MIKEY PHAN

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HIGHLIGHTS

- Ph.D. candidate in Chemical Engineering with demonstrated expertise in computational fluid dynamics
- Proven ability to teach and communicate concepts to audiences with different technical backgrounds, resulting in exceptional course-instructor survey scores from students (minimum 4.6 out of 5 from **six different** Chemical Engineering classes
- Winner of the 2018 Jeff Byers Memorial Graduate Award in Chemistry and Chemical Engineering
  - Given annually to one student out of ~400 who exhibits academic excellence, integrity, a collaborative spirit, compassion towards others, and who passionately contributes to the advancement of peers

EDUCATION

The University of Texas at Austin — Austin, TX
Ph.D. in Chemical Engineering, Advisor: Dr. R. Bruce Eldridge — **Expected August 2021**

- Topic: Computational Fluid Dynamic (CFD) Modeling of Multiphase Flows Inside Structured Packings

California Institute of Technology (Caltech) — Pasadena, CA
M.S. in Chemical Engineering, Advisor: Prof. John F. Brady — June 2016

The University of Texas at Austin — Austin, TX
B.S. in Chemical Engineering with *High Honors, GPA 3.92/4.00* — May 2013

ENGINEERING INTERNSHIP EXPERIENCE

Chevron Phillips Chemical Company — Kingwood, TX
Research and Technology Intern — Summer 2018

- Provided technical plant support and recommendations to field engineers using CFD modeling
- Completed CFD project that involved 3D modeling of a system from blueprint drawings, simulating the flow physics to identify sources of process upsets, and communicating potential solutions to upper-level managers and field engineers
- Learned Fluent CFD and SpaceClaim CAD programs to a high level of proficiency

Mitsubishi Heavy Industries — Austin, TX
Process Engineering Intern — Summer 2012

- Performed hydraulic line sizing calculations for a 25-Megawatt carbon-capture pilot plant
- Streamlined process data sheet inputs using Visual Basic, saving ~50% of input time needed to make relevant process instrumentation calculations
- Researched and communicated strategies for entering the carbon-capture market to a diverse audience of both engineers and business managers

TECHNICAL SKILLS

- Highly proficient with STAR-CCM+ (CFD software), Aspen Plus, HEEDS (design space exploration software), Python, C++, and LaTeX typesetting
- Working knowledge of Fluent (CFD software), SpaceClaim (CAD modeling software), Mathematica, MATLAB, and Fortran
- Texas Engineer-in-Training (EIT #58613) – Passed PE Chemical Exam in August 2020

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RESEARCH EXPERIENCE

The University of Texas at Austin Austin, TX
Graduate Research Assistant – R. Bruce Eldridge Group August 2017 – Present

- Designed and executed CFD simulations to model single-phase and multiphase flow physics inside structured packing geometries
- Analyzed the effects of transitional and laminar flow on the hydraulic prediction of structured packing performance
- Currently optimizing structured packing geometries for improved performance using insight gained from CFD simulations

The University of Texas at Austin Austin, TX
Staff Research Engineer – R. Bruce Eldridge Group January 2017 – August 2017

- Restarted computational fluid dynamics (CFD) research on the hydraulic performance of structured packings inside distillation columns using STAR-CCM+ CFD software
- Assisted group members with energy and design optimization studies of dividing-wall distillation columns using HEEDS design space exploration software

California Institute of Technology Pasadena, CA
Graduate Research Assistant – John F. Brady Group January 2014 – August 2016

- Calculated the hydrodynamic effects of confinement on systems of self-propelled particles in Stokes flow
- Improved efficiency of in-house linear algebra solver by utilizing general-purpose computing on a graphics processing unit (GPU), decreasing the computational time required by ~80%
- Taught three programming languages (C++, Python, and Fortran) to self in three months

COMMUNICATION EXPERIENCE

The University of Texas at Austin Austin, TX
Teaching Assistant – McKetta Department of Chemical Engineering August 2011 – December 2017

- Received overall rating of 4.6 out of 5 for all four classes of at least 30 students each
  - Plant Design (Fall 2017), Unit Operations (Spring 2013), and Transport Phenomena (Fall 2011 & Fall 2012)

California Institute of Technology Pasadena, CA
Teaching Assistant – Department of Chemical Engineering January 2014 – June 2016

- Led recitations to inspire student discussion about class lectures and homework
- Developed homework solutions that have been utilized by subsequent teaching assistants
  - Transport Phenomena – Mass Transfer (Spring 2016), Graduate Transport Phenomena (Winter 2015), and Reactor Design (Winter 2014)

SELECTED PRESENTATIONS

- **Mikey T. Phan**, Luke H. Macfarlan, and R. Bruce Eldridge, "Advanced Modeling for Structured Packing Development – A: Hydraulics," *2020 AIChE Virtual Spring Meeting*, Houston, TX, August 2020
- **Mikey T. Phan** and R. Bruce Eldridge, "Computational Fluid Dynamic (CFD) Simulations of Multiphase Flow through Representative Elementary Units (REU) of Structured Packing," *2018 AIChE Spring Meeting*, Orlando, FL, April 2018