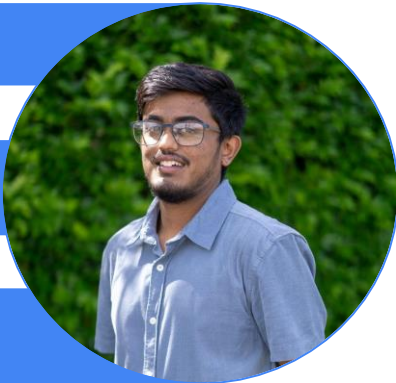


# DURAIRAJ SHYAM



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<https://www.linkedin.com/in/durairaj-shyam>



Graduate **Aeronautical Engineer** from **The University of Sydney**

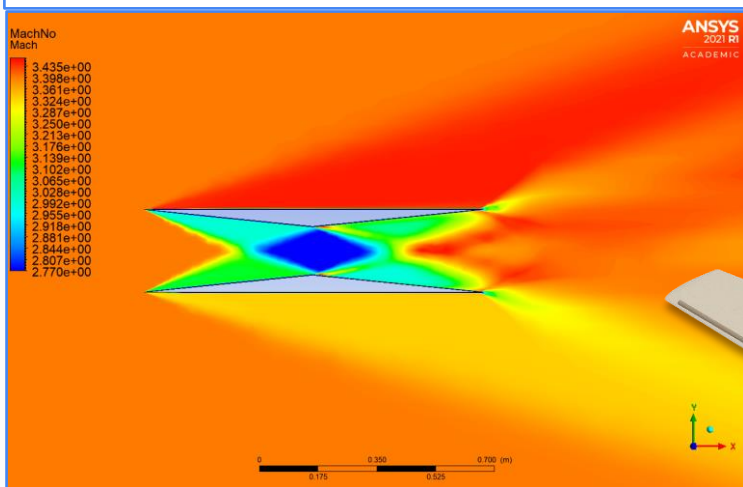
Major: **Engineering Design** – Achieved **First Class Honours**

Thesis: **Aerodynamics & CFD project for Red Bull Racing Formula 1 Team**  
– Achieved **High Distinction**

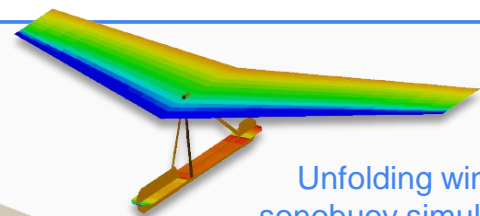


I'm very passionate about the aerospace industry and am always keen to get involved in projects - from work including conceptual design, systems engineering, simulations, testing and flying!

Supersonic Busemann biplane CFD analysis.



UAV design, construction & flight testing.



Unfolding winged sonobuoy simulation & modelling for the RAAF.

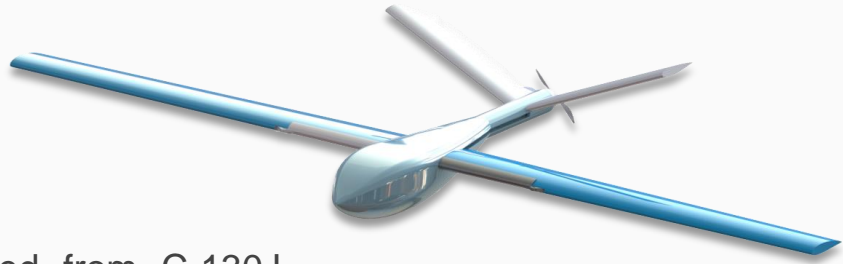


Worked with:



# UAV Projects

## The BluOne™ UAV

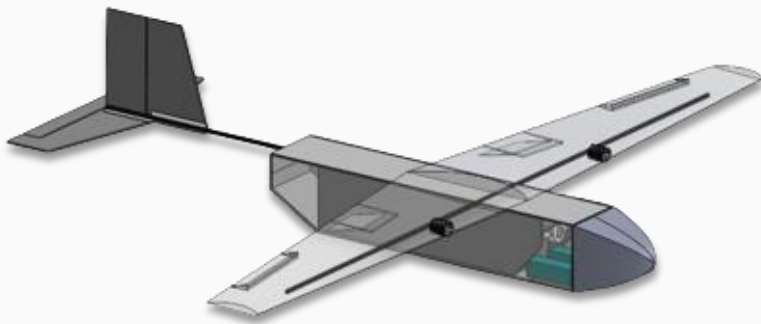
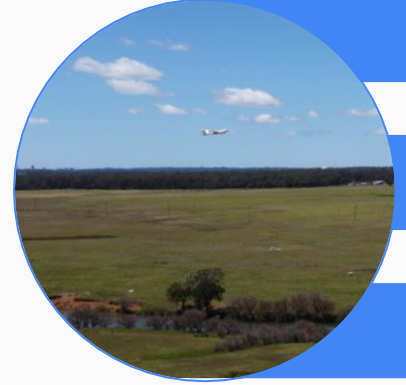


**Situation:** Build a UAV to be deployed from C-130J transport aircraft to transport blood pack/first-aid kit for soldiers in need.

**Tasks:** I was tasked with the aerodynamic considerations such as main wing sizing and overall methods of drag reductions. Additionally, as a team we had to build a working prototype of our design.

**Actions:** Utilised a variety of empirical methods and VLM simulations to ensure our design met RFT requirements put forth by client.

**Results:** Our prototype was successful in flight testing!



## USyd DBF: Project Galah

**Situation:** Build a UAV to transport vaccine vials & syringes and score highly in the 2021/22 AIAA Design-Build-Fly (DBF) competition.

**Tasks:** As the aerodynamics lead for our university's team, I was tasked with leading fellow peers on creating a design for a high-lift, high-payload STOL UAV.

**Actions:** Organised regular meetings and workshops to upskill newer students within the club as well as working alongside them to create our UAV for the competition.

**Results:** After the design proposal stage, we ranked as the No. 1 team from Australia and 22<sup>nd</sup> in the world!



Highly proficient in:



Fluent



L<sup>A</sup>T<sub>E</sub>X





## Sugar Glider I & II



**Situation:** Design two biodegradable winged sonobuoy systems that are capable of being depolyed from a sonobouy launch-tube and then unfolding and autonomously flying to target location in the open ocean (one powered and one unpowered version).

**Tasks:** I was tasked with the wing planform optimisation and ensuring that our novel hang-glider concepts could be functional in cruise and during the critical unfolding phase.

**Actions:** Used skills in OpenVSP modelling and MATLAB for iterative design calculations.

**Results:** Our client revealed at the completion of the project that our group came 1<sup>st</sup> for the 'Best Presentations' criteria and came 2<sup>nd</sup> (out of 5 groups) overall!

## Full-scale Aircraft Builds

### Jabiru J160-C



### Aircraft T-Tail



Spare-time activities:



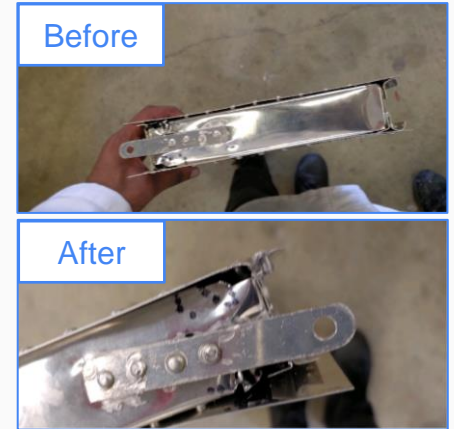
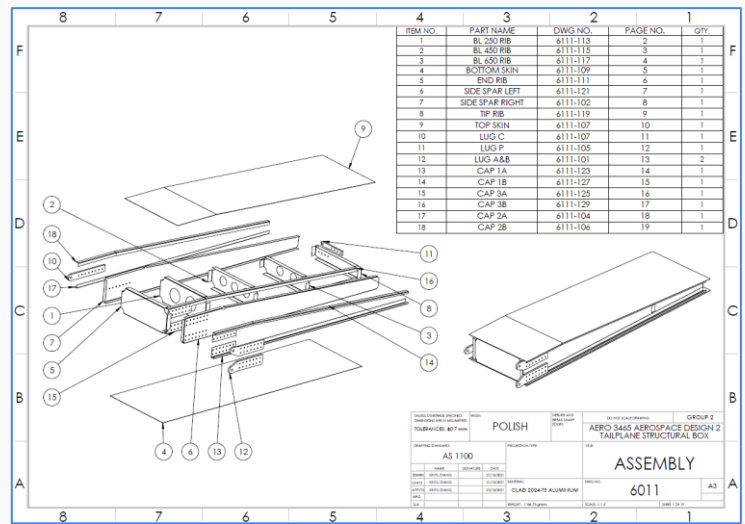
# Tailplane Box Design

**Situation:** Design a tailplane box to be able to withstand a number of max. limit loads in multiple directions.

**Tasks:** My responsibilities ranged from stress calculations and mitigation of diagonal tension loads to the actual manufacturing of the tailplane box to our design specifications.

**Actions:** Conducting hand calculations to validate margin of safety FEA results from NASTRAN/PATRAN software in order to have confidence in our model before testing.

**Results:** Our estimated or expected loads/deflections were reasonably similar to the measurements taken during the test.



## Other Interests

### Pilot training:



### Model aircraft flight training:



### 3D printing:



### Volunteering:

- Student Equity, Diversity & Inclusion (EDI) Committee member
- Service Learning in Indigenous Communities (SLIC)