

# PENGFEI CHENG

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## EDUCATION

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### Georgia Institute of Technology

*Doctor of Philosophy*, Chemical and Biomolecular Engineering, GPA: 4.0/4.0

Research advisor: Dr. Joseph K. Scott

Atlanta, GA

Expected 2024

### Carnegie Mellon University

*Master of Science*, Chemical Engineering, GPA: 3.91/4.0

Research advisor: Dr. Ignacio E. Grossmann

Pittsburgh, PA

Dec. 2018

### Dalian University of Technology

*Bachelor of Engineering*, Chemical Engineering, GPA: 3.85/4.0

Dalian, China

July 2017

## RELEVANT COURSES

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### Process Systems Engineering

Advanced Process Systems Engineering, Computational Methods for Process Engineering, Mathematical Modeling of Chemical Engineering Processes, Process Systems Modeling, Special Topics: Process Systems Engineering, Data Analysis and Chemical Engineering

### Mathematics

Linear Programming, Integer Programming\*, Constraint Programming, Disjunctive Programming, Analysis I

\* audited course

## RESEARCH EXPERIENCE

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### Decomposition Strategy for global optimization

*Advisor: Dr. Joseph K. Scott*

Dec. 2019 - Present

### Optimal Scheduling of Copper Concentrate Operations under Uncertainty

*Advisor: Dr. Ignacio E. Grossmann*

Dec. 2017 - July 2019

- Collaborative research project with Aurubis AG
- Developed MINLP model for copper concentrate refinery process utilizing continuous-time representation with priority slots
- Developed and enhanced MILP-NLP decomposition strategy to solve MINLP model within reasonable time
- Applying robust optimization and flexibility analysis to effectively handle the uncertainty in elemental compositions of concentrates

## TEACHING EXPERIENCE

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### Undergraduate Process Control Lab

*Teaching Assistant*

Spring 2020

## PUBLICATIONS

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- **Cheng, P.**, Garcia-Herreros, P., Lalpuria, M., & Grossmann, I. E. (2020). Optimal Scheduling of Copper Concentrate Operations under Uncertainty. *Computers & Chemical Engineering*, 106919.

## PRESENTATIONS

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### **Optimal Scheduling of Copper Concentrate Operations under Uncertainty**

- Oral, *AIChE Annual Meeting*, Orlando, FL Nov. 2019
- Oral, *The Enterprise-Wise Optimization Spring Meeting*, Pittsburgh, PA Mar. 2019
- Poster, *The Center for Advanced Process Decision-making Annual Review Meeting*, Pittsburgh, PA Mar. 2019
- Poster, *The Enterprise-Wise Optimization Fall Meeting*, Pittsburgh, PA Nov. 2018
- Poster, *The Chemical Engineering Graduate Student Association Symposium*, Pittsburgh, PA Oct. 2018

## SKILLS

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<b>Programming Languages</b>	Python, C, C++
<b>Software &amp; Tools</b>	Pyomo, GAMS, MATLAB, COMSOL, Aspen Series, gPROMS

## ADDITIONAL PROJECTS

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**2016 China National Undergraduate Chemical Engineering Design Competition** Dalian, China  
*Propane Dehydrogenation Plant Project* Mar. 2016 - Aug. 2016

- National first prize among 991 teams
- Led a 5-member team to complete the comprehensive design of a propane dehydrogenation plant project, aiming at improving local propane utilization in China
- Conducted model simulation and optimization for the whole process, designed and optimized heat exchange networks, designed equipment in details
- Optimized Oleflex process by integrating multi-stage steam utilization to improve efficiency of energy utilization
- Conducted safety assessment, environmental impact assessment and economic evaluation on the project to assess the project in enterprise scale