ZUBIN MISTRY

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EDUCATION

PURDUE UNIVERSITY
M.S. in Aeronautical and Astronautical Engineering Major - Aerodynamics | Minor - Computational Sciences | Expected May 2018 | Cum. GPA : 3.76

INDIAN INSTITUTE OF TECHNOLOGY, KANPUR
B.Tech. in Aerospace Engineering | May 2016 | 7.7/10

WORK EXPERIENCE

Purdue University, West Lafayette, Indiana, USA
Teaching Assistant and Grader
- Aerodynamics — Jan'18-Present
- Structural Mechanics — Aug'17-Dec'17

DRDO, India
Research Intern — May'15-June'15
- Developed a MATLAB code to perform simulation of Nose Panel Separation Dynamics of HSTDV
- Performed Monte-Carlo Analysis to validate and verify the current design of the system

Hamburg University of Applied Sciences, Germany
Research Student — May'14-July'14
Worked on VampZero, a tool for Aircraft Design, to perform analysis on a typical Airbus A320 aircraft

Lexus, India
Student — June'12-July'12
Designed and manufactured a Horizontal Axis Wind Turbine to generate electricity through a dynamo

TECHNICAL SKILLS

- **Programming languages:** C, C++, FORTRAN, Python, Lua, VB, LabView, LaTex, HTML, Xcode
- **Data analysis and modelling softwares:** MATLAB, SPARTA, AutoCAD, ANSYS fluent, Autodesk 3ds Max, Solid Edge
- **Operating Systems:** Windows, Unix, DOS
- **Machining:** CNC, Lathe, Milling, Drilling
- **Laboratory:** Subsonic and Supersonic Wind Tunnel Testing, LDV, Water-Tunnel Testing
- **Electronics:** Micro-controllers, Arduino uno

PROJECTS

Hyperloop Pod Aerodynamics — Jan'18-Present
- Build styrofoam model and test aerodynamic performance in the wind tunnel
- Validate the results using CFD analysis done on ANSYS fluent
- Iterate on the design to optimise based on the results

Aerodynamicist for Boeing GoFly Competition — Jan'18 - Present
- Design and optimise the shape of the rotor blades using ANSYS fluent and MATLAB to reduce noise and energy usage
- Design aerodynamic body to enhance the performance

Conceptual Shape and Trajectory Design for Hypersonic Glide Vehicle — Jan'17 - Apr'17
- Used Matlab's "fmincon" function using Newtonian flow theory and Panel Method to optimise the vehicle shape
- Applied Collocation and Optimal Control theory to optimise the glide vehicle trajectory

Aerocapture - Entry Corridor Width and Trajectory — Aug'16-Dec'16
- Developed a MATLAB code to perform Mars aerocapture trajectory analysis based upon vector forces generated utilising newton's gravity model
- Generated plots for heat loads, heat rates, g-loads, sensitivity and altitude vs time

Surface Roughness Modelling — Aug'15-April'16
- Performed a simulation using SPARTA, an open source Direct Simulation Monte-Carlo (DSMC) software
- Analysed different flow features such as Pressure, Temperature and Velocity along a narrow 2-d tube of cross-section 0.01 meter

ACHIEVEMENTS

- Awarded Best Outgoing Sports Person 2016 by Games and Sports Council, IIT Kanpur
- Led the Institute Aquatics Team as a **Captain** for the year 2016
- Won Waterpolo Gold in Inter-IIT Sports meet Bombay 2015
- Achieved **2nd** rank in my state in National Science Olympiad 2011
- Achieved **24th** rank in state for National Cyber Olympiad (2010) and **38th** in NCO 2011
- Stood **245th** in India and **4th** in School for DPS Science and Mathematics Talent Examination
- Secured **1st** position in my school for National Science Olympiad and International Mathematics Olympiad 2011 and 2012

RELEVANT COURSEWORK

Computational Aerodynamics, Experimental Aerodynamics, Hypersonic Aero-Thermodynamics, Multi-Disciplinary Optimisation, Hypersonic Performance and Mission Design, Non-Equilibrium Hypersonic Flow, Orbit Mechanics