ROHAN BHAT

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EDUCATION

Doctor of Philosophy in Materials Science and Engineering

Missouri University of Science and Technology (Missouri S&T) Dissertation Title: "Enhancing the Beneficial Use of Fly Ash in Infrastructural Materials" Advisor: Dr. Aditya Kumar

Master of Science in Petroleum Engineering Missouri University of Science and Technology (Missouri

S&T) Advisor: Dr. Ralph Flori

RESEARCH INTERESTS

Exploring environmentally friendly and renewable materials, studying their synthesis, properties, and applications as infrastructural to contribute to a more sustainable and circular economy.

RESEARCH EXPERIENCE

Graduate Research Assistant

Department of Materials Science and Engineering, Missouri S&T

- Worked on the Federal Highway Administration Project on investigating the effects of 20 fly ashes on Portland cement.
- Collaborated with two universities to complete the Federal Highway Administration Project.
- Submitted quarterly reports to the Federal Highway Administration. ٠
- Formulated Portland cement free binders using 12 fly ashes and investigated their structure-property correlations.
- Wrote research papers, reviews, and summaries regarding sustainable infrastructural materials.
- Collaborated with researchers to design and execute experiments.
- Adhered to laboratory safety protocols in compliance with university standards. •
- Assisted with manuscript preparation and editing for publication in peer-reviewed journals.
- Calorimetry, Rheology, TGA, SEM-EDS, XRF, XRD, CT-scan, BET, Mechanical Testing, Materials Characterization.

TEACHING AND MENTORING EXPERIENCE

Teaching Assistant, Ceramic Processing Laboratory I

Department of Materials Science and Engineering, Missouri S&T

- Conducted laboratory sessions for students to learn basic principles and practices relating to measuring physical and thermal properties in ceramics.
- Instructed students on performing analyses to assess experimental-data quality and reporting uncertainty.
- Prepared assignments, proctored tests, and provided grades in compliance to university standards. •
- Mentored students through office hours and one-on-one communication.
- Collaborated with teachers in evaluating student progress, needs, and gains.

Summer Camp Mentor, Cementitious Materials

Department of Materials Science and Engineering, Missouri S&T

- Showcased research and departmental activities to high school students.
- Conducted laboratory sessions for high school juniors and seniors.
- Assisted students in report writing and presentation skills.

PUBLICATIONS

- R. Bhat, T. Han, S. Akshay Ponduru, A. Reka, J. Huang, G. Sant, A. Kumar, Predicting compressive strength of alkali-activated systems based on the network topology and phase assemblages using tree-structure computing algorithms, Constr. Build. Mater. 336 (2022) 127557.
- T. Han, R. Bhat, S.A. Ponduru, A. Sarkar, J. Huang, G. Sant, H. Ma, N. Neithalath, A. Kumar, Deep learning to

Expected Spring 2024

May 2019

2020-Present

2021-2022

2021-2022

predict the hydration and performance of fly ash-containing cementitious binders, Cem. Concr. Res. 165 (2023) 107093.

- R. Bhat, T. Han, G. Sant, A. Kumar, The application of Fly Ash and Bottom Ash to Develop Sustainable Cementitious Binders, In Progress (2023).
- **R. Bhat**, S. Akshay Ponduru, N. Neithalath, A. Kumar, Understanding the Effects of Mechanical and Thermal Activation on Compressive Strength Development in NaOH-based One-Part Alkali-Activated Binders, In Progress (2023).

PRESENTATIONS

Oral Presentations:

Bhat, R. (2023, June). "Enhancing the Beneficial Use of Fly Ash in Building Materials", 13th Advances in Cement-Based Materials, New York City, New York, USA.

PROFESSIONAL EXPERIENCE

Freelance Research Chemical Engineer – Part Time

EMA LUBES PVT. LTD, Pune, India

- Aided in new product development and formulations.
- Grew revenue by >50% for new products. •
- Used social media to engage new costumers and reduce costumer acquisition cost.

Chemical Engineer

EMA LUBES PVT. LTD, Pune, India

- Developed new engine oil lubricant products and industrial lubricants based on VOC and market research to grow revenues by 10%.
- Improved laboratory testing protocols and quality control system as per API, NLGI and SAE to reduce product • returns by 12%.
- Redesigned process equipment to increase manufacturing capacity by 23% as per API standards. ٠
- Implemented automated process to improve packaging throughput by >100%.
- Coordinated product engineering, manufacturing, quality, and supply chain activities for on time delivery to • customers.
- Reported daily manufacturing rate to CEO.
- Prepared and documented scientific reports on newly formulated products.
- Six Sigma, Lean Manufacturing, Quality Assurance, Quality Control, Supply Chain Management. •

Engineering Trainee

Manisha Compositek PVT. LTD, Pune, India

- Identified and recommended new curing accelerators for FRPs.
- Worked with a team of 10 engineers to assist in research of new resins and fibers for FRPs. •
- Assisted the Chief Operating Officer with production planning and daily production reports (DPR). •

SUMMARY OF SKILLS

- Experimental planning and development.
- Independent research, scientific and technical writing.
- Interpreting and compiling data. •
- Advanced Material Synthesis and Characterization.
- Quality Assurance and Quality Control Procedures. ٠

2016-2017

2017-2019

2014-2014