Karki Anurag

Bhaktapur, Nepal

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Summary

- 1 year+ of research in Blended-Wing Body (BWB) planform optimization
- Basic and advanced 2D and 3D modeling skills in Solidworks
- Advanced CFD simulation skills using ANSYS and SU2
- Strong theoretical background in fundamental and advanced concepts of fluid mechanics and thermodynamics

Education

Pulchowk Campus, Tribhuvan University *Lalitpur, Nepal*

Bachelor of Mechanical Engineering *Nov 2017 - July 2022*

- Graduated with first division
- **Core courses :** Finite element method, Fluid mechanics, Mechanical design and simulation, Operational Research, Heat transfer, Control system, Computer-Aided Design

Khwopa Secondary School *Bhaktapur, Nepal*

High School *Jul 2015- Aug 2017*

- Passed with Distinction

Work Experience

Incubation, Innovation, and Entrepreneurship Center (IIEC) *Lalitpur, Nepal*

Mechanical Engineer *Sept 2022 - Current*

- Design and fabrication of UAVs
- Performed a thermal analysis of the battery of a fixed-wing UAV
- Performed a software-in-the-loop (SITL) simulation of surveillance drone in Gazebo simulator
- **Technical Skills:** CFD simulation using ANSYS Fluent, 3D modeling using Solidworks, low-fidelity aerodynamic analysis using XFLR5, Basic robot simulation using Gazebo.
- **Soft Skills:** Teamwork, Time Management, Communication, Presentation skills.

Prokura Innovations *Lalitpur, Nepal*

Mechanical Engineering Intern *Jun 2021 - Aug 2021*

- Design and fabrication of VTOL (Vertical Take-Off and Landing) for last-mile delivery of medicine and blood
- Performed both aerodynamic and structural analysis of the UAV

Projects

Optimization of Eagle-Ray Blended Wing Body Vehicle and Testing of Data Acquisition and Decision Support Mechanism *Lalitpur, Nepal*

Pulchowk campus, Tribhuvan University *Jan 2021 - Feb 2022*

- Final year thesis
- Conducted both aerodynamic and stability analysis of Eagle-Ray, a blended-wing body (BWB) vehicle designed for snow leopard surveillance.
- Optimization of the UAV planform using gradient and non-gradient method
- Designed and tested a data acquisition system to integrate into the BWB UAV
- **Technical Skills:** Aerodynamic shape optimization using SU2 as well as Aeolus software, Manual as well as automated control of a drone, Arduino programming skill
- **Soft Skills:** Research methodology, Teamwork, Presentation skills, Report writing.

Flow Analysis and Shape Optimization of Convergent-divergent Nozzle for Maximum Thrust Using SU2 *Lalitpur, Nepal*

Pulchowk campus, Tribhuvan University *May 2021 - Jul 2021*

- Turbomachinery course project
- Perform CFD analysis on 2D nozzle using SU2 software
- Thrust of a supersonic converging-diverging nozzle was optimized by using SU2 software
- **Technical Skills:** CFD using SU2 , Adjoint-based optimization
- **Soft Skills:** Teamwork, Presentation skills, Report writing.

Design and Simulation of Centrifugal Pump *Lalitpur, Nepal*

Pulchowk campus, Tribhuvan University *Apr 2020 - May 2020*

- Fluid machine course project
- Designed an impeller to generate a head of 16m
- Analysis of fluid motion of the impeller using ANSYS Fluent
- **Technical Skills:** CFD using Ansys Fluent , Design methodology
- **Soft Skills:** Teamwork, Critical Thinking, Report writing.

Skills

Programming skills	Python , MATLAB, ROS2.
Computational skills	ANSYS Fluent, ANSYS APDL, ANSYS CFX, SU2.
Design and other skills	Soliworks, XFLR5, OpenVSP, Linux, Latex, MS Office.

Publications

Conference Proceedings

Aerodynamic Shape Optimization of Blended Wing Body Planform

Anurag Karki, Hem P Pandeya, Sudip Bhattarai, Abhishek Karn, Aakash Sarraf

14th IOE Graduate Conference, 2023, Lalitpur, Nepal

Languages

English	Professional proficiency : (IELTS: 8 out of 9)
Nepali	Native proficiency
Hindi	Conversational proficiency