Sanjay Dangi, Mechanical Engineer
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Education

M.S, Mechanical Engineering (GPA: 3.91/4) **(2023 - 2025)**
Northern Illinois University

B.E, Mechanical Engineering (74/100)
Tribhuvan University, Pulchowk Campus, Nepal **(2014 - 2018)**

Technical Skills

CAD/CAM: SolidWorks, Fusion360, AutoCAD, CNC Coding, GD&T
FEA: ANSYS, COMSOL, SolidWorks Simulation, MATLAB
Manufacturing: 3D Printing, Lathe, Welding, Milling, Basic PLC, SCADA, Arduino, PIV Laser

Projects

M.S. Thesis, PIV Characterization of a Large-Scale EHD Vortex Confinement Flow in Electrostatic Precipitator for Particle Agglomeration

B.E. Thesis, Design and Fabrication of Manually Operated Engine-powered Rice Reaper Machine Using SolidWorks and Ansys as Design Tools with Different Machining Processes

Professional Experiences

Research Assistant: Northern Illinois University (2023 - Now)

- 3D-CAD Design of Efficient Air Cleaner Electrostatic Precipitator (ESP) Based on Vortex Confinement Flow and Analysis Using PIV Technology
- Fabrication of the Designed Laboratory Scale ESP Setup
- High DC Voltage (-25 to -40 kV) Application
- Vortex Flow Field and Data Analysis in SigmaX and MATLAB

Mechanical Engineer/ Plant In-Charge
Khilung Kalika Biogas Power Plant, Nepal (2019 - 2021)

- Maintenance of Anaerobic Digester and Decantation Unit
- Basic Programming and Maintenance of PLC (ABB) and SCADA
- Supervision of Chemical Scrubbing Unit for Biogas
- Bio-Gas (1 MW) and Diesel Generators (700 kW), Bio-gas Powered Boiler Unit Handling
- Granular and Liquid Organic Fertilizer Production Plant Supervision
- Factory Line Maintenance, Inspection, and Inventory Management
- Technicians Team Leading and Labor Management

Wastewater Treatment: Installation and Operation
(2019 - 2021)

- Led the Installation and Testing of a Wastewater Treatment Plant in Collaboration with Bikon Water Treatment Pvt. Ltd.
- Chemical Treatment of Wastewater from the Decantation Process
- Lab Results Analysis Before and After Wastewater Treatment

Science and Technology Project Instructor
Rockford Environmental Science Academy (RESA) (2024 - 2025)

- Taught Students the Fundamentals of 3D Printing and Tinkercad
- Developed and Delivered Hands-on Workshop to Enhance Students' Practical Skills in Design and 3D Printing
- Guided Students Through the Design and Creation of 3D Models
- Designed Tinkercad Tutorial and Organized 3D Design Challenges

Internship Experiences

TOYOTA, Kathmandu, Nepal (Sept 2017- Dec 2017)

- General Servicing and Maintenance of IC engine
- EVs and Batteries fault inspection
- LEAN Concept Basics

Chaudhary Groups, Kathmandu, Nepal (Jan 2018 - Apr 2018)

- Plant Layout Re-Design
- Maintenance of Noodle and Cheeseball Production Plants, Boilers and Diesel Generators

Podium Presentations

Dangi et al.,(2018) "Design and Fabrication of Engine Powered Manually Operated Rice Reaper." RECAST, Tribhuvan University (TU).

Dangi et al.,(2024) "PIV Characterization of a Large-Scale EHD Vortex Confinement Flow in Wire-to-Plate Electrostaic Precipitator for Particle Agglomeration", The American Association for Aerosol Research (AAAR).