JASON NERN QI LEE

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Summary

Mechanical Engineering student passionate about sustainability, car aerodynamics, and consumer electronics

Education

Pennsylvania State University – Schreyer Honors College May 2027
Bachelor of Science in Mechanical Engineering - Mechatronics Minor ***GPA: 3.77 / 4.00***
Relevant Coursework: Engineering Statics & Dynamics, Thermodynamics, Strength of Materials, Electrical Circuits
Organizations: Malaysian Fencing Team Member, ASME, FAME Lab Casting bootcamp, IAENG

Skills

Software: SolidWorks, Design of Experiments DOE, Parametric Study, ANSYS, StarCCM+ CFD, MATLAB, Excel
Enginering: Design for Manufacturability (DFM), DFA, Tolerance Stack Analysis, Mechanical Design, Design Validation, Mechanical testing, Concept Development, Geometric Dimensioning &Tolerance (GD&T), KiCad, 3D printing, Instron, Keyense laser microscopy, OGP Metrology devices, fixture design, Surfacing, FMEA, composites

Work Experience

Insulet Acton, MA
Mechanical Lifecycle Engineering Intern July 2025 – Present
- Reduced Plastic Needle cap material by 20%, saving $317,000+ per year through topology optimization and applying tolerance stack analysis to ensure seamless integration with existing packaging and manufacturing
- Verified product reliability of Class II medical devices for alternative supplier materials through mechanical validation testing, ensuring tolerance compliance, allowing more robust, flexible component sourcing
- Designed new fixtures, work procedures, and adapters, to improve test reproducibility and new Instron utilization

Nittany Motorsports (Penn State FSAE) University Park, PA
Aerodynamics and Thermodynamics Systems Engineer August 2023 – Present
- Optimized cooling for <9% aerodynamic penalty with automated 5-parameter radiator orientation design of experiments using Latin Hypercube Sampling to get the maximum amount of information with less time spent
- Cut total RPN from 823 to 250 by addressing 9 issues identified by FMEA on the aerodynamic package such as sharp trailing edges, inconsistent manufacturing methods, and validation of structural design
- Improved brake rotor operating temperature by 25%, inertia by 19% and warpage by 20% by implementing new off-gassing dimples that improve heat dissipation with minimal structural cost, validated through Ansys analysis

Pangborn Advanced Controls Lab (PACLAB) University Park, PA
Undergraduate Researcher – Mechanical Design December 2024 – Present
- Minimized junction boxes by 60% for more compact packaging, better testbench integration, and maintenance
- Consolidated 85% of Valve mount parts and cut 75% of assembly time by reconfiguring key parts efficiently for modular design, enabling streamlined future maintenance and reduced down-time when adding additional valves

Engineering Projects

Front Wing Redesign — **Penn State FSAE** (Lead) – CFD | StarCCM+ | CAD | Qblade | Prompt Engineering
- Engineered custom front wing main element airfoil profile family utilizing AI (GPT5), achieving consistent CL/CD of 1.5 (30% improvement) over a 10mm range and 2-degree angle-of-attack, improving aerodynamic robustness
- Conducted parametric studies to evaluate front wing main element performance across 10+ airfoils, varying ride height and AoA, optimizing for high aerodynamic efficiency and flow conditioning for robust system integration
- Developed 2027 car concepts like 3D main element, deflectors and vortex generators for tire wake management

Split Ergonomic Keyboard – **Assistive Tech Club** (President) – Design Validation | KiCAD | Soldering | 3D Printing
- Minimized user typing fatigue by 30%, by optimizing ergonomics of 56 keys through iterative heatmap studies
- Integrated key switches, LCD, and battery into custom PCB, targeting ergonomics and long-lasting performance
- Embedded quality of life features like Bluetooth, native Colemak layout, and shrank packaging 66% for simplicity

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