures under disruptions. Develop an optimization model and resilience metrics for the interdependent networks to locate new facilities while meeting system resilience requirement under disruptions 2017 – Present
- **Graduate Research Assistant,** Develop the yield optimization model for the low-enriched Uranium fuel fabrication process. Provide yield analysis under various production scenarios to help guide the process development. Sponsor: Pacific Northwest National Laboratory, Richland, WA. 2018 – Present

University of Alberta, Department of Chemical and Materials Engineering

- **M.Sc. Research,** Dynamic Modelling and Control of a Solid Oxide Fuel Cell (SOFC) 2004 – 2006

Professional Experience

General Electric Calgary, Alberta
Application Engineer, GE Heavy Oil Solutions March 2015 – July 2016

- Lead technical liaison between GE Global Research and industry partners on innovative technology and new product co-development with commercial value for Power and Oil & Gas businesses. Successfully delivered $USD 3.2MM of R&D funding to the company.
- Assessment of new technologies for GHG reduction, enhanced oil recovery methods, water treatment, power generation, and energy conversion including engineering economics analysis.

Laricina Energy Calgary, Alberta
Liaison Engineer, Simulation Software and Model Development Team November 2012 – February 2015

- Contributed to the development of OASIS, a cloud-based simulation software with problem-solving environment for bitumen production optimization and enhanced oil recovery technology.
- Built components of mathematical models and scientific computing algorithms for numerical solutions to PDEs representing complex, highly nonlinear, and time-dependent thermal reservoir simulations.

Suncor Energy Calgary, Alberta
Process Control Engineer March 2011 – November 2012

- Plant-wide performance assessment and continuous improvement of regulatory process control loops through closed-loop identification to reduce process variability at bitumen production facilities.
- Root cause analysis of process upset and equipment failure including implementation of change management resulting in 40% improvement in process reliability ($USD 4.4MM savings of opportunity cost for production loss). Experienced with working in remote, fly-in/fly-out camp environment.

NOVA Chemicals Joffre, Alberta
Process Control Engineer, Process Engineer, and Optimization Engineer August 2006 – February 2011

- Knowledge of ethylene and polyethylene manufacturing and variability control of continuous and batch processes with hands-on experience of schedule-driven production operations.
- Process optimization via first principles and empirical modelling, including model predictive control of multivariate systems (polyethylene reactors, ethylene furnaces, and distillation columns) and profit optimization model of ethylene production using equation-oriented approach.

Teaching Experience

- *Statistical Quality Control*, Upper-level undergraduate laboratory, OSU MIME, Fall 2017.
- *Process Dynamics and Control*, Upper-level undergraduate laboratory, University of Alberta, Fall 2005.
- *Modelling Process Dynamics*, Upper-level undergraduate & graduate lab including seminar, University of Alberta, Winter 2005.

Additional Skills

- Project management for technology, business case development, techno-economic analysis, joint intellectual property contract negotiation, and technology commercialization strategy.
- Computer skills: Windows/Linux, Java, Python, C, VB, VBA, R, CPLEX, Lingo, MATLAB, COMSOL, & Crystal ball. Mastery of MS Office Suite.
- DeltaV and Honeywell control systems platforms, operator Human-Machine Interface design, data historian, and database administration.

Professional Affiliations

2009-Present	Licensed Professional Engineer, The Association of Professional Engineers and Geoscientists of Alberta, Canada.
2017-Present	Member, Institute of Industrial & Systems Engineers
2014-Present	Member, Society of Petroleum Engineers

Publications and Presentation

- Diaz-Goano, C., **Tiong, A.**, and Herring, H., 2015, New tools for new technology - OASIS: a multiphysics engineering simulation software for "What-If Physics", Proceedings of the 2015 World Heavy Oil Congress, Edmonton, Alberta, Canada, March 24-26.
- **Chaisantikulwat, A.**, Diaz-Goano, C., and Meadows, E.S., 2008, Dynamic modelling and control of planar anode-supported solid oxide fuel cell, *Journal of Computers and Chemical Engineering* 32(10), 2365-2381.
- **Chaisantikulwat, A.** and Meadows, E.S., 2005, Dynamic modelling and control of a solid oxide fuel cell, First International Symposium on Fuel Cell and Hydrogen Technologies, Calgary, Alberta, Canada, August 21-24.