Kenneth Liu
Mechanical Engineer

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Mechanical Engineer with hands-on experience supporting product development, structural analysis, and mechanical system design from concept through prototype and validation. Proficient in applying first-principles engineering, CAD modeling, GD&T, and data-driven problem solving to deliver reliable, high-performance products. Proven ability to collaborate across engineering, manufacturing, and project teams to meet technical requirements, optimize designs, and support product lifecycle development. Eager to apply technical expertise, system-level thinking, and continuous improvement to drive successful engineering solutions.

EDUCATION

University of Southern California — May 2025
Master of Science, Mechanical Engineering, GPA: 3.7
Master of Science, Engineering Management, GPA: 3.7

New York University — May 2023
Bachelor of Science, Mechanical Engineering
Honors: Dean's List

SKILLS & CERTIFICATIONS

Engineering & Analytical Skills

• Mechanical Design • 3D CAD Modeling • Structural Analysis • FEA Modeling • Design for Manufacturability (DFM)

• GD&T • Tolerance Stack-Up Analysis • Failure Analysis • First-Principles Engineering • Cross-Functional Collaboration

Technical Skills & Software Tools

• SolidWorks • AutoCAD • Autodesk Inventor • NX • Creo • ANSYS Workbench • Microsoft Project • Microsoft Excel

• Minitab • Python • MATLAB • Simulink • OpenCV • Data Algorithms • GD&T

Certifications

• Certified SolidWorks Associate (CSWA), 2023 • Lean Six Sigma Black Belt, 2025

EXPERIENCE

USC -Zhao Research Group, Department of Aerospace and Mechanical Engineering — Sep 2023-May 2025
Research Assistant

- Assisted a professor on a soft robotics project by developing a Python based marker motion tracking system.
- Developed and deployed machine learning algorithms to improve motion tracking accuracy, automated manual processes, and enhanced overall system efficiency.
- Coordinated task schedules, project progress presentations, and publications to ensure timely deliverables.
- Streamlined motion tracking workflow, reduced processing time by over 2 hours, enhanced accuracy by 95%.
- Refined and tested an OpenCV-based motion tracking system, achieved sub-millimeter precision of 0.01mm.

WABTEC CORP. Erie, PA — May 2022-Aug 2022
Summer Intern

- Collaborated with engineering teams to develop and implement process improvements, reduce manufacturing hours and enhance product quality.
- Utilized ANSYS Workbench to analyze stress differentials on proposed geometry changes for air-to-air shaft. Implemented design modifications to comply with performance and stress standards.
- Optimized FEA analysis for rotating impeller designs by evaluating supplier-proposed casting changes, eliminating complex hand buffing operations and reducing manufacturing time by over 3 hours.
- Resolved shop floor manufacturing issues by providing marked-up drawings for interim fixes and finalizing design documents for long-term solutions.

ENGINEERING PROJECTS

Music Sheet Automated Flipper – BOM Creation, Tolerance Stack-Up, Inventor   Jan 2025-May 2025
- Led a team of 7 in end-to-end design, prototyping, and assembly process, ensuring alignment with performance and manufacturability goals.
- Designed automated sheet music flipper in Inventor applying GD&T principles, led tolerance stack-up analysis, BOM creation, and DFM for prototype validation and manufacturability.

Team Optimization Consulting Project– Key Performance Indicators, Data Analysis, & Microsoft Excel   Jan 2024-May 2024
- Led a team of 6 to research, analyze, and propose optimized team structure for an engineering company, improving the company's team efficiency and overall output by 30%.
- Developed the end-to-end preparation and execution of the presentation to the class and the engineering company, ranking first in the class.

Lego Block Redesign with Braille – Microsoft Projects & SolidWorks   Sep 2024-Dec 2024
- Redesigned LEGO blocks with CAD to incorporate braille, enhanced accessibility for visually impaired users.
- Managed the project timeline in Microsoft Projects, completed the project $5,000 under budget.
- Created CAD prototypes and conducted market analysis to evaluate demand and feasibility.

NYU Mechanical Engineering Projects – SolidWorks, ANSYS Workbench & AutoCAD   Sep 2019-May 2023
- Domain-Traversing System Development – Designed and developed a controllable system capable of seamlessly transitioning between air and water domains.
- Iron Man Mark 3 Design - Created an intricate replica of the Iron Man Mark 3 arm on SolidWorks and showcased advanced CAD proficiency.
- Chemical Car Prototype – Designed and prototyped a mechanical base for a chemical car to be able to travel 50+ meters.

VEX Robotics World Championship – SolidWorks, AutoCAD & Python   Sep 2017-May 2018
- Led a team of 7 to design (using Autodesk Inventor), code, build, and test a competition-ready robot for the world championship, efficiently delegating tasks to ensure seamless coordination across all phases.
- Competed with self-built robots, exchanging ideas and building relationships with teams from around the world.