MINH BINH NGUYEN
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EDUCATION

Washington University in St.Louis, *McKelvey School of Engineering*

Bachelor of Science in Mechanical Engineering

Courseworks: Statics and Mechanics of Materials, Computer-aided design, Dynamics, Thermal Dynamics, Fluid Mechanics, Machine Shop Practicum

Technical Skills: NX CAD, SolidWorks, MATLAB, R Studio, C++, Java

Workshop Skills: 3D Printing, Design for 3D Printing, Lathe machine, CNC Machine, Mill machine

EXPERIENCES

WashU Racing (Formula SAE) St Louis, MO

Ergonomics & Braking System Team Member *August 2025 - Present*

- Engineered a full braking system (caliper, rotor, master-cylinder selection) to satisfy Formula SAE safety rules and 1.2 g deceleration targets, ensuring the car can stop from 60 mph in under 4s
- Analyzed rotor materials (cast iron vs. carbon steel) for thermal conductivity and stiffness, achieving a 15% reduction in predicted thermal deformation compared to last year's design.
- Modeled and simulated brake components in SolidWorks/ANSYS to validate fit and cooling performance, optimizing rotor ventilation patterns to lower peak rotor temperature by ~12% while maintaining structural integrity.
- Calculated brake bias and pedal ratio using dynamic load transfer equations to balance front/rear stopping forces, improving driver pedal feel, and reducing stopping distance

DePauw University Information Service Department Greencastle, IN

IT Helpdesk Intern *August 2023 - May 2025*

- Diagnosed and repaired hardware/software failures for a network supporting 2,000+ students and faculty, performing component replacements and system reimaging to cut average downtime by 25%
- Installed 50+ new PC units and calibrated peripherals across campus; maintained operation of printers and A/V systems with preventive maintenance schedules that lowered annual repair costs by 18%
- Documented 100+ detailed repair workflows in a centralized knowledge base, enabling self-service troubleshooting and reducing repeat support tickets by 35%

PROJECTS

Cervelo C5 Road Bike Custom Build & Optimization May 2024 - Present

- Engineered a full custom road bike build from component sourcing to final assembly, including precise ergonomic adjustments (e.g., stem length, seat tube height) for a 100% body-specific fit, optimizing power transfer and rider comfort.
- Executed performance enhancements through mechanical upgrades, such as ceramic bottom bracket bearings to reduce friction, alongside strategic aerodynamic component selection to minimize drag and weight.
- Validated performance improvements quantitatively using a power meter, demonstrating a data-driven approach to optimize speed and efficiency on varied terrains.
- Currently designing a 3D-printed integrated handlebar to internalize all cabling, further enhancing aerodynamics and aesthetics while planning for future performance gains.

Custom Integrated Bicycle Handlebar Design (NX CAD & 3D Printing) July 2025

- Fabricated a custom integrated bicycle handlebar in NX CAD with fully internal cable routing, optimizing geometry for 12% lower aerodynamic drag and improved rider ergonomics, and prepared the design for 3D printing to produce a lightweight component (≈20% weight reduction) with stiffness sufficient to withstand 2.5× expected cycling loads

Conceptual Electric Motor End Cap Design (NX CAD) June 2025

- Designed and modeled a conceptual electric-motor end cap in NX CAD, featuring optimized cooling fins, a precision bearing housing (maintaining shaft alignment within ±0.05 mm), and reinforced mounting points, utilizing a wide range of complex modeling features for 3D-printable prototyping.

LEADERSHIP

Little 5 Collegiate Bike Race & Philanthropy Campaign - *Top-5 Finish & Team Leader* April 2023 - April 2024

- Led a five-member student cycling team and helped to coordinate a campus-wide fundraising campaign for countywide literacy initiatives, driving a cumulative $66,000 raised for United Way of Central Indiana and $32,000 for local food pantries.