

Shivangi Jha

EDUCATION

University of Saskatchewan GPA (3.97/4.0)
PhD Environment and Sustainability

Expected-Feb 2025

Thapar University, India CGPA (7.9 /10.0)
MS Chemical Engineering

Aug 2016 - July 2018

Punjab Technical University, India CGPA (8.4/10.0)
BS Chemical Engineering

Aug 2012- Jun 2016

RESEARCH AND INDUSTRIAL EXPERIENCE

Ph.D. Candidate & Teaching Assistant, University of Saskatchewan

Jan 2021- Present

- Development of activated biochar using agricultural and forestry residues including analysis of technical and economical parameters
- Assessment of environment impact including adsorption of PFAS from wastewater
- Teaching Assistant for courses including Renewable energy systems, Community Economic Analysis and Renewable Energy, Systems Thinking for Sustainability, Foundations of Governance for Sustainability, Community Energy Planning. Responsibilities include teaching specific topics and assisting instructor in grading

Saskatchewan Waste Reduction Council

July 2024- Aug 2024

- I was selected from University of Saskatchewan for doing the Community Engaged Project with Saskatchewan Waste Reduction Council
- Responsible for ensuring the accuracy and relevance of the information on the Saskatchewan Waste Reduction Council's "Waste Reduction Hub" an online, searchable database designed to help users find waste diversion programs
- Participated in a 10-hour Career Readiness course as a part of this program

Research Associate, Indian Institute of Technology, Delhi

Dec 19-20 & Oct 18- Jan 19

- Conducted life cycle assessments to evaluate the environmental sustainability of biofuels derived from crop waste
- Utilized SimaPro software to analyze and reduce carbon dioxide emissions from biofuel production, contributing to the mitigation of PM2.5 and PM10 levels in the National Capital Region
- Developed cation exchange membranes for vanadium redox flow batteries (VRFB) and synthesized polyvinylidene difluoride (PVDF) membranes, advancing applications in electric vehicles

Assistant Project Engineer, Indian Institute of Technology, Guwahati

Feb 2019 - July 2019

- Developed pilot plant for bio-degradable plastic for purification of lactide through melt crystallization
- Operating self-designed melt crystallizer to remove impurities (lactic acid, oligomers) from lactide Student Researcher, University of Adelaide, Australia Feb 2018- July 2018
- Researched the potential of municipal wastewater sludge as a sustainable feedstock for producing upgradeable renewable crude oil through hydrothermal liquefaction
- Conducted solvent extraction to efficiently extract oil from solids after the hydrothermal liquefaction of municipal wastewater

Intern, Indian Institute of Petroleum, Dehradun

Jan 2016- May 2016

- Conducted a study on catalytic upgrading of waste tire pyrolysis oil to improve its fuel properties and performance
- Analyzed and compared the chemical composition and properties of tire oil pre- and post-pyrolysis at various temperatures using CHNS analysis, GC-MS, and calorific value measurements

SKILLS

- Equipment: Bomb Calorimeter, Gas Chromatography, FTIR, UV-Vis Spectroscopy, TGA
- Software: Word, Excel, PowerPoint, Auto-CAD, MATLAB, SimaPro, SuperPro, Aspen, Access

EXTRA-CIRRICULAR ACTIVITIES

- Climate Change Representative- SENSSA, University of Saskatchewan (2023)
- Volunteer: Peer health, University of Saskatchewan (2023)
- Finalist: 3-minute thesis 3MT at university level (University of Saskatchewan)
- Executive Committee Member: India-Canada Cultural Association (Jan 2022- April 2022), Saskatchewan

PUBLICATIONS

- Jha, S., Nanda, S., Acharya, B., & Dalai, A. K. (2022). A review of thermochemical conversion of waste biomass to biofuels. *Energies*, 15(17), 6352
- Jha, S., Okolie, J. A., Nanda, S., & Dalai, A. K. (2022). A review of biomass resources and thermochemical conversion technologies. *Chemical Engineering & Technology*, 45(5), 791-799
- Jha, S., Nanda, S., Acharya, B., & Dalai, A. K. (2024). Introduction to sustainability science in addressing energy security and achieving sustainable development goals. *Biomass to Bioenergy* (pp. 1-14).
- Jha, S., Nanda, S., Acharya, B., & Dalai, A. K. (2024). Perspectives on the sustainability and commercialization of biofuels. In *Emerging Biofuels* (pp. 1-17). Elsevier.
- Investigations of thermal effects during pyrolysis of agro-forestry biomass and physicochemical characterization of biofuel products (Submitted)