Jack A. Whitehouse

(224) 216-3975 | jackaw4@illinois.edu

Education

Bachelor of Science in Aerospace Engineering — Expected: May 2025
University of Illinois at Urbana-Champaign — GPA: 3.72, Dean's List

Work Experience

University of Illinois, Dept. of Aerospace Engineering — Champaign, IL
Undergraduate Research, Center for Sustainable Aviation — April 2023 – Present

- Supported investigation into the potential of the hydrogen-fueled Center for High-Efficiency Electrical Technologies for Aircraft (CHEETA) concept. Developed design and assembly procedures for the aircraft's unique geometry.
- Utilized SolidWorks to translate CHEETA geometry into a 5% scale model, resulting in a wing capable of fully elastic tip deflection up to 33% of the chord length while maintaining structural integrity under flight loads, through comprehensive iterative stress testing and finite element analysis performed in Abaqus CAE.
- Engineered a robust retractable landing gear design in SolidWorks capable of withstanding takeoff and landing impact forces.
- Presented personal and group findings on behalf of the research group at multiple technical presentations.

University of Illinois, Grainger College of Engineering — Champaign, IL
ENG101 Engineering Learning Assistant — August 2023 – May 2024

- Led incoming engineering students through discussions that enable them to embark confidently on their academic journey, focusing on critical skills for students success in academics and beyond.
- Empowered students to set personalized academic goals through one-on-one coaching sessions, with a focus on future planning, essential study skills, and time management techniques to improve academic performance.
- Enhanced students' Cultural Intelligence, resilience, and teamwork across diverse cultures for effective collaboration.
- Consistently rated highly in overall teaching effectiveness (4.75/5), clearly articulating expectations and providing valuable and engaging lectures.
- Fostered a respectful and productive learning environment, with 88% of students reporting feeling significantly better equipped for their academic futures.

NASA SwampWorks — Kennedy Space Center, FL
Electro-Static Discharge Internship — June 2019 – August 2019

- Collaborated with a team of Ph.D. researchers and interns to design spacesuit lining for future Lunar and Martian mission, utilizing electro-static discharge fabric for efficient regolith removal, significantly improving astronaut efficiency in dust-rich environments.
- Applied E&M principles to design regolith removing magnetic fields using ESD fabric and AC voltage sources.
- Drafted and submitted a New Technology Report, displaying strong organizational and management skills, ensuring consistency of details and statistics across the design team.

Leadership

Phi Kappa Tau, Zeta Chapter — Champaign, IL
Community Service Chair — Decemeber 2022 – Present

- Risk management and participation in regular governance meetings, including active involvement in event planning.
- Fundraising events supporting local food pantries, mobilizing community engagement and resources for a vital cause.
- Managed fraternity apparel showing exceptional organizational skills by efficiently designing and ordering, ensuring cohesion for all members.

Projects

GreenPrints, 3D printer filament from recycled soda bottles

- Designed a mechanical recycling process converting soda bottles into valuable 3D printer filament, achieving a plastic waste reduction of 90%.
- Utilized C++ and Python to automate machine operations, boosting cycle efficiency in recycling and filament production.

Radio controlled aircraft with in-flight deployable solid rocket booster

- Adapted radio-controlled airplane principles to create an innovative aircraft with an in-flight deployable solid rocket booster.
- Successfully conducted two aircraft flights, showcasing precision timing with in-flight booster deployment within 50 milliseconds of pilot activation and achieving stable boosted flight through all deployment phases.

Skills

Programming: Python, C, MATLAB, LaTeX, JavaScript, HTML, CSS
CAD and CAE: NX, SolidWorks, Inventor, Fusion 360, AbaqusCAE, pymead
Fabrication: Laser Cutting, 3D Printing, Welding, Wood-shop, Soldering