JALAJ MAHESHWARI

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EDUCATION

University of Pennsylvania, USA
Master of Science in Engineering, 3.34/4.00 — Mechanical Engineering and Applied Mechanics — May 2017

Birla Institute of Technology & Science – Pilani, INDIA
Bachelor of Engineering (Hons.), 7.49/10.00 — Mechanical Engineering — July 2015

Udacity
Nanodegree — Self-Driving Car Engineer — Ongoing

PROFESSIONAL EXPERIENCE

Student Research Assistant — May 2016 – Present
Center for Injury Research and Prevention, Children's Hospital of Philadelphia, USA

- Conduct FEA of an anthropomorphic test device (ATD) in a child restraining seat (CRS) in different crash impact scenarios.
- Pre-process in HyperMesh, simulate and post-process in LS-DYNA for different impact angles to determine optimum latching position for a CRS.
- Test different booster seats and study behavior of each in a crash impact scenario.

Summer Research Intern — May 2015 – July 2015
Indian Institute of Technology – Gandhinagar, INDIA

- Modeled CFD conditions for standard AGARD 445.6 wing in Star-CCM+ and structural conditions in ABAQUS.
- Coupling of software to simulate fluid-structure interaction and validation study conducted for use in other FSI problems.

Summer Intern
Adani Power Limited, INDIA — May 2013 – July 2013

- Studied design and working of Coal Handling Unit of the power plant. Identified mechanical failures.
- Proposed solution to avoid failures associated with machinery. Improved belt wear life from 3 weeks to 2 months.

RESEARCH PROJECTS

Design of Autonomous Hockey Playing Robots (Team) — Nov 2016 – Dec 2016

- Designed, built, and programmed three autonomous hockey playing robots.
- Incorporated localization of robot using infrared Wii remote cameras.
- Added wireless controls to receive play commands during the game.

Implementation of Feedback System to Form a Train Chain (Independent) — Mar 2016 – May 2016

- Utilized Arduino microcontroller, Ultrasonic Ping and Hall Effect sensors to implement feedback system.
- Coded PID control law on Arduino to make train follow lead train at fixed distance.

Design of an Axial Compressor for Use in the SpaceX Hyperloop System (Team) — Dec 2015 – Feb 2016

- Designed 20:1 compression ratio axial compressor for given Hyperloop operating conditions.
- Studied velocity triangles for rotors and stators to model each compression stage.

Bachelor's Thesis on 'Energy Harvesting from Aero-elastic Instabilities' (Independent) — Dec 2014 – May 2015

- Computationally modeled small energy harvesting device subjected to aero-elastic instabilities.
- Used fluttering motion of harvester to further produce electricity by use of piezoelectric patches.
- Varied material properties of harvester to study change in piezoelectric voltage generated.

SKILLS

CATIA V5	SolidWorks	Pro-E	Siemens NX	MATLAB	ANSYS	HyperMesh	Star CCM+	LS-DYNA
AutoCAD	Python	C	HTML	CSS	3D Printing	Laser Cutting		

CONFERENCE / PUBLICATION

- J. Maheshwari and M. Damodaran, "Computational Modeling of Small Energy Harvester Subjected to Aeroelastic Instabilities," presented at and in *Mechanics of Solids, Fluids and Materials, Proceedings of the 2nd INCAM-2015 at IIT Delhi, India, 13-15 July 2015.*