CATHERINE CAD

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USC Viterbi
School of Engineering

EDUCATION

University of Southern California (USC)   **Los Angeles, CA**
Viterbi School of Engineering   May 2017
Master of Science, Mechanical Engineering   GPA – 3 6/4 0

Amrita University (ASE)   **Coimbatore, TN, India**
Amrita School of Engineering   May 2015
Bachelor of Technology, Mechanical Engineering   GPA – 9 30/10

CADD Centre Training Services   **Bangalore, India**
Diploma in CAE (MSC NASTRAN and HYPERMESH)   July 2014

TECHNICAL SKILLS   **CAD Software:** SOLIDWORKS, Unigraphics (NX-CAD), PRO-E (Creo), CADian 2008
CAE Software: HYPERMESH, NX NASTRAN, ABAQUS, ANSYS
Event simulation and automation/ other software: ARENA, MATLAB, CES Edupack, C
Applications: Microsoft Office tools (MS Word, PowerPoint and Excel)

Related Coursework: Product Design, Mechatronics, Design Theory and Methodology, Finite element analysis, Manufacturing, Material Selection, Solid Mechanics

WORK EXPERIENCE:

Mechanical Design Engineer, Intern   **Jan –May 2017**
Elum Inc Engineering Services, Modesto, California
- Designed mechanical components and assemblies
- Developed and perform component verification testing and product validation testing

Operation of CNC lathe, Intern   **Dec 2012**
Rashtriya Ispat Nigam Limited, Visakhapatnam Steel Plant, India
- Developed a NC program for a roller template used for rolling blooms
- Knowledge of CNC lathe operations

ACADEMIC PROJECTS:

Design of Luggage lift   **Fall 2016**
- Designed a portable device to reduce human effort in lifting weight up to certain height
- Target customers are passengers travelling in air planes, who are facing difficulty in placing their baggage in overhead cabins
- Conducted product evaluation and modelled the product in Solidworks for further design analysis

Design of a Highly Repeatable Centrifugal Governor, USC   **Spring 2016**
- Modelled a centrifugal governor as per the design intent using Solidworks
- Performed finite element analysis using a 3D solid element on a quarter of the entire model to obtain the optimum dimension set and mass of the model

Design of Mechanical Exoskeleton, USC   **Spring 2016**
- Optimization of the design of an exoskeleton limb using Solidworks, Matlab, CES EduPack to reduce the power consumption of the servo motors and minimize the mass of the frame work

Finite Element Analysis of a shear wall and pipe intersection problem, USC   **Fall 2015**
Compared the results obtained using Abaqus and Matlab for each model by implementing FEA
- Considered a plane stress problem, modelled a 3D plate/shell element for a concrete shear wall subjected to concentrated force and uniform temperature change
- Solved a problem involving the intersection of two steel pipes subjected to edge pressure on the vertical pipe

Material selection for a light and resilient Diving Board, USC   **Fall 2015**
- Identified low cost and flexural strength material for diving board
- Used Ashby process for material selection and penalty functions

Compare and contrast between different Casting processes, ASE   **Spring 2015**
Measured mechanical and wear behaviour of LM24 aluminium alloy fabricated using Sand, Plaster Mold and Die castings
- Conducted hardness, impact and wear tests on each of the casting
- Published results in International Journal of Applied Engineering Research titled "Investigation of mechanical and wear behaviour of LM24 aluminium alloy for different types of casting"

RESEARCH PROJECTS:

Learning based approach of self-organizing systems, USC   **Spring 2016**
Implementation of Genetic Algorithm and decision making mechanism to optimize foraging through Webot simulator

LEADERSHIP

Executive Vice President, **Viterbi Graduate Student Association (VGSA), USC**   **Fall 2016 – Present**
Senator - Department of Aerospace and Mechanical Engineering   **Fall 2015 – Spring 2016**