Patrick Le

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Education

University of Kansas **Aug. 2022 – May 2026**
Bachelor of Science in Mechanical Engineering *Lawrence, KS*
Bachelor of Arts in Trumpet Performance
- Member of the University Honors College

Wichita Area Technical College (WSU Tech) **May 2021**
Technical Certificate in Fundamentals of Aerospace Manufacturing *Wichita, KS*

Work Experience

Kansas Department of Transportation (KDOT) **May 2025 – July 2025**
Mechanical Engineer Intern *Topeka, KS*
- Performed testing on concrete and asphalt samples to verify material compliance with industry standards
- Researched behavior of concrete mixtures during curing to improve understanding of industry performance
- Tested material performance of rapid-set concrete mixtures to identify optimal practices for industry application
- Proposed integration of 3D printing into lab workflows and drafted comprehensive technical documentation on 3D printing practices to improve lab processes

University of Kansas Biodynamics Laboratory **August 2025 – Present**
Undergraduate Researcher *Lawrence, KS*
- Assist in research on mechanical vibration effects on somatosensory feedback, contributing to studies on balance assessment and non-invasive treatments
- Utilize MATLAB to analyze experimental force plate data, extracting key metrics to support balance assessment research
- Support development and testing of a vibratory stimulation system for human subject trials

Wingspan: Center for Learning and Writing Support **August 2023 – Present**
Peer Tutor *Lawrence, KS*
- Tutor students in engineering, math, and music theory to help improve their academic skillset
- Implement personalized lesson strategies to support individual learning styles and improve student understanding
- Developed strong communication skills through explaining complex technical concepts in clear, accessible ways

Projects

MIDI Controller Wind Instrument | *C++, Embedded Systems, Microcontrollers, CAD* **May 2025**
- Designed and programmed a MIDI wind controller using C++ and a Teensy microcontroller to convert breath and touch input into real-time MIDI signals for seamless performance
- Integrated capacitive touch sensors and pressure transducers for accurate note and dynamic control
- Implemented MIDI protocols for seamless compatibility with digital audio workstations and synthesizers
- Utilized Solidworks to design 3D-printed housing and mechanical interface for optimal ergonomics and durability

Trumpet Embouchure Practice Tool | *Product Design, Rapid Prototyping, Additive Manufacturing, CAD* **July 2024**
- Designed a trumpet embouchure visualizer using Solidworks, creating an effective practice aid for trumpet embouchure development
- Developed multiple iterations to streamline modification and improve player/instrument interface
- Utilized SLA 3D printing processes for high-resolution, ensuring a consistent and reliable product
- Collaborated with professional musicians to enhance design, resulting in a more functional and effective product

Advanced Coursework

- The Finite Element Method
- Mechatronics
- System Dynamics and Control Systems
- Biomechanics
- Mechanical Machine Design
- Modeling Dynamics of Mechanical Systems

Technical Skills

Engineering Software: SolidWorks, Inventor, CATIA V5, MSC Patran/Nastran, MSC Adams
Software and Programming: MATLAB, Simulink, C++, Python, Microsoft Office Suite
Generative AI: ChatGPT, Microsoft Copilot
Additive Manufacturing: FDM and SLA 3D Printing

Extracurriculars and Interests

- KU School of Music Ensembles (Trumpet)
- KU Running Club
- Professional Speedcubing (Rubiks Cubing)