

D. Blue Devil

Email address | 999.777.9311 | LinkedIn URL

EDUCATION

Doctorate of Philosophy, Environment

Nicholas School of the Environment, Duke University

Durham, NC | Anticipated May'24

Bachelor of Technology, Mechanical Engineering

Amrita School of Engineering, Amrita Vishwa Vidyapeetham

Coimbatore, India | Jun'19

SKILLS

Data Analysis and Visualization: Python, Julia, R, Excel VBA, Tableau C++, C SQL

Software Packages: AutoCAD, Catia V%, Ansys, Solid Edge, MATLAB, Adams, Ember, MS Office, G-Suite

WORK EXPERIENCE & RESEARCH

Research project, Nicholas School of the Environment, Duke University

Durham, NC | Sep '22 – Present

Title: Exploring Methods of Electric Power Systems with Renewable Energy

- Comparing different methods for setting operational reserve requirements in day-ahead & real-time unit commitment models to schedule and dispatch electric power plants with increased penetration of renewable energy
- Analyzing data in excel, coding for UC models using Julia, and visualizing results using TABLEAU

Energy Analyst Intern, E4 Carolinas

Charlotte, NC | May '22 – Aug'22

- Visualized the database of companies in the nuclear industry (globally & the Southeast US) and developed dashboards using TABLEAU
- Developed a generic multi-period ED model for power plants operated by Duke Energy and Solar Biomass IPP in the Carolinas region using publicly available data & developed a generic multi-period ED model for energy storage

Project Engineer, Indian Institute of Technology Madras (IIT-M)

Chennai, India | Jul '19 – Jul' 20

- Studied the thermochemical conversion characteristics of locally available alternative biomass fuels in simulated conditions of relevance to pyro-processing of supplementary cementitious materials (SCMs)
- Provided useful insights on the effects of the particle size distribution of different biomass on the product yield; reactor operating conditions for maximum yield; proximate, ultimate, and thermos-gravimetric analysis of different biomass
- Analyzed the % deviation of experimental results from theoretical calculations and outlined future scope for CFD simulations

Undergraduate thesis project, Amrita School of Engineering

Coimbatore, India | Jul '18 – Jun'19

Title: Effect of synthetic antioxidants on the stability of biofuel

- Analyzed the oxidative stability of Prosopis juliflora biodiesel blended with synthetic antioxidants
- Determined induction periods of all the samples using the Rancimat test and the function groups present using FTIR Spectroscopy
- Investigated the performance, emission, and combustion characteristics of the CI diesel engine by varying the concentration of antioxidants blended with biodiesel

Thermal Engineering Inter, Neyveli Lignite Corporation India Ltd

Neyveli, India | Jun '17 – Aug'17

- Investigated the design & operation of the Steam Turbine in TPS -1 Expansion to identify any possible flaws in construction
- Performed test on the HP and IP steam turbines and determined the efficiency to be 74.35% and 90.51% respectively

PUBLICATIONS

- **Devil, D. B.,** Heel, T. et al. (2021) "Evaluation of oxidation stability and engine behaviors operated by Prosopis juliflora biodiesel/diesel fuel brands with presence of synthetic antioxidant." Sustainable Energy Technologies and Assessments 52: 102086
- **Devil, D. B.,** Heel, T. et al. (2021) "Optimization of operating parameters for diesel engine fueled with bio-oil derived from cottonseed pyrolysis. Sustainable Energy Technologies and Assessments 52: 102202
- **Devil, D. B.** Heel, T. et al. (2021) 3 – Waste to liquid fuels: potency, progress and challenges. *Advanced Technology for the Conversion of Waste into Fuels and Chemicals*. Woodhead Publishing: 41-68

LEADERSHIP & AWARDS

- **Graduate Teaching Assistant** for the course '**Modeling of Energy Systems (ENV 716)** at Nicholas School, Duke University Spr'22
- Awarded professional merit scholarship by Nicholas School of the Environment, Duke University Fall'22
- Awarded diploma in AutoCAD (2D & 3D), Catia V5, and ANSYS from CADD Center Jan 20