Jack Liedel

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Education:

Vanderbilt University, Nashville, Tennessee - *BE:* ***Mechanical Engineering and Applied Mathematics*** June 2023 - May 2026

GPA: 3.80/4.00

Stevens Institute of Technology, Hoboken, New Jersey - *BE:* ***Mechanical Engineering*** August 2022 - June 2023

GPA: 4.00/4.00

Experience:

Vanderbilt Aerospace Design Laboratory (VADL) - ***Simulations Engineer*** June 2024 - Present

- Used MatLAB and OpenRocket to simulate rocket flight, descent, jettison and parachute deployment.
- Made recommendations of rocket vehicle design, massing and motor choice based on simulation results.

Computational Physics and Mechanics Laboratory - ***Mechanical Engineer*** May 2024 - Present

- First-authored research paper discussing topology optimization of a consumer drone arm using the software nTopology with experimental results.
- Expected to be published in October of 2024.

Vanderbilt Aerospace Design Laboratory (VADL) - ***Associate Engineer*** September 2023 - June 2024

- Assisted in design and construction of rocket and Payload Deployment System with nationally top ranked laboratory for NASA Student Launch Competition.
- Used FEA and CFD to model characteristics of boat tail and other components on rocket.
- Drafted initial designs in Solidworks for internal electronics housing units on rocket.
- Manufactured full-scale and subscale rocket with carbon fiber for testing and mission deployment.
- Helped write report sections for NASA design reviews.

RocSat-C, NASA Atmospheric Inert Gas Retrieval (AIR) - ***Design Project*** September 2022 - June 2023

- Used SolidWorks to create structural components; 3D printed, prototyped and tested designs to ensure mission readiness.
- Successfully created a payload design to withstand an apogee of 330,000 ft.
- Traveled to NASA facility to perform payload implementation.

Summer Undergraduate Research Project | Parziale Research Group - ***Research Scholar*** May 2023 - July 2023

- Co-lead team to design and manufacture Stainless-Steel Helmholtz Resonator measuring harmonic frequencies of hypersonic shocks.
- Worked on computational approaches to hypersonic gas dynamics in experimental settings using MATLAB and Python.
- Presented findings at student research conference

Bifurcation and Nonlinear Dynamics Summer Research with Dr. Dubovski - ***Research Scholar*** April 2023 - August 2023

- Programmed model with Python to detail various constraints on logistics map (Fiegenbaum bifurcation diagram) and documented different approach's behavior.
- Explored implications of results on other existing chaotic behavior models.

Awards:

NASA SLI Award 2024 - American Institute of Aeronautics and Astronautics Reusable Launch Vehicle Innovative Payload Award 2nd place

VUSE Grant - Selective grant given to Vanderbilt University Engineering students who are accepted into VUSE summer research programs.

CH 116 Scholars - Highly selective chemistry course whose admission is based upon outstanding grades in previous chemistry courses.

Edwin A. Stevens Scholarship - Scholarship awarded to high achieving students based upon academic and extracurricular success.

NASA [NJSGC] Space Grant Awardee - Grant awarded to distinguished groups who participate in NASA-backed programs. This was presented in relation to my group's work for RocSat-C.

Top Scholar- echani

Ranked #1 out of 300 students in Mcsudents in Linear Algebra course (MA 125).

- ❖ Rank course (PEP 111).
- ❖ Ranked #2 out of 550 sted #4 out of 550 students in Multivariable Calculus course (MA 126).
- ❖ Ranked #11 out of 550 students in Integral Calculus course (MA 122).

SURP Fund Awardee - Highly selective grant awarded to those who are chosen to partake in the Summer Undergraduate Research Project.

Dean's List - Fall 2022, Spring 2023, Fall 2023 & Spring 2024 Semesters

Extracurricular Experience:

Vandy Lifts- Mentor

- ○ Mentored Vanderbilt students on proper weightlifting techniques and progression strategies.

Aristhetic- Co-Founder

- ○ Designed website and product line for fitness clothing wear company.
- ○ Generated investor interest and successfully generated capital through networking.

Vanderbilt Rocket Propulsion Group (VRPG) - **Lead Engineer**

- ○ Led team of students to design and manufacture basic prototype propulsion systems [i.e. rocket and jet engines].

Student Government Association - **Senator**

- ○ Elected by Stevens student body to spearhead and manage campus wide improvement and outreach initiatives.

Aboard - **Advocate**

- ○ Highly selective position which represents the entirety of Stevens Institute of Technology in specific issues often involving ethics, inclusion and equity.

Rules Committee - **Committee Member**

- ○ Committee of scholars who oversee and revise the constitutions of student-lead organizations on campus.

DNI Committee - **Committee Member**

- ○ Committee of Stevens students who revise campus policy to make it more accessible to a diverse array of students.

Math Team - **Member**

- ○ Competes in national mathematics competitions like the William Lowell Putnam Mathematical competition.

Philosophy Salon - **Member**

- ○ Group of professors and students who actively engage in ethical, metaphysical and epistemological inquiry.