

Jihai Zhao

Columbus, OH | zhao.2946@buckeyemail.osu.edu | (616)- 227-7199 | [LinkedIn](#)

EDUCATION

The Ohio State University, GPA 3.73/4.0 **June 2023 (Expected)**
Bachelor of Science in Mechanical Engineering, College of Engineering *Columbus, OH*
Minor in Computer and Information Science, College of Engineering
Honors: Dean's List (>3.5 GPA) for five consecutive semesters (Autumn 2019 to Autumn 2021)
Coursework: *Applied ML for MAE (A), Calculus (A), Dynamics (A), Num Methods, Linear Algebra & Differential Equation, Programming C++, Data Structure of C++*

RESEARCH EXPERIENCE

Vision Transformer for Surface Defect Inspection **June 2022 – October 2022**
Mentored by Dr.Jiang Weiwei *Online*

- Applied Vision Transformer (VT) model to surface defect detection. The VT model combines image linear projection, position embedding as the input, and multilayer perceptron (MLP) as the classifier.
- Achieved 93.3% accuracy and 0.9302 F1 score on the dataset of aluminum surface flaws, demonstrating that it performs better than other CNN baselines (including VGG19, DenseNet, and ResNet).
- Published paper on IEEE-ICID 2022 in the name of the first author.

Model Predictive Control for Stable Robotic Autonomy **January 2022 - Present**
Undergrad Research Assistant, CyberRobotics Lab, Mentored by Prof. Hereid *Columbus, OH*

- Implemented and applied Model Predictive Control (MPC) algorithms, with an ideal linear model, nonlinear model, and digital models, to achieve stable control of the bipedal robot.

SELECTED PROJECTS

Business Data Analytic Project **June - August 2022**
Part-Time Assistant Mentored by a Senior Manager at Aifleet *Columbus, OH*

- Performed data analytics with R to predict sales of four different product types: PC, Laptops, Netbooks, and Smartphones and assess the impact of services reviews and customer reviews to improve business decisions.
- Utilized the Caret package and the Apriori method to conduct Market Basket Analysis.

Robot Arm and Gripper Design Project **January - May 2022**
ME5751 Course Project, Project Team Lead *Columbus, OH*

- Designed a 4-DoF robot arm with a 1-DoF gripper to pick and place objects from one position to another.
- Implemented the prototype and initial motion simulation with SolidWorks. Programmed the inverse kinematics controller with Arduino. Designed the gripper equipped with both open/close control modes.
- Successfully provided the robot the ability to pick and place cuboids, cylinders, and triangular prisms in various locations.

Connected and Automated Vehicle Reliable Perception Design Project **January - September 2021**
OSU ECOCAR Team *Columbus, OH*

- Sensor range calibration for radar and camera using error analysis with GPS ground truth in Matlab to improve the safety and resilience of connected and automated vehicle (CAV) applications.

Arduino Intelligent Detection Design Project **October - December 2020**
ME2900 Course Project *Columbus, OH*

- Designed an intelligent detection device with Arduino to warn phone users phone during working time.
- Developed the prototype containing LCD screen, potentiometer, shift register, photoresistor, pushbutton, and few resistors.

SKILLS

Programming Languages: Python, C++, R, Arduino
Platform and Tools: MATLAB, Linux, Git, Visual Studio Code, Google Cloud Platform, TensorFlow
Language: Chinese (Native), English (Full Professional Proficiency)