Subodh Chandra Subedi

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PhD Candidate in Mechanical Engineering with a strong background in Additive manufacturing, CAD, FEA, and Topology Optimization. Experienced in DFM, failure analysis, design optimization, GD&T, and Solid modeling. Worked in design, manufacturing, installation and testing of heavy equipment in the energy industry.

EDUCATION

PhD In Mechanical Engineering **08/2024**
University of Wisconsin-Madison GPA: 3.71
Thesis: Support structure optimization for LPBF metal AM.

MS In Mechanical Engineering **08/2020**
University of Wisconsin-Madison GPA: 3.71

ENGINEERING EXPERIENCE

Research Assistant (Jan 2019 - Present) **UW-Madison, WI**
Engineering Representations and Simulation Lab, UW Madison
Alloy Design and Development Lab, UW-Madison

Support Structure Optimization for Metal Additive Manufacturing
- Designed novel truss-type support structure for metal additive manufacturing.
- Optimized the support for better performance and reduction of material waste by over 80%.
- Innovative computational support optimization solutions delivered to the US Army and US NAVY

Geometric Postprocessing of Topology Optimized Designs
- Reviewed existing commercial solutions for geometric post-processing of TO designs.
- Proposed new methods for geometric post-processing of complex topology optimized designs.

Formula 1 Upright Design Challenge, Topology Optimization Roundtable 2019, NM, USA
- Designed and manufactured car upright with 90% less weight for a given multi-load problem using topology optimization and additive manufacturing.

3D printed Tactile Maps for Visually Impaired
- Created tactile maps of campus for easy navigation, orientation, and mobility for visually impaired individuals.

In-process Failure Investigation in Ceramic 3D Printing
- Modelled ceramic 3D printing build process to predict part build failures using computational and experimental tools

Teaching Assistant **UW-Madison,WI**

ME 342 (**Machine Component Design**) (May 2024 – August 2024)
- Teach the course as an instructor
- Failure theories, Safety factor, reliability analysis, high cycle fatigue, material and component selection

ME 331 (**Computer-Aided Engineering**) (Jan 2018 – Dec 2019)
- Restructured the course to include FEA, shape, size and topology optimization
- Teach GD&T, ASME Y14.5, Advanced Modeling, Analysis, and Optimization using SolidWorks, MATLAB

ME 548 (**Intro to Design Optimization**)
- Design optimization course using MATLAB, SolidLab

Teaching Assistant (Aug 2015 – Nov 2017) **University of North Dakota, ND**
- Teaching assistant for courses in Finite Element Analysis, Engineering Ethics, Design of machinery

Mechanical Engineer (Dec 2012 – Aug 2015) **Nepal Hydro & Electric Limited, Nepal**
- Designed, manufactured, and tested hydro-mechanical steel structures
- Performed Project and Contract management.
- Carried out Engineering Feasibility Studies
- Trained engineering staffs on using AutoCAD, CNC Plasma Cutter

LEADERSHIP/VOLUNTEERING EXPERIENCE

- Designed and led 10-day workshop titled 'Introduction to Computer-Aided Engineering' for middle and high school students, August 2018, UW-Madison
- Led a 1-day workshop titled 'Learning Topology Optimization through Examples and Case Studies' at ASME IDETC-CIE Conference, August 2019, Anaheim, CA
- Judge – Capital Science and Engineering Fair, Madison, WI, 2019, 2022, 2023, 2024
- Morgridge Entrepreneurial Bootcamp, UW-Madison 2023

SKILLS

- Programming and Simulation Languages: MATLAB, Python
- Design, Modeling and Optimization: SolidWorks, ANSYS, CREO, Rhino, nTopology, Abaqus
- Additive Manufacturing Tools: Cura, Materialize Magics, EOS M290, Ultimaker