KEVIN TRAN

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PROFESSIONAL SUMMARY

Interdisciplinary engineer with a foundation in Biomedical Engineering and minors in Electrical and Computer Engineering, Digital Fabrication, and Computer Science. Experienced in hardware design, signal processing, and data analysis. Adept at applying technical expertise to solve complex challenges with a focus on innovation and collaboration. Strong problem-solving skills and familiarity with supply chain optimization, stakeholder management, and inventory control in dynamic environments.

EDUCATION

Vanderbilt University **Aug 2021 - May 2025**

Bachelor's, Biomedical Engineering

- Minors: Electrical and Computer Engineering, Digital Fabrication, Computer Science

UNDERGRADUATE RESEARCH & DEVELOPMENT

Bionic Hand with EMG and Computer Vision Integration **Nashville, TN, USA**

Personal Project Lead *Jan 2024 - May 2025*

- Developed an EMG-controlled bionic hand that mimics natural movements using amplified, filtered muscle signals and precise Arduino-based motor control.
- Designed and 3D-printed all mechanical components in SolidWorks, with iterative improvements for durability and performance.
- Integrated MediaPipe computer vision for gesture tracking, enabling dual-mode control through both muscle and visual inputs—blending biomedical sensing, mechanical design, and machine learning in a single system.

Pediatric Blood Collection Tube Development **Nashville, TN, USA**

Design & Prototyping Lead (collaboration with Wiencek Lab, Vanderbilt University Medical Center) *Aug 2024 - May 2025*

- Spearheaded prototyping and design of resin-printed pediatric blood collection tubes, optimizing for consistent 1 mL blood draw in collaboration with VUMC faculty and clinical partners.
- Led material selection, iterative prototyping, and fabrication using 3D printing, vacuum forming, and experimental injection molding techniques.
- Conducted design validation and testing to ensure compatibility with automated blood collection systems, improving efficiency and patient comfort.
- Collaborated with project mentor Dr. Joseph Wiencek (VUMC) and interdisciplinary team to refine design for cost-effectiveness, scalability, and clinical usability.

Biomagnetic and Bioelectric Analysis of Gastric Slow Wave Activity **Nashville, TN, USA**

Undergraduate Research Assistant – Gastrointestinal SQUID Technologies Lab (PI: Nicole Muszynski) *Jan 2023 - Nov 2023*

- Analyzed gastric electrophysiological signals using MATLAB and SQUIDViewer to identify patterns and abnormalities in slow wave propagation.
- Interpreted patient data to support ongoing research in gastrointestinal diagnostics and bioelectric signal behavior.
- Contributed to lab efforts focused on advancing non-invasive diagnostics through high-resolution biomagnetic signal analysis.

SKILLS

Programming & Data Analysis: Python, MATLAB, C++, SQL, Machine Learning, Signal Processing, Data Visualization.
Tools & Technologies: SolidWorks (Certified), OnShape CAD, Arduino, Raspberry Pi., Fusion 360
Analysis & Design: Statistical Modeling, Signal Processing, User-Centered Design
Soft Skills: Stakeholder Collaboration, Communication, Teamwork

AWARDS & LEADERSHIP

- **NASA Space Rover Competition | 2nd Place (2021):** Led mechanical design innovations that improved system performance and contributed to the team's top-tier placement.
- **Vanderbilt Cheerleading – Coed Base (Aug 2023 – Jan 2025):** Main base for competition-level pyramids; led routine execution and contributed to performance design through disciplined, high-intensity team training.
- **Vanderbilt University Ambassador – School of Engineering (Aug 2022 – May 2025):** Led tours of engineering facilities, sharing academic and student life experiences to inspire prospective students and promote STEM engagement.