# Teo Yu Jie

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## Summary —


- Mechanical Engineer with expertise in structural mechanics, finite element analysis, and aerospace systems.
- Experienced in structural design, analysis, and optimization for aircraft structural modifications and reliability testing.
- Skilled in simulation software and engineering automation, reducing analysis time by 90% through computational efficiency improvements.


## Skills

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|---|---|
| **Simulation Software** | PyANSYS, ABAQUS, Ansys APDL, Patran/NASTRAN, surrogate modeling |
| **Analysis Methods** | Finite element analysis, structural mechanics, fatigue analysis, fracture mechanics |
| **Programming** | Python, MATLAB, Mathematica, C#, C, FORTRAN |
| **Technical Areas** | Aeroacoustics, thermomechanics, structural optimization, reliability analysis |
| **Systems** | Linux, Gentoo, OpenBSD, Fedora |
| **Soft Skills** | Cross-functional collaboration, technical communication, systems thinking |

## Experience

**ST Engineering** **Jan 2024 – Present**

*Structural Mechanics Engineer (Stress, Passenger to Freighter Conversions, Engineering Solutions)*

- Conducted sensitivity analysis on 2-DOF aeroacoustics models to identify critical structural parameters, enabling optimized structural design and accelerated design iteration cycles.
- Applied statistical analysis methods to evaluate design parameters and structural interactions, guiding engineering decisions for simplified yet robust structural solutions.
- Developed C#/Powershell automation suite for aircraft structural analyses, reducing workflow from several months to 1 week and enabling team to meet critical certification deadlines.
- Led technical discussions with cross-functional teams (mechanical, electrical, supply chain) to develop competitive structural design proposals for global aircraft programs.

**Advanced Micro Devices ("AMD")** **Jan 2023 – May 2023**

*Mechanical Simulation and Reliability Analysis Intern*

- Integrated finite element simulations using PyANSYS to build surrogate models for board-level reliability analysis, reducing simulation runtime by 99.5%.
- Developed automated simulation workflows and data visualization tools for thermal-mechanical analysis, saving over 300 man-hours within 2 months.
- Standardised mechanical testing and characterization workflows using Python and Golang, enabling reproducible experiments and data-driven analysis.

## Education

**Nanyang Technological University, Singapore**

*Aerospace Engineering*

*Specialisation in Mechanical Engineering, Honours (Highest Distinction), Accelerated Bachelor's*

## Projects

**Structural Analysis and Design Projects** **Jan 2024 – Present**

- Developed Mathematica applications for advanced mathematical modeling in structural analysis, focusing on probability-based failure analysis and stochastic structural mechanics.

**Advanced Materials and Fracture Analysis** **Jan 2023 – Dec 2023**

- Developed parametric fatigue model for hydrogel materials using advanced constitutive models (Ogden phenomenology) in MATLAB.
- Conducted comprehensive fracture simulation and crack characterization studies for inhomogeneous materials, comparing computational results with experimental validation.
- Implemented modified phase field methodology for fracture simulation using ABAQUS finite element analysis with custom material modeling in FORTRAN.

## Technical Competencies

- **Structural Analysis:** Static and dynamic analysis, buckling analysis, fatigue life prediction, fracture mechanics
- **Materials Engineering:** Advanced material modeling, composite mechanics, polymer characterization, failure analysis
- **Computational Methods:** Finite element analysis, surrogate modeling, optimization algorithms, Monte Carlo simulation
- **Aerospace Applications:** Aircraft structural modifications, aeroelastic analysis, certification requirements