

JOE REES

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Education

University of Southern California, Viterbi School of Engineering

May 2025 - December 2025

Masters of Science, Aerospace Engineering

- Relevant Courses: Orbital Mechanics, Linear Algebra, Modern Topics in Aerospace Design, Additive Manufacturing

University of Southern California, Viterbi School of Engineering (GPA: 3.60)

January 2023 - May 2025

Bachelors of Science, Aerospace Engineering

- Men's Lacrosse, Dean's List
- Relevant Courses: Flight Propulsion, Aircraft Design, Flight Mechanics, Senior Projects Laboratory, Fluid Dynamics

Clarkson University, Wallace H Coulter School of Engineering (GPA:3.91)

August 2020-May 2022

Bachelors of Science, Aerospace Engineering

- Clarkson Leadership Scholarship
- Men's Lacrosse, Liberty League All-Academic, Presidential Scholar
- Relevant Courses: Numerical Methods, Rigid Body Dynamics, Materials Science, Strength of Materials

Projects

Directed Research: Hypersonic Combustion

May 2025 - Present

USC Viterbi, Los Angeles, CA

- Conducting high-speed reacting flow research using Python and Cantera to model hypersonic combustion, focusing on nonequilibrium chemistry, thermodynamic behavior, and plasma-gas interactions relevant to atmospheric re-entry and propulsion systems.

Senior Capstone: Long Range Regional Jet Conceptual Design

January 2025-May 2025

USC Viterbi Aircraft Design, Los Angeles, CA

- Designed a long-range regional jet; performed aerodynamic, structural, propulsion, and economic trade studies using JetSizer and Excel to optimize performance and meet FAA and cost constraints. Developed full fuselage, wing/tail, propulsion layout, systems integration, and mission analysis, documented in a comprehensive final report.

Senior Project: Anisotropic Porous Structures for Drag Reduction

August 2024 - December 2024

USC Viterbi Senior Project, Los Angeles, CA

- Based on computational studies of anisotropic porous materials illustrating drag reduction, the project aimed to develop a database of promising geometries and characterize their properties. The chosen database includes skin friction profiles and permeabilities of elliptical, cubic, gyroid, and riblet geometries determined using pressure drop measurements

High Lift Military Aircraft Design Project

January 2024 - May 2024

USC Viterbi Flight Mechanics, Los Angeles, CA

- Project focused on design and development of a C5-M variant aircraft replacement. Design specifications included adhering to USAF Rapid Global Mobility goal. Specifics included cruise speeds greater than Mach 0.8, 430,000-lb payload over an unrefueled range of 2,5000nmi. Other factors included engine selection, satisfactory takeoff and landing capabilities, and proper ascent/descent abilities, among other factors

Leadership

Captain, USC Men's Club Lacrosse, Los Angeles, CA

August 2024 – May 2025

- Elected as a Captain of the USC Men's Club Lacrosse Team. Role includes facilitating player-coach interactions such as on and off-field communication. Acting as a role model for younger teammates through words and actions

Skills

Programming: MATLAB, Python, Cantera

Software: Siemens NX, Systems Tool Kit (STK), ANSYS Fluent, Altair SimLab, Microsoft Excel

Languages: English (fluent)

Addition Information

Hobbies/ Interests: Spending time outdoors, trying new/random activities with friends, gym goer, sports