# Zixu Wang

61-12 218th Oakland Gardens, NY 11364| zixuw54@gmail.com | 646-963-1185

## EDUCATION

**University at Buffalo, State University of New York**
**Bachelor of Science in Mechanical Engineering**
**Anticipated Conferral:** May 2026
**Relevant Coursework:** Road Vehicle Dynamics, Thermo-Fluids, Arduino programs and applications, Product Design, System Controls, Materials, Manufacturing Processes

## TECHNICAL SKILLS

**CAD & Analysis:** SolidWorks (Advanced Parts/Assembly, GD&T, Drawings), FEA (static/thermal, fatigue), tolerance analysis
**Programming & Simulation:** MATLAB (vehicle dynamics, system modeling), Arduino (motor control, sensor fusion), Python, CoppeliaSim
**Fabrication:** 3D printing (FDM), basic machining, soldering, wiring, oscilloscope/multimeter

## Engineering Project experience

**Smart Litter Box Ventilation System — Senior Design / Capstone Project | Sep 2025 – Present | University at Buffalo**

- Designed a clip-on ventilation and filtration module to reduce ammonia buildup in indoor litter boxes.
- Applied CFD to validate airflow performance, achieving a target ventilation rate of 10–15 L/min.
- Conducted FEA on lid, connector, and chassis components to verify structural integrity under operational loads.
- Developed analytical and computational models to evaluate key engineering characteristics, including ventilation efficiency and structural safety.
- Created detailed CAD models and engineering drawings with GD&T, emphasizing design for manufacturability and assembly (DFMA).
- Integrated off-the-shelf components with custom 3D-printed ABS parts and validated feasibility through simulation-based performance modeling.
- Physical prototype planned for completion and demonstration by May 2026.

**Autonomous RC Car — Embedded Systems & Controls | Feb–May 2025 | University at Buffalo**

- Built a self-driving RC car using Arduino, ultrasonic sensors, and ESC/servo override.
- Implemented filtering to reduce ultrasonic sensor multipath effects by ~90%, with a ~10% tradeoff in raw data accuracy.
- Implemented a linear steering control strategy to minimize rapid steering angle transients.
- Developed lane-following and obstacle-avoidance control logic.
- Added CAD-designed chassis modifications and validated performance through testing.

**Grasshopper RC Suspension FEA & GD&T Design Project | Sep–Dec 2024 | University at Buffalo**

- Modeled Grasshopper front suspension geometry in SolidWorks.
- Performed FEA under impact/landing loads to locate stress concentrations.
- Applied GD&T (datums A/B/C, position, perpendicularity) for manufacturability.
- Proposed stiffness improvements by adding the enhancement into high stress sections.
- Validated new design via simulation, and resulting in an 11% improvement in maximum load capacity.

## Personal PROJECTS

**Custom F1-Style RC Car (In Progress) | Dec 2025– Present**

- Designing custom chassis with aero features and planned active-aero control.
- Using MATLAB for load transfer, slip angle, and downforce modeling.
- Completion expected Fall 2026.