

BOYANG CHEN

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EDUCATION

MSc in Aerospace Engineering

University of Michigan – Ann Arbor, Ann Arbor, MI

August 2022 - present

GPA: N/A

BSc in Mechanical Engineering

Rose-Hulman Institute of Technology, Terre Haute, IN

2018 - November 2021

GPA: 3.77/4.0

Electrical and Computer Engineering Minor (Minor GPA: 4.0)

Aerospace Concentration (Concentration GPA: 4.0)

Advance Transportation Concentration (Concentration GPA: 4.0)

ADVANCED TECHNICAL COURSE

2019 Winter: Intro to Finite Element Analysis

2020 Spring: Advanced Finite Element Analysis, Numerical Methods, Intro to Computational Fluid Dynamics

2020 Fall: Internal Combustion Engines

2020 Winter: Linear Control System

2021 Spring: Intro to Aerospace Engineering, Propulsion System

2021 Fall: Discrete-Time Control Systems, Gas Dynamics

SKILL

Software: MATLAB, ANSYS, SolidWorks, Python, C++, Wind Tunnel Operation, Basic Shop skills

Language: Fluent in Mandarin and English, intermediate proficiency in German

RESEARCH EXPERIENCE

Fiber-Reinforced Composite Project 3

— Terre Haute, IN July 2021 – Present

Analyzing the connection between different manufacturing methods and their material property uncertainties

- Designed an integrated way of cutting laminates in CNC machine.
- Investigated numerous ways to calculate the void volume fraction accurately.
- Compared various covariance kernels against data collected from over 100 composite tensile tests.

Fiber-Reinforced Composite Project 2

— Terre Haute, IN Sept 2020 – July 2021

Exploring stochastic finite element modeling of laminated fiber-reinforced composite beams

- Generated stochastic composite material properties with different types of covariance kernel.
- Modeled laminated composite beam's deflection using FEA.
- Paper published and presented at IMECE2021 (1st author, the only student, IMECE2021-69851).

Aerothermodynamic Optimization

— Terre Haute, IN April – July 2021

Applying a multi-objective particle swarm optimization (MOPSO) on a turbofan engine

- Constructed a multi-objective particle swarm optimization algorithm for a multiple design point (MDP) aerothermodynamic cycle design of a turbofan engine.
- Identified the correlation of cycle parameters of the solution set using Pearson method.
- Paper published on International Journal of Turbo & Jet-Engines (2nd author).

Rose-Hulman Summer Undergraduate Research Fellowship

— Terre Haute, IN June – Sept 2020

Creating a model illustrating composite material properties' sensitivity

- Studied different experiments of typical composite testing.

- Simulated 9 major experiments and explored the property sensitivity for composite materials in ANSYS.
- Wrote 2 manuals of ANSYS ACP (Ansys Composite PrepPost) for novice users of ANSYS and students.

Fiber-Reinforced Composite Project 1

— Terre Haute, IN

March – June 2020

Investigating basic fiber-reinforced composite structural analysis knowledge

- Studied fundamental composite stress and strain analysis.
- Programmed a GUI for calculating composite properties in MATLAB app designer.
- Wrote a 27-page paper on theoretical example and parametric study.

MAJOR SCHOLARSHIPS AND AWARDS

Mechanical Engineering Mark Schulz Scholarship (2019-2020 academic year): Awarded to students with good academic performance and those who have shown abilities to overcome challenges.

Rose-Hulman Summer Undergraduate Research Fellowship (R-SURF) (Summer 2020): Awarded to students who demonstrate abilities and passion in research areas.

Dean's list (8 of 10 quarters)

JOURNAL PUBLICATIONS

Chen, M., Chen, B. & Zhang, H. (2021). The aerothermodynamic cycle optimal design of a turbofan engine. *International Journal of Turbo & Jet-Engines*, 000010151520210045. <https://doi.org/10.1515/tjj-2021-0045>

CONFERENCE PROCEEDINGS

Chen, B.†, Jones, S. and Riley, M., Stochastic finite element modeling of laminated fiber reinforced composite beams under transverse loading, Proceedings of the ASME 2021 International Mechanical Engineering Congress & Exposition, Pittsburgh, PA, 2021

† - signifies presentation of the paper at these conferences