

PUSHKAR GHANEKAR

Ph.D. Candidate at Purdue University

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SUMMARY

Chemical engineering Ph.D. candidate with expertise in catalyst modeling using combination of quantum mechanics, thermodynamics, data analytics, and machine-learning (cheminformatics), and closed-loop industry/academia collaborations. My professional goal is to be a part of a cross-functional, data-driven team; leverage my domain expertise, data-science knowledge, and industry experience to deliver engineering solutions that fuel innovation and increase the quality of life.

EXPERIENCE

Graduate Research Assistant (Bill Murray Fellow)

Purdue University

Aug 2016 – Present

West Lafayette, Indiana

- **Advisor:** Prof. Jeffrey P. Greeley
- 6 Peer-reviewed Publications | 2 open-source Python packages | 1 Online-tool
- Computationally efficient tools to model complex catalysts:
 1. Graph neural networks to encode complex reaction surfaces
 2. Genetic algorithm to generate complex multi-component models hitherto deemed challenging (in collaboration with University of Florida)
- Catalyst active-site engineering & Investigating reaction mechanism:
 1. Collaborated with experimental group to propose design rules for building better catalysts for H₂ production, propylene production, and exhaust emission control.
- Online lab-scale hazard evaluation and risk assessment platform:
 1. Developed an open-source tool to compile and scrutinize hazards-related information before performing experiments (in collaboration with CISTAR and Purdue Process Safety and Assurance Center)

Chemometrics & AI Intern

Dow Chemical Company

June 2020 – Aug 2020

Lake Jackson, Texas

- Developed ML model for small molecular screening. Scaled-up model inference capabilities resulting 30-fold improvement in compute time, increasing capability to screen potential molecules from millions to billions.
- Performed multivariate time-series analysis to troubleshoot complex manufacturing problems – proposed key variable driving the process deviation for plant-support team to detect anomaly, improving plant reliability & safety.

EDUCATION

Ph.D. in Chemical Engineering

Purdue University

2016 – Present

West Lafayette, Indiana

Anticipated Graduation: Summer 2021

B.E. in Chemical Engineering

Institute of Chemical Technology

2012 – 2016

Mumbai, India

SKILLS

Material/Chem-informatics

Machine Learning

Graph Neural Networks

Kinetic Modeling

Multivariate Analysis

Data Visualization

High-Performance Computing (GPU/CPU)

Bash scripting

PyData Stack

Git

PyTorch

Web Scraping

RECENT COURSES

Deep Learning Specialization

deeplearning.ai

Feb 2020

Online

Data Science in ChE

Purdue University

Fall 2019

West Lafayette, Indiana

TEACHING

- Mentoring Graduate Student in the Research Group
- Design and Analysis of Processing Systems (ChE45000)
- Process Dynamics and Control (ChE45600)
- Graphic Designing using Adobe Photoshop (Mumbai, India)

OUTREACH

- Murdock Elementary School Teaching Volunteer
- Purdue Catalysis Center Webmaster
- CISTAR-SURF Highschool Teacher Mentor
- Purdue Cycling & Triathlon club member
- Citizens' Climate Lobby (Lafayette Chapter) volunteer