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**EDUCATION**

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- **Manipal Institute of Technology** Manipal, India  
*Bachelor of Technology in Aerospace Engineering; CGPA: 7.59/10.00* 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

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**EXPERIENCE**

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- **Hong Kong University of Science and Technology** Clear Water Bay, Hong Kong  
*Research Intern under Professor Rhea Patricia Liem, Ph.D* Feb. 2018 - Jun. 2018
  - **Amphibious Aircraft Development with Hydrofoil:**
    - \* 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.
    - \* Developing code for takeoff analysis of amphibious aircraft in Python.
- **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

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- **Software:** ANSYS, CATIA, SolidWorks, OpenFOAM, MATLAB, XFLR5
- **Languages:** Python, C++ , Lua, Bash,  $\text{\LaTeX}$

## PROJECTS

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- **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 Pandy:** 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.