Benjamin Racapé

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EDUCATION

Vanderbilt University – Nashville, TN Class of 2026
Bachelor of Engineering, Mechanical Engineering, GPA: 3.98
Second Major: Applied Mathematics
Awards: American Bureau of Shipping Scholarship Recipient, School of Engineering Dean's List

PROJECT EXPERIENCE

Vanderbilt Aerospace Design Lab (VADL) – Nashville, TN May 2024–Present
Payload Systems Engineer
- Selected to join VADL Rocket Team, 7-time national champions, competing in NASA's Student Launch Initiative
- Collaborating on the design and testing of a rocket capable of deploying a lander payload to transmit RF data
- Leading the design, prototyping, fabrication and testing of payload systems, emphasizing a "requirements-first" approach to ensure system alignment with mission goals

Vanderbilt Advanced Robotics and Control Laboratory – Nashville, TN Fall 2023–Spring 2024
Undergraduate Researcher
- Conducted research on the theoretical viability of integrating a variable-stiffness torsional hip exoskeleton to enhance human gait
- Executed simulations of a simple bipedal mass pendulum walking model using MATLAB
- Generated intricate figures to visualize and analyze findings, contributing to the research process and the completion of a comprehensive conference paper

PROFESSIONAL EXPERIENCE

Whisper Aero– Nashville, TN Winter 2025–Spring 2025
Incoming Mechanical Engineering Intern
- Contributing to the development of next-generation ultra-quiet propulsion systems as a full-time intern during Spring 2025

American Bureau of Shipping (ABS) – Houston, TX May 2024–Present
Engineering Applications Intern; American Bureau of Shipping Scholarship Recipient
- Designed and rapidly prototyped innovative methods for digitally delivering ABS Rules content as a part of the Digital Rules team
- Developed a Python-based program and web app for automating the calculation of ABS Rules equations with complex dependencies and references
- Engineered a web scraper to transform ABS Rules HTML into a robust Rules database, facilitating better data utilization
- Leveraged AI tools to analyze Rule text in accordance with International Council of System Engineering (INCOSE) standards
- Packaged modules into a comprehensive Digital Rules REST API and integrated it into NAPA design software using C# scripting, streamlining workflows
- Interviewed engineers to uncover pain points in the design review process, implementing solutions to enhance efficiency

Vanderbilt Design Studio – Nashville, TN Fall 2023–Present
Design Mentor
- Guided peers in design projects for two hours weekly, providing guidance in ideation, CAD modeling, and fabrication, while ensuring proper equipment use and safety protocols
- Developed proficiency in the 3D modeling-to-printing workflow (SOLIDWORKS to Ultimaker Cura), and trained students in the use of power tools and electronic prototype fabrication

Vanderbilt Department of Computer Science – Nashville, TN Fall 2022–Fall 2023
Teaching Assistant
- Supported a computer science professor in administering MATLAB programming course for 55 students
- Conducted help sessions, office hours, and recitations every week, offering additional instruction and assistance
- Evaluated assignments and provided personalized feedback to students

SKILLS & INTERESTS

- **Software**: MATLAB, Java, Python, SOLIDWORKS (CSWA Certified), Web Development (HTML, JS), NI LabVIEW
- **Other Skills**: Requirements Management, Machining, 3D Printing, Technical Writing, Microsoft Office, Arduino
- **Interests**: Music (Guitar, Piano, Saxophone), Board Games, Camping and Hiking, Recreational Sports, Slow Bike Racing