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Onkar Salunkhe

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Education

Michigan Technological University Houghton, Michigan
Master of Science in Mechanical Engineering: Design | CAE | FEA | Machine Learning | ***GPA: 3.9/4.0*** *August 2019 - Expected May 2021*

Vishwakarma Institute of Technology (VIT), Pune Pune, India
Bachelor of Technology in Mechanical Engineering| ***CGPA: 9.09/10*** *July 2014 - May 2018*
Honors (Equivalent to Minors): Automobile Engineering| ***CGPA: 9.40/10*** *July 2016 - May 2018*

Experience

Michigan Technological University Houghton, Michigan
Graduate Student Researcher: Mechanical Engineering Department *September 2019 -* ***Present***

- *Advisor:* Dr. Gregory Odegard and Dr. Parisa Abadi
- Design and FEA of bending Guide-wires of Carbon Nanotubes using actuators for Biomedical applications.
- The objective is to use FEA to design a working actuator for specific guide-wires and then make it in the lab using bio-compatible nanomaterials for application to Cardiovascular and Catheter treatments.
- The project aims at developing bending actuators using a geometrical combination of Electromechanical linear actuators.

Dassault Systèmes Pune, India
R&D Development Associate Engineer: CATIA *June 2018 - August 2019*

- Assisted senior developers in debugging and developing code and migrating CAD from CATIA V4 to V5 and above levels.
- Developed a Finite Element Solver in FORTRAN77 using matrix algebra.
- Promoted the source code changes for customers like Boeing and Meyer Werft a on CATIA V5 and 3DEXPERIENCE cloud infrastructure.
- Volunteered for the events of 3DEXPERIENCE Innovation Lab and headed the race-car track 3D printing team.

Indian Institute of Technology (IIT), Bombay Mumbai, India
Research Intern: Mechanical Engineering Department| ***GPA: 10/10*** *January 2018 - June 2018*

- *Advisor:* Dr. Parag Tandaiya
- Finite Element Analysis (FEA) of Bulk Metallic Glass (BMG) composites.| Poster Presentation.
- Numerically investigated mechanical behavior of BMG through finite element simulations using ABAQUS software.
- 2 % strain plasticity enhancement is achieved with 5 % thickness of the copper coating on the monolithic BMG matrix.

Projects

- **Finite Element Implementation of ductile damage model: Application to automobile gear tooth** *September 2019 - December 2019*
  - Implemented Explicit/Dynamic simulation of ductile damage model using Abaqus 6.13.
  - Achieved the stability of Finite Element Simulation using mesh convergence study.
  - Predicted the failure at gear tooth root and compared with existing experimental results.
- **Reliability analysis of FEA simulations with Implementation of Machine Learning Method** *September 2019 - December 2019*
  - Performed a reliability analysis of FEA using FORM and Kriging (ML) method on MATLAB.
  - Automated the FEA simulations of 10 bar 2D planar truss on ABAQUS 6.13 using Python Macros. Latin Hypercube Sampling (LHS) is used for sampling.
  - Implemented Machine Learning method with adaptive sampling for Reliability-Based Design Optimization (RBDO).
- **Finite Element Modeling for Hyper-velocity impact of Aluminium sphere on a plate** *May 2018 - June 2018*
  - Simulated a hyper-velocity crash of an aluminum sphere projecting on aluminium plate at the velocity of 6.8 km/sec.
  - Performed Explicit/Dynamic simulation with Smoothed Particle Hydrodynamics (SPH) to model large deformations.

Skills

- **Software**: ABAQUS, ANSYS, ADAMS, Arduino, AutoCAD, Autodesk FUSION 360, CATIA, COMSOL, Creo/ProE,, Generative Design, HYPERMESH, Inventor, LS-DYNA, MS Office products, Optistruct, Radioss, Siemens NX, SolidWorks, 3DEXPERIENCE.
- **Programming Languages**: C++, FORTRAN 77, MATLAB, Mathematica, Python.

Interests

- Badminton | Football | Music | Piano.