Priyam Nayak

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Education

- **Indian Institute of Technology Bombay** — Mumbai, India
  Doctor of Philosophy(Ph.D.) - Chemical Engineering; GPA: 8.76 — *Dec 2021 - Ongoing*
  Courses: *Advanced Process Synthesis, Process Plant Simulation, Petroleum Refining Engineering, Energy Integration in Chemical Processes*
- **SASTRA University** — Thanjavur, India
  Bachelor of Technology - Chemical Engineering; GPA: 8.124 — *July 2010 - May 2014*
  Courses: *Chemical Reaction Engineering, Heat and Mass Transfer, Fluid Mechanics, Chemical Engineering Thermodynamics, Computer Applications in Chemical Engineering*

Skills Summary

- **Programming Languages**: Python, C
- **Operating Systems**: Windows, Linux
- **Software/Tools**: DWSIM, Aspen Plus, Aspen HYSYS, MATLAB, Scilab, OpenModelica, PRO/II, LaTeX
- **Soft Skills**: Leadership, Project Management, Writing, Time Management

Experience

- **FOSSEE Project, IIT Bombay** — Mumbai, India
  Project Manager — *Nov 2020 - Dec 2021*
  Assistant Project Manager — *Jan 2018 - Oct 2020*
  Project Research Assistant — *Sept 2016 - Dec 2017*
  - **Project Management**: Overall coordinator of research and development carried using DWSIM & OpenModelica in FOSSEE project.
  - **Research & Development**: Development of seconday processing units for refinery simulation, unit operation models and thermodynamic packages for steady-state chemical process simulator using OpenModelica.
  - **Content Curation**: Review of process flowsheets developed and submitted as a part of DWSIM Flowsheeting Project, creation of spoken tutorials for learning DWSIM and OpenModelica
- **IBM India Pvt. Ltd.** — Bangalore, India
  Associate System Engineer — *Aug 2014 - Sept 2015*
  - **Regression Testing**: Lead for regression testing of Bell Canada web application.
  - **Automation Testing**: Responsible for contribution to Automation testing framework development.
  - **Test Reporting**: Engaging in calls with developers to get the bug fixed and providing updates to Project Managers.
- **National Chemical Laboratory** — Pune, India
  Project Trainee (Intern) — *Dec 2013 - Apr 2014*
  - **Literature Survey**: Perform literature survey to convert batch process for production of Pendimethalin to a continuous process.
  - **Energy & Mass Balance**: Perform streamwise energy and mass balance for the proposed flowsheet.
  - **Design and Economics**: Design of equipments (reactors & distillation columns) involved in the process and performing economic evaluation of the plant to find the payback period.

Projects

- **Development of Flowsheet for Air Separation Unit using DWSIM**: Simulation of Air Separation Unit producing 60 t/h oxygen (recovery 75%) and liquid argon (recovery 85%) using a simplified flowsheet (i.e. refrigeration air is not compressed to a higher pressure, resulting in a lower efficiency, and the simple Peng-Robinson equation of state is used for simulation, leading to inaccuracies in the predicted refrigeration due to the JT effect. (2017)
- **Development of Flowsheet for Extractive Distillation of Toluene and Methylcyclohexane using Phenol using DWSIM**: Process simulation for performing extractive distillation to separate toluene and methylcyclohexane using phenol as solvent, adapted from Tiverios and Van Brunt. (2017)
- **Development of Flowsheet for Separation of Natural Gas using DWSIM**: Process simulation for train of distillation column to separate components of natural gas through each column, namely de-methanizer, de-ethanizer, de-propanizer and de-butanizer, based on Luyben's work, using DWSIM. (2017)
- **Development of Flowsheet for Reactive Distillation of Acetic Acid with Methanol to Methyl Acetate using DWSIM**: Process simulation of reactive distillation process for esterification of acetic acid with methanol to produce methyl acetate, based on Luyben's work, using DWSIM. (2017)
- **Process Development for Continuous Manufacture of Pendimethalin**: Designing a plant for continuous production of pendimethalin starting from converting the batch process to continuous, performing mass and energy balance, designing of equipment and performing economic evaluation. (2014)

Publications

- **Journal Article: Chemical Process Simulation using OpenModelica**: Published in **Industrial & Engineering Chemistry Research**, 58(26), 11164-11174; https://doi.org/10.1021/acs.iecr.9b00104 (2019)
- **Journal Article: Implementation of a Property Database and Thermodynamic Calculations in OpenModelica for Chemical Process Simulation**: Published in **Industrial & Engineering Chemistry Research**, 58(18), 7551-7560; https://doi.org/10.1021/acs.iecr.8b05147 (2019)
- **Conference Proceedings: Simulation Scheduling of Variable-Structure Systems in OpenModelica**: Published in **Proceedings of Asian Modelica Conference 2022**, Tokyo, Japan; https://doi.org/10.3384/ecp193147 (2022)

Honors and Awards

- Winner of National Competition for Outstanding Young Chemical Engineer(OYCE) Award by IIChE - MRC(Working Professional Category) - February 2020
- Winner of Communication Sector Orion Award by IBM Client Innovation Centre India - August 2015
- Dean's Merit List Top 3% - 10% at SASTRA University- July 2012

Positions of Responsibility

- **Overall Coordinator for Research Scholars' Symposium 2023 at IIT Bombay, India**: Conducted annual symposium for research scholars of Chemical Engineering department at IIT Bombay where scholars compete with other students working in the similar area of research. Also conducted panel discussions as a part of the symposium. (Dec 2022 - Mar 2023)
- **Technical Cluster Head for CAPE 2013 at SASTRA University, Thanjavur, India**: Cluster head of technical events conducted at National Conference on Advances in Process Engineering(CAPE-2013). Also organised workshop on Scilab for 350 participants participated as a part of the event. (Aug 2013 - Oct 2013)