

# DEBARUN BANERJEE

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## Professional Profile

A highly enthusiastic and motivated Chemical Engineering graduate and Fuel Engineering postgraduate with a passion to do multiple projects and an inclination towards Green Chemistry including Biomass Conversion, Biofuels, Heterogeneous Catalysis and Wastewater Treatment.

## Education

**M.Tech** Indian Institute of Technology (ISM), Dhanbad 2019-21  
**Fuel Engineering [CGPA= 9.145 (upto 3<sup>rd</sup> Sem)]**

**B.Tech** Haldia Institute of Technology, Haldia, West Bengal 2015-19  
**Chemical Engineering [CGPA=8.77]**

## Projects Undertaken

- M.Tech Thesis:** “Carbon-based Nanomaterial Synthesis from Agricultural Waste-based Biochar Precursor- A Feasibility Study”.
- B.Tech Thesis:** “Removal of Hexavalent Chromium from Industrial Waste Water using Rice Husk as Bio-Adsorbent”.
- Institution:** Indian Institute of Technology Kharagpur, India June 2018  
**Position:** Research Intern  
**Project:** Fluoride Removal from Industrial Waste Water by Adsorption onto Ca-Al Layered Double Hydroxide
- Institution:** Kalasalingam Academy of Research and Education, India June 2019  
**Position:** Research Intern  
**Project:** Removal of Dye from Wastewater by Photocatalytic Oxidation using Nanocomposite Materials

## Research Interests

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| Biomass Valorization | Wastewater Treatment    | Machine Learning |
| Biofuels             | Heterogeneous Catalysis |                  |
| Reaction Engineering | Carbon Nanomaterials    |                  |

## Computational Skills

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MATLAB  
Machine Learning

ANSYS  
ASPEN

## Publications

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1. Debarun Banerjee, Nidhi Kushwaha, Ejaz Ahmad, “Environmentally Benign and Sustainable Production of Hydrogen from Lignocellulosic Biomass Derived Compounds via Photo-reforming” (submitted).
2. Debarun Banerjee, Kesavan Ravi, “A Comprehensive Review on Carbon-based Nanomaterials using Lignocellulosic Biomass-based Biochar: Synthesis, Characterization, Applications and Potential Route” (submitted).
3. Nidhi Kushwaha, Debarun Banerjee, Ejaz Ahmad, “Elucidating the Role and Catalytic Production of Lignocellulosic Biomass-derived Butyl Butyrate as Jet Fuel” (submitted).
4. Nidhi Kushwaha, Debarun Banerjee, Ejaz Ahmad, “Beginner’s Guide to Machine Learning Approaches for Application in Heterogeneous Catalysis” (submitted).

## Manuscripts under preparation

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1. Debarun Banerjee, Nidhi Kushwaha, Ejaz Ahmad, “Eco-Design Strategies for Recycling of E-waste” (under preparation).
2. Nidhi Kushwaha, Debarun Banerjee, Ejaz Ahmad, “Insights into COVID-19 Non-Biomedical Waste Management: Composition, Current Practices and Challenges” (under preparation).