

Sitan Huang

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EDUCATION

Vanderbilt University, Nashville, TN Aug 2021 – May 2025
B. E., Mechanical Engineering. *Engineering Management Minor*
GPA: 3.99 / 4.0
Coursework: Robotics, Linear Control Theory, Aerospace Propulsion

TECHNICAL EXPERIENCE

Vanderbilt Aerospace Design Laboratory Aug 2024 – Present
Simulations Lead, Nashville, TN

- Responsible for the development of flight plans and rocket design for the 2024 NASA USLI Competition
- Created a MATLAB Domain-Specific Language for simulating rocket aerodynamics
- Modeled and simulated lander impact dynamics to inform payload design
- Designed and manufactured the Leg Deployment System (LDS) used on the payload
- Mentored underclassmen in flight modeling and simulations

Center for Rehabilitation Engineering and Assistive Technology Jan 2022 – May 2024
Research Assistant — Advisors: Dr. Kirsty McDonald, Dr. Karl Zelik

- Investigated the biomechanical outcomes of adding a toe joint to foot prostheses during stair ascent and descent to inform future prosthetic research and prescription
- Assisted the development of a prosthetic ankle controller to achieve variable impedance during sit-to-stand transitions
- Designed and manufactured a wearable sensor to estimate joint-level angles and exoskeleton forces outside a laboratory setting. Validated against lab-based instruments
- Designed and prototyped clutches for an ankle exosuit that accommodates a variety of heel-strike strategies

Lutron Electronics. Systems Engineer, Allentown, PA May 2024 – Aug 2024

- Innovated a software architecture that parameterizes configurable products
- Devised analytical solutions to validate manufacturing constraints and optimize material usage given a customer-specified product geometry
- Implemented CI/CD cloud infrastructure for an internal software project

Lutron Electronics. Quality Engineer, Ashland, VA May 2023 – Aug 2023

- Built machine learning models to predict defect behaviors from material properties using Tensorflow and optimized worker inspection procedures. Saved the company 30% in wasted labor costs.

BruceAC LLC. Co-Owner, Las Vegas, Nevada Aug 2018 – Present

- Managed daily operations of a small HVAC contractor, including heat load calculations for sizing new systems, drafting estimates, and installing equipment in the field
- Built a machine learning model to help technicians diagnose HVAC systems
- Wrote company's work order management software

Beijing Feisu Creative Technology, Ltd.. Full-stack Software Engineer Jan 2015 - Dec 2017

- Sole maintainer of an online forum with peak online user count of two million.

SKILLS

Languages: MATLAB, Python, C, C++, Rust, Java, SQL, Ruby, NodeJS, English

Software: Tensorflow, Motion Capture, Solidworks, LaTeX, MATLAB, Git, Linux, Bash, SSH

Technical: Academic writing, Literature review, Analysis-driven design, Data analysis, Rapid prototyping

JOURNAL PUBLICATIONS

- **Huang, S.**, Teater, R.H., Zelik, K.E. and McDonald, K.A., “Biomechanical Effects of an Articulating Prosthetic Toe Joint During Stair Navigation for Individuals with Unilateral, Below-Knee Limb Loss,” *Journal of Biomechanics*. (2023)
- Teater, R.H., Wolf, D.N., Rodzak, K.M., Walther, E.G., **Huang, S.** and Zelik, K.E. “The impact of prosthetic ankle stiffness on the sit-to-stand performance of transtibial prosthesis users: A case series ” *Under preparation*.

CONFERENCE PRESENTATIONS

- **Huang, S.**, Teater, R.H., Zelik, K.E. and McDonald, K.A., “Biomechanical effects of adding a flexible toe joint to foot prostheses during stair ascent and descent,” American Academy of Orthotists & Prosthetists 49th Academy Annual Meeting & Scientific Symposium. (2023)

COMMUNITY WORK

Presenter , <i>Vanderbilt Aerospace Design Laboratory</i>	2024
Engaged in community outreach to educate high school students on space exploration technologies.	
Developer , <i>TaskCentral</i>	2023
A task management software used by dozens of PhD students worldwide.	
Chemistry Tutor , <i>Vanderbilt Summer Bridge Program</i>	2022
Taught foundational chemistry knowledge to incoming Vanderbilt students.	
Math Tutor , <i>Nashville Metro Public Schools</i>	2022
Partnered with local schools to provide tutoring in algebra and geometry.	

HONORS & AWARDS

A. James Clark Scholar, <i>Vanderbilt University</i>	2021
Member, <i>Tau Beta Pi Engineering Honor Society</i>	2023
Dean’s list (All semesters), <i>Vanderbilt University</i>	2021-2025