Vridhi Rajkumar Varliani (she/her)

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EDUCATION

University of Massachusetts, Amherst, Massachusetts Expected Graduation: April 2027
Master's in Engineering Management
Coursework: Technical Project Management, Engineering Leadership and Entrepreneurship, Descriptive Analytics

Thadomal Shahani Engineering College Graduated: May 2025
Bachelors in Chemical Engineering
Coursework: Operations Management, Heat Transfer Operation, Project Management in Chemical Process Industries, Energy Systems Design, Chemical Reaction Engineering, Process Engineering and Economics, Piping Engineering

PROFESSIONAL EXPERIENCE

IIT Bombay | Research Assistant – Chemical Engineering Department June 2024 – July 2024

- Indian Institutes of Technology (IIT) Bombay is one of India's leading technology institutes renowned for its research output with numerous projects and collaborations in many diverse areas.
- Orchestrated a comprehensive data analysis pipeline using high-speed Photon camera data processed with PFV4; enhanced accuracy in cement particle motion tracking by 7% through rigorous data cleaning protocols.
- Developed a track-analysis simulation to predict particle behavior in advanced experimental settings, reducing error in cement particle prediction by 15% to improve process control.
- Spearheaded the redesign of experimental protocols with 3 colleagues, cutting down experimental processing time by 6 hours for each experiment and improving data analysis efficiency for industry partners.
- Designed and Conducted experiments on an electrostatic separator to enhance cement separation efficiency applying data-driven decision-making for process optimization

PROJECTS

- **Carbon Sequestration :**
  Researched 8+ carbon sequestration techniques, integrating data on improvements such as increased biodiversity, enhanced water quality, and healthier soil; presented findings at 1 conference and contributed to a report.
- **Magnetic Nanoparticles :**
  Drove a 15% reduction in experiment repetitions through the creation and implementation of detailed, standardized synthesis protocols, ensuring consistent results and minimizing wasted resources across the team.
- **Manufacture of TAME process :**
  Authored and published a research paper in IJARESM (Volume 12, Issue 10, ISSN: 2455-6211) in October 2024, detailing a novel process design for sustainable TAME manufacturing practices.
- **Design of flare system :**
  Authored a comprehensive research paper detailing the flare tower design and simulation results, achieving first-author status for submission to a high-impact journal by December 2025.

SKILLS

- **Process Simulation Software:** ASPEN (Advanced System for Process Engineering), DWSIM.
- **Domain Knowledge:**Process Optimization, Simulation Modeling, Experimental Design, Chemical Process Engineering.
- **Technical & Analytics Tools :** MATLAB, Microsoft Excel, PFV4, Power Point, R Programming.

CERTIFICATIONS

- Petroleum Refining - Complete Guide to Products & Processes, Udemy.
- Agile Certified Practitioner - Udemy.
- Project Management - Udemy.

ACHIEVEMENTS/ EXTRACURRICULARS

- Revamped marketing plan for Chemergence, incorporating digital strategies and targeted social media campaigns, achieving a 25% increase in event attendance and a 30% rise in student engagement.
- Led a team of 8 dancers, managing 12 hours weekly of practice sessions, resulting in victories in intra-college dance competitions for 3 consecutive years, from 2022 to 2024.
- Spearheaded the NSS environmental stewardship program's volunteer recruitment efforts, securing a 30% increase in participation and earning formal recognition from the program director in 2022.
- Organised NSS blood donation drive in 2022, collecting 110 units of blood for local blood banks and exceeding the previous year's collection by 20%, increasing hospital supplies.