Kaize (Tony) Yuan

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EDUCATION

Columbia University, The Fu Foundation School of Engineering — New York, NY
M.S. in Mechanical Engineering (Advanced Research Track) — Exp. May 2023
Relevant Coursework: Product Design for Manufacturing, Advanced Manufacturing Process (Laser and ECM), Digital Manufacturing, Aerodynamics, Robotics, Control Theory. — GPA: 3.94/4.00
Portfolio Website: https://www.kaizeyuan.com/

University of Southern California (USC), Viterbi School of Engineering — Los Angeles, CA
B.S. in Mechanical Engineering — May 2021
Honors: Dean's List (All Semesters) — GPA: 3.86/4.00
Relevant Coursework: Statics, Dynamics, Materials Behavior and Processing, Mechanical Design, Stress Analysis, CAD for Aero-Mech Design, Thermodynamics, Heat Transfer.

WORK & RESEARCH EXPERIENCE

Columbia Fu Foundation School of Engineering — New York, NY
Course Assistant - Digital Manufacturing (Graduate-Level Course) — Jan 2023 - Present
- Provided hands-on guidance to 100 students in programmable laser cutting, programmable CAD modeling, programmable embroidery, topology optimization, and programmable 3D food printing.
- Recorded comprehensive video tutorials on operating customized 3D food printers. Designed parts to enhance the performance of 3D food printers.

Columbia Fu Foundation School of Engineering — New York, NY
Research Assistant - The Robotics And Rehabilitation (RoAR) Lab — Mar 2022 - Present
- Investigated the differences between senior and young adults in their dynamics of motion, muscle activities, and motion stability during the sit-to-stand process.
- Utilized motion capture cameras, electromyography sensors, force plates, treadmills, and an active pelvic assist belt to perform the investigation.
- Aimed to use the results to develop specialized rehab programs and equipment for seniors.

USC Viterbi School of Engineering — Los Angeles, CA
Course Teaching Assistant - Computer-Aided Analyses for A-M Design (Upper-Level Course) — Aug 2020 - Nov 2020
- Held office hours twice weekly to help 100+ students practice the Siemens NX software. Answered students' inquiries on modeling, drafting with GD&T, assembly construction, motion simulation, finite element analysis, and topology optimization.
- Evaluated and provided feedback on students' weekly homework, midterms, and finals.

ACADEMIC PROJECTS

Robotics Studio Project - The Design and Manufacturing of a Quadrupedal Robot — New York, NY
Sep 2022 - Dec 2022
- Designed and developed an organic-shaped quadrupedal robot using a single-board computer platform, achieving excellent walking speed and effective cargo volume. Attained an 82% higher score than the class average, securing the top performer ranking.
- Created detailed CAD models and corresponding drawings for the robot. Performed finite element analysis to verify structural integrity under designed loading.
- 3D printed and assembled all structural components of the robot, resulting in a seamless final build. Devised and optimized the robot's gait, ensuring a smooth walking movement.

Senior Design Project - The Design and Analysis of a Hybrid Vehicle — Los Angeles, CA
Jan 2021 - May 2021
- Designed a mid-size hybrid sedan named All-Rounder to help reduce vehicle emissions in the Los Angeles area.
- Developed a parallel hybrid powertrain and a 6-speed automatic transmission system for All-Rounder, incorporating a steering system with weak understeer characteristics and a proper Ackermann level. Implemented double wishbone suspension systems with inclining roll center values from front to rear axles.
- Equipped All-Rounder with a 9.1 kWh battery system, providing 20 miles of pure EV range and ensuring the vehicle achieves a combined fuel efficiency of 30 MPG.

ADDITIONAL INFORMATION

- **Languages:** Fluent - English and Mandarin.
- **Skills:** CAD modeling & analysis (Siemens NX, SOLIDWORKS, Altair Inspire, OpenSCAD), SBC platforms operation (Raspberry Pi OS & Ubuntu), CNC systems operation (G-code), 3D printing, laser cutting, MATLAB, Python, LaTeX.
- **Work Authorization:** Indefinitely authorized to work for any US employer.