

AKSHAY AJAGEKAR

Systems Engineering, Cornell University
(+1)607-379-8035 ◊ asa273@cornell.edu

EDUCATION

Cornell University

January 2020 - Present

- PhD in Systems Engineering
- Project areas: Quantum computing, Reinforcement learning, Deep Learning, Optimization

Cornell University

August 2018 - January 2020

- Master of Science (MS) in Chemical Engineering: **GPA - 3.93/4.00**
- Thesis: Quantum computing for process systems optimization and data analytics

Indian Institute of Technology (IIT), Patna

July 2014 - May 2018

- Bachelor of Technology (B.Tech) in Chemical Science and Technology
- Cumulative **GPA - 9.24/10** with Department rank 1
- Thesis: Studying the rotational transitions of gas-phase species using a chirped pulse fourier transform microwave spectrometer

ONGOING PROJECTS

Molecular design with automated quantum computing-based learning and optimization strategies. Submitted to: *Nature Computational Methods*.

JOURNAL PUBLICATIONS

Ajagekar, A., Mattson, N.S. and You, F., (2023). Energy-efficient AI-based Control of Semi-closed Greenhouses Leveraging Robust Optimization in Deep Reinforcement Learning. *Advances in Applied Energy*, 9, p.100119.

Ajagekar, A., Hamoud, K.A., You, F. (2022). Hybrid Classical-Quantum Optimization Techniques for Solving Mixed-Integer Programming Problems in Production Scheduling, *IEEE Transactions on Quantum Engineering*, 3, pp.1-16.

Ajagekar, A., You, F. (2022). Quantum Computing and Quantum Artificial Intelligence for Renewable and Sustainable Energy: A emerging prospect towards climate neutrality, *Renewable and Sustainable Energy Reviews*, 165, p.112493.

Ajagekar, A., You, F. (2022) Deep reinforcement learning based unit commitment scheduling under load and wind power uncertainty. Accepted: *IEEE Transactions on Sustainable Energy*.

Ajagekar, A., You, F. (2021). Quantum Computing based Hybrid Deep Learning for Fault Diagnosis in Electrical Power Systems, *Applied Energy*, 303, p.117628.

Ajagekar, A., Humble, T., You, F. (2020). Quantum Computing based Hybrid Solution Strategies for Large-scale Discrete-Continuous Optimization Problems. *Computers & Chemical Engineering*, 132, p.106630.

Ajagekar, A., You, F. (2020). Quantum Computing Assisted Deep Learning for Fault Detection and Diagnosis in Industrial Process Systems. *Computers & Chemical Engineering*, 143, p.107119.

Ajagekar, A., You, F. (2019). Quantum Computing for Energy Systems Optimization: Challenges and Opportunities. *Energy*, 179, p.76-89.

Bernal, D., **Ajagekar, A.**, Harwood S., et al. (2021). Perspectives of Quantum Computing for Chemical Engineering, *AIChE journal*, 68, p.e17651.

Ajagekar, A., You, F. (2022). New Frontiers of Quantum Computing in Chemical Engineering, *Korean journal of Chemical Engineering*, 39, p.811820.

PATENTS

International publication no. WO 2021/072221 A1

- Fengqi You and **Akshay Ajagekar**. Quantum Computing based Hybrid Solution Strategies for Large-scale Discrete-Continuous Optimization Problems.

Patent Application Docket no. 052227.500744

- **Akshay Ajagekar**, Pierre Minssen, Romina Yalovetzky, Marco Pistoia. Systems and Methods for Quantum Computing-Assisted Portfolio Selection

CONFERENCE PRESENTATIONS

AIChE Annual Meeting (2019)

IEEE International Conference On Systems, Man, and Cybernetics (2020)

International Conference On Computer-Aided Design (2021)

European Symposium on Computer Aided Process Engineering (2021)

Symposium on Dynamics and Control of Process Systems (2022)

Process Systems Engineering Symposium (2022)

IEEE American Control Conference (2022)

International Conference on Applied Energy (2022)

TEACHING

SysEn 6800 - Computational Optimization

Fall 2022

Responsibilities: Delivered few lectures for a class of graduate students, Held weekly recitations and office hours, Graded assignments and prelims.

SysEn 6880 - Big Data Analytics and Machine Learning

Spring 2020

Responsibilities: Delivered few lectures for a class of graduate students, Held weekly office hours, Graded assignments.

SysEn 6888 - Deep Learning

Summer 2019, Summer 2020

Responsibilities: Delivered few lectures for a class of graduate students, Held weekly office hours, Graded assignments and projects.

CEE 3040 - Uncertainty Analysis

Fall 2019

Responsibilities: Delivered weekly 2 hours lectures for sections of 50 junior and senior level undergraduates, Held weekly office hours, Graded course exams.

CEE 5970 - Risk Analysis

Spring 2019

Responsibilities: Held weekly office hours, Graded assignments and course exams.

AEP 2640 - Interfacing the Digital Domain with an Analog World

Fall 2018

Responsibilities: Guided students through the laboratory experiments and simulations in LabView, Graded lab notebooks.