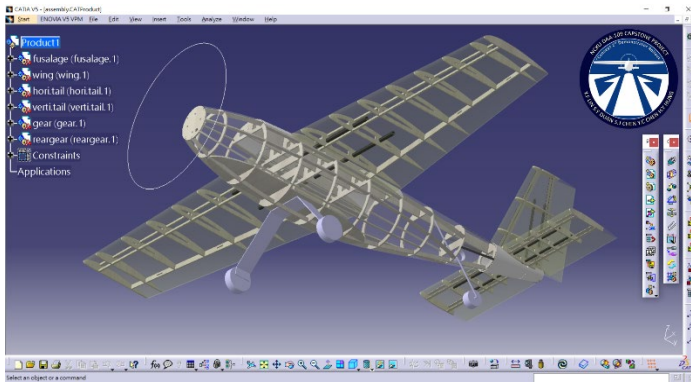
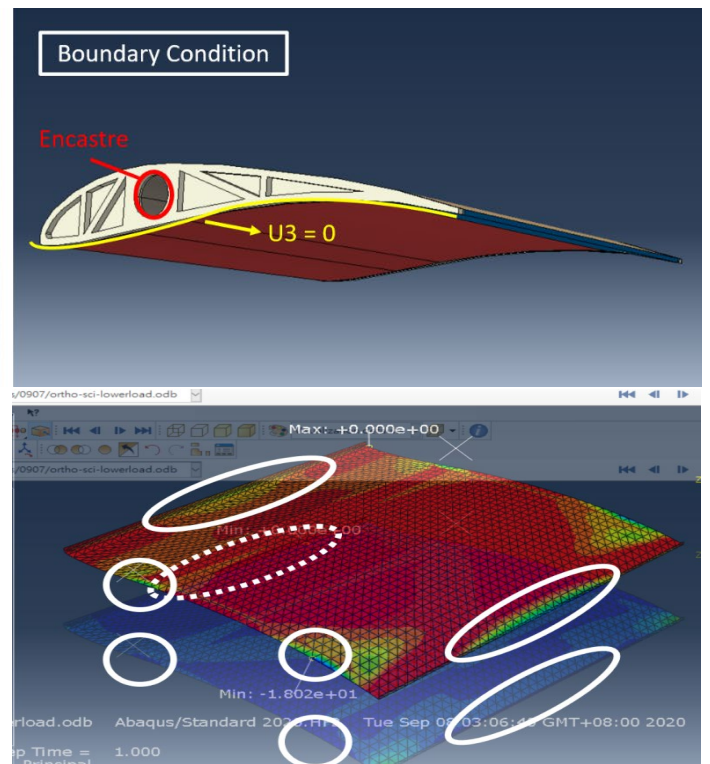
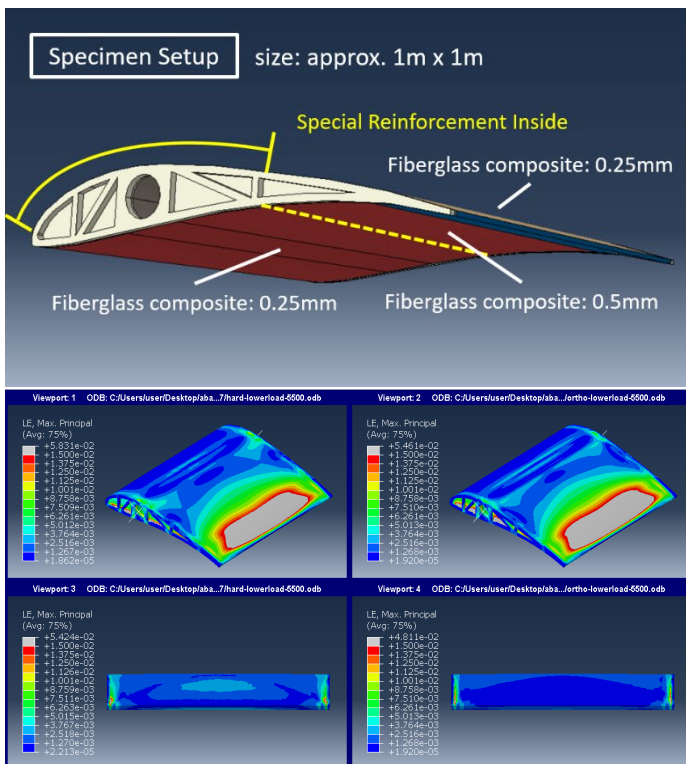


## Capstone Project – Designing an Unmanned Aerial Vehicle



## Undergraduate Research at Structural Concepts and Integration (SC&I) Laboratory

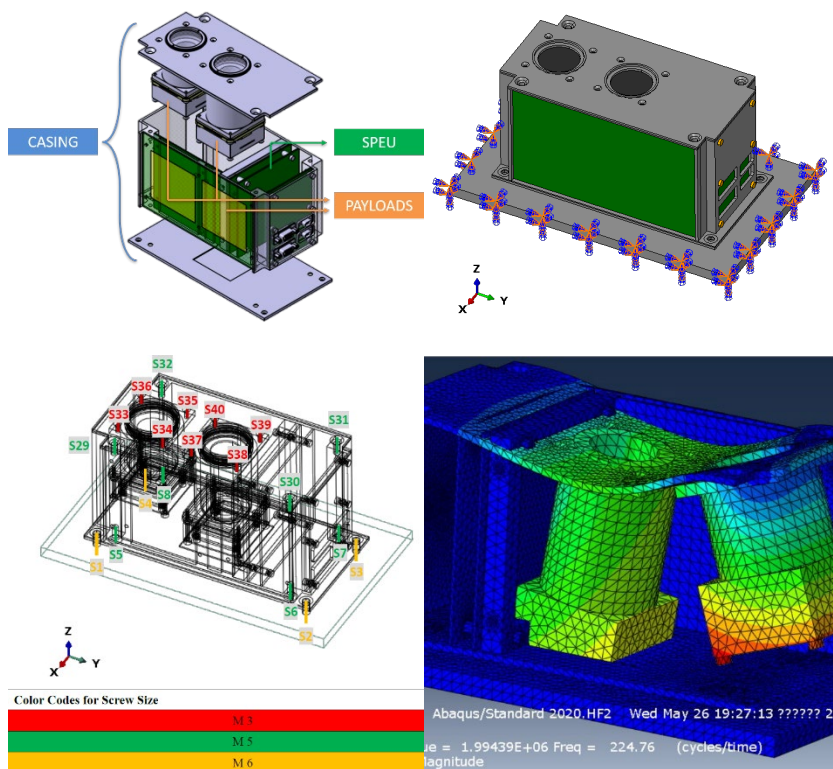


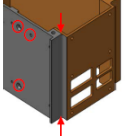
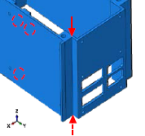
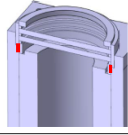
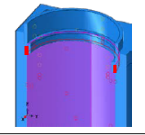
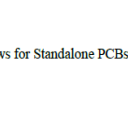
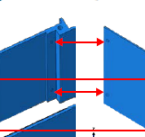
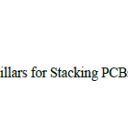
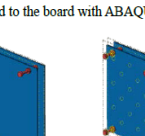
Sandwich panels are very common structures with a wide range of applications. They are typically made up of a low-density core and a layer of skin bonded to each side. However, sandwich panels' insufficient resilience to damage restricts their use on aerospace structures: once the core delaminates from its outer skin, the whole structure fails rapidly. The SC&I Lab proposed a special reinforcement aiming to alleviate this issue, and I was assigned to investigate its effectiveness when applied to UAV wings with the help of Abaqus.

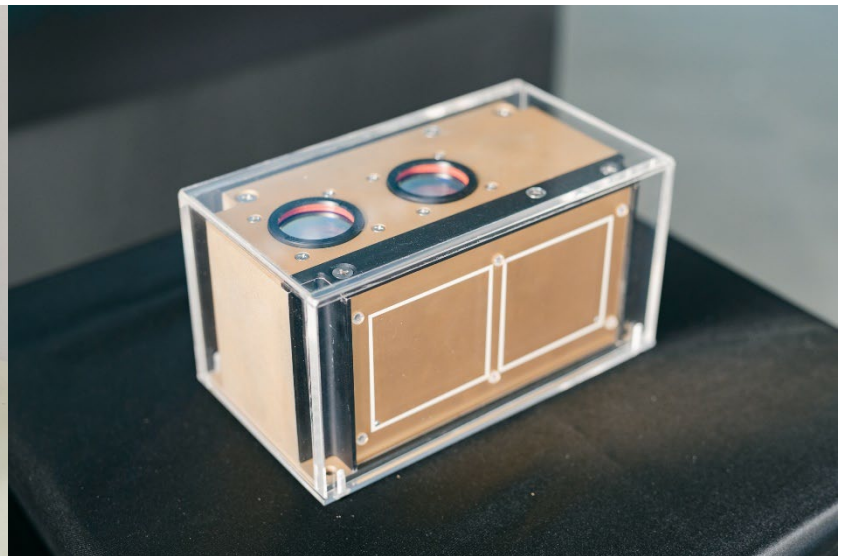
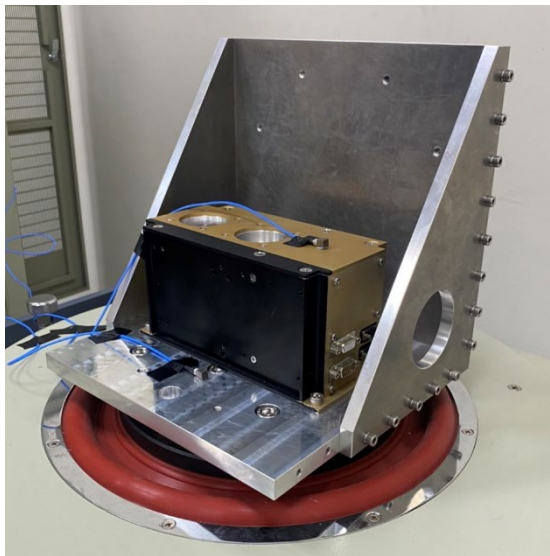
## The 28<sup>th</sup> Satellite Design Contest – Designing Cubesat “GOMISAT”



## Design, analysis, and testing of the science payload onboard FORMOSAT-8A



Original Model	Simplified Model
Unsignificant Features 	Removed 
Connection Between Threaded Parts 	Welded together with ABAQUS TIE constraint 
M3 Screws for Standalone PCBs 	Portions of adjacent faces were partitioned and welded together with ABAQUS TIE constraint 
Copper Pillars for Stacking PCBs 	A single-piece simplified part was created and welded to the board with ABAQUS TIE 



In the FORMOSAT-8A science payload mission, I led a group of three through various tasks regarding our payload's structural design. This includes modelling, analyzing, creating mechanical drawings, and dynamic environment testing. Our joint effort has not only been approved by our principal investigator but also passed the strict reviews by professionals at National Space Organization (NSPO), Taiwan's official space agency.

About FORMOSAT-8A:

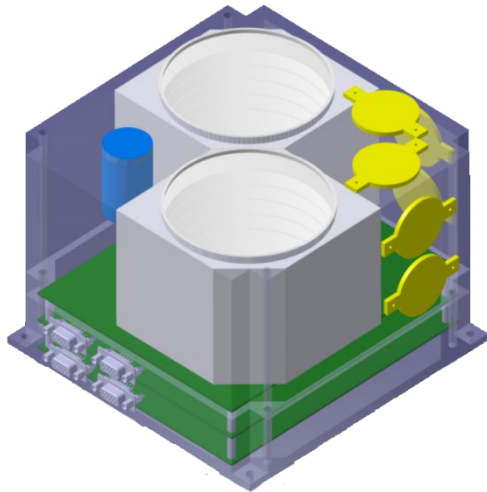
<https://www.nspo.narl.org.tw/inprogress.php?c=20022501&ln=en>

FORMOSAT-8A science payload publicly shown:

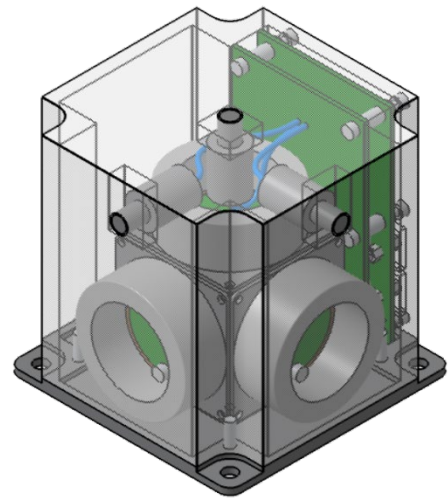
<https://web.ncku.edu.tw/p/406-1000-232039,r3094.php?Lang=en>



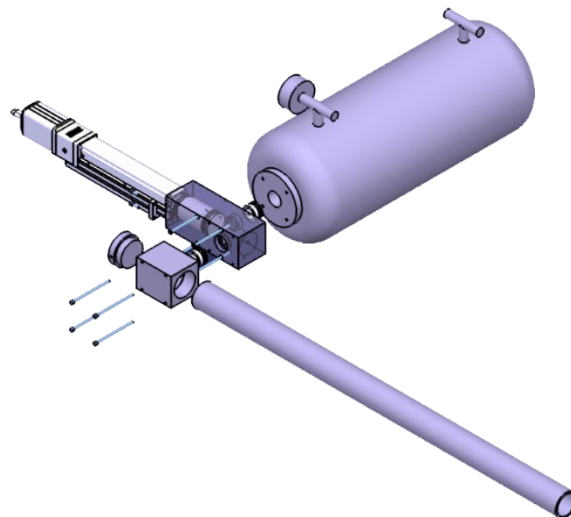
## Other CAD Works (Proposals / Work in Progress / Personal Hobby)



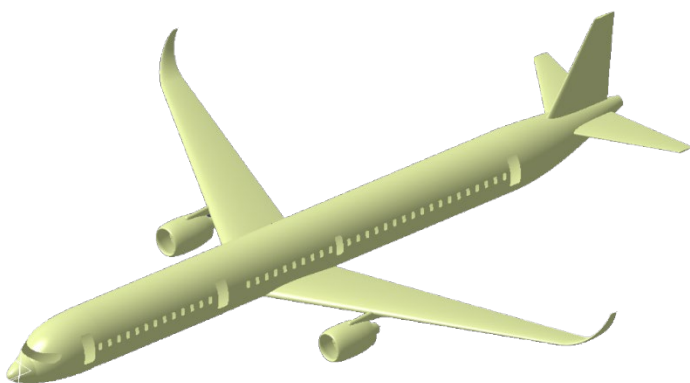
Lunar Dual-Band Atmospheric Imager Proposal (2020)



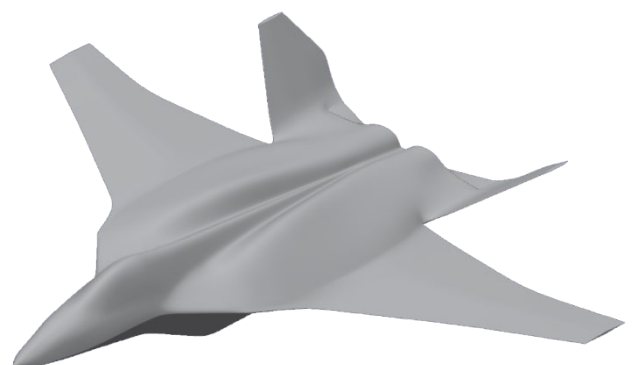
Moonquake Sensor Proposal (2022)



Portable Shock Test Facility (2022, WIP)



Modified Airbus A321



Japan's Next Generation Fighter Concept, F-X