Saugat Ghimire

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Education

- **University of Cincinnati** — Cincinnati, OH
  Master of Science in Aerospace Engineering; GPA: 3.95 — *Aug. 2018 – Present*
- **Institute of Engineering, Pulchowk Campus** — Lalitpur, Nepal
  Bachelor of Engineering in Mechanical Engineering; GPA: 3.8 — *Nov. 2012 – July. 2016*

Skills

- **Core Comptetencies**: Computational Fluid Dynamics(CFD), Design Optimization, Finite-Element Analysis(FEA), Computer Aided Design(CAD),Algorithm Development, Software Development, Data analysis and Machine Learning.
- **Programming Languages**: Python, MATLAB, C, C++, Linux Bash Scripting, Java
- **Softwares**: ANSYS Fluent, CFX, OpenFOAM, FINE/Turbo, CATIA, Solidworks, DAKOTA, OpenMDAO

Experience

- **Gas Turbine Simulation Laboratory, *UC*** — Cincinnati, OH
  Graduate Research Assistant — *Jan 2019 – Present*
  - **Design of Unmanned Underwater Vehicles(UUVs) Propulsion System Architecture**: Developed a high fidelity UUV propulsor design and optimization system (CFD based) for U.S Navy and prepared full report.
  - **Turbomachinery Optimization**: Updated propeller design tools for Parametric Geometry Generation; Upgraded Python and Bash Scripts to link Tblade3, FINE/Turbo and OpenMDAO to automate optimization of efficiency and Kinetic Energy distribution on rotors and stators.
  - **Machine Learning coupled Optimization**: At present, leading a project to generate and manage the database of propulsors with different optimization goals and couple Genetic Algorithm with an Artificial Neural Network for Optimization of a S-C02 compressor using Python libraries.
  - **NASA-TCT Program**: Postprocessed and conducted detailed analysis of the optimized CFD results for three row model of Boundary-Layer Ingesting tailcone thruster (in collaboration with NASA, Glenn Research Center) and prepared full report.
- **United Technical College** — Chitwan, Nepal
  Assistant Lecturer — *Oct 2016 - Jun 2018*
  - **Teaching**: Taught undergraduate courses on Fluid Mechanics, Thermodynamics, Numerical Methods and CAD.
  - **Research**: Developed and applied mathematical models for the analysis and optimization of thermal systems,CFD analysis of Wind Turbines and Hydraulic Turbines.
- **Agri Professional Consultants** — Kathmandu, Nepal
  Mechanical Engineer — *Jan 2016 - Feb 2018*
  - **Ginger Processing Machine Design**: Worked on Preliminary Design, CAD model generation,CFD study, and optimization of Ginger Washing and Processing Machine.
  - **Cleaning Fan Design**: Designed,performed CFD analysis and Optimized a cleaning fan of a grain processing plant improving the processing capacity by 10% to meet increasing power and output demands.

Academic Projects

- **Application of Machine Learning in CFD**: Used Convolutional Neural Networks to predict the flow around a cylinder achieving 150% improvement in time.The simulation data was generated using OpenLB,an object oriented implementation of Lattice Boltzmann Methods(LBM) and the neural code was written using Keras library.
- **Combustor Design**: Designed an annular type combustor for a military fighter type aircraft.CATIA was used for geometry modeling and Fluent was used to perform CFD analysis.
- **Aerodynamic Shape Optimization** : Aerodynamic Shape Optimization of the Blended Wing Body configuration with active flow control incorporating boundary layer ingestion inlets was performed in MATLAB.

Publications

- **Journal Paper: Aerodynamic and Stability Analysis of Blended Wing Body Aircraft,IJMEA**