

EDUCATION

- **Manipal Institute of Technology** Manipal, India
Bachelor of Technology in Aerospace Engineering; CGPA: 7.39/10.00 *Aug. 2014 – May 2018*
- **Symbiosis International School** Pune, India
International Baccalaureate - Diploma Programme; Results: 37/45 *Aug. 2011 – May. 2013*
- **Symbiosis International School** Pune, India
IGCSE, Cambridge; Percentage: 88% (Distinction Awarded) *Aug. 2010 – May. 2011*

EXPERIENCE

- **Hong Kong University of Science and Technology** Clear Water Bay, Hong Kong
Research Intern under Professor Rhea Patricia Liem, Ph.D *Feb. 2018 - Present*
 - **Amphibious Aircraft Development:**
 - * Performing aerostructural analyses of complex wing structures using OpenFOAM and OpenAeroStruct.
 - * Mathematical modelling and CFD analysis of 3-D hydrofoils in aircraft design and stability.
 - * Employing multidisciplinary design analysis and optimisation to improve aircraft efficiency.
- **Centre for Avionics, Manipal Academy of Higher Education** Manipal, India
Head of Aircraft Design *Aug. 2016 - Dec. 2017*
 - **VTOL-Hybrid Aircraft Design:** Responsible for technical design of Micro Air Vehicles (MAVs) to match specific and complex requirements for government-funded projects. Responsibilities:
 - * Designing a high endurance, long-range radio-controlled quadcopter-airplane hybrid aircraft for vertical flight (VTOL) and forward flight.
 - * Developing code in MATLAB to retrieve aircraft performance characteristics from automated radio-controlled flights using autopilots such as Pixhawk. Generating CAD models in CATIA, performing CFD using ANSYS Fluent and structural analyses using ANSYS Mechanical for prototyping.
- **AeroMIT - Aeromodelling Team, Manipal Institute of Technology** Manipal, India
Head of Aerodynamics *Apr. 2016 - Apr. 2017*
 - **SAE Aero Design (Micro Class), international competition sponsored by Lockheed Martin:**
Development of a small, radio-controlled aircraft with a high payload fraction that fits into a cylinder of 6 inches in diameter. Scoring is based on maximising payload fraction, minimising cylinder length and optimising aircraft endurance. Responsibilities:
 - * Aircraft Design – Dimensioning and configuration.
 - * Optimising aircraft performance parameters such as payload carrying capacity and endurance.
 - * Computational fluid dynamics analyses on high-lift airfoils/wings.
 - * Optimising flight dynamics and stability by running simulations using MATLAB and Simulink.
 - * Developing mathematical models for structural analyses using MATLAB, Python and ANSYS Mechanical.
 - * Preparing a technical design report on the aircraft in \LaTeX .
 - * Teaching aerodynamics, flight dynamics, aircraft design and CFD to juniors of the team.

2018 Results: Rank 1 in Design and Rank 3 in Technical Presentation.
2017 Results: Rank 1 in Highest Payload Lifted, Rank 2 in Highest Payload Fraction, Rank 4 Overall.
2016 Results: Rank 3 in Highest Payload Lifted, Rank 4 in Highest Payload Fraction, Rank 5 in Design and Overall.
 - **TATA Protean UAV Challenge 2016-17:** This national competition's aim is to develop a multi-rotor drone that is able to switch between quad, hex and octo configurations while midair with stability.
 - * Developed the mathematical model to ensure stability between configurations using MATLAB and Simulink.
 - * Performed computational structural analyses to ensure rigidity and minimise vibrations.

Results: Awarded 1st position with prize money.

SOFTWARE EXPERTISE

- **Software:** ANSYS, CATIA, SolidWorks, OpenFOAM, MATLAB, XFLR5
- **Languages:** Python, C++, Lua, Bash, L^AT_EX

PROJECTS

- **Computational Fluid Dynamics:** Personal research into CFD techniques with various applications.
 - Developed a new blocking technique to generate high-quality 3D C-Grid meshes around wings in ANSYS ICEM CFD: <http://godot-bloggy.me/post/o-grid-c-grid-comparison/>
 - Performed flow analyses over various airfoils, and complex wing geometries with aerodynamic devices such as winglets and flaps, including cavitation studies using ANSYS ICEM CFD, ANSYS Mesh, Fluent and OpenFOAM.
 - Programming CFD codes by using and independently developing Prof. Lorena Barba's '12 Steps to Navier Stokes' CFDPython course as a reference: <http://godot-bloggy.me/post/cfd-python/>
- **Dubby Pendy:** A double pendulum simulator programmed in Lua using the LÖVE 2D framework for graphics.
- **Bloggy:** A technical blog to post personal project developments and academic discoveries. Research topics include mathematics, physics, aerodynamics and music. Some notable posts:
 - Calculus of Variations - Induced Drag Over a Wing
 - Academics - Physics and Mathematics
 - Investigation - The Roots of Unity
- **Workshop on XFLR5 and Aerodynamics, IE Aerospace:**
 - Demonstrated the use of XFLR5 in elementary aerodynamic analyses such as Airfoil and Wing Design to first-year engineering students.
 - Taught introductory aerodynamics to freshman engineering students and introduced computational fluid dynamics as a tool for aerodynamic analysis using ANSYS Fluent.