YIMING FAN

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EDUCATION

University of Michigan (UMich) 09/2019-Present
- Master of Science in Mechanical Engineering, GPA 3.94/4.0

Rensselaer Polytechnic Institute (RPI) 01/2017-05/2019
- Bachelor of Science in Mechanical Engineering, GPA 3.86/4.0
- Honors: Dean's Honor list for 4 semesters

China University of Petroleum (East China) 09/2014-12/2016
- Majored in Mechanical Design Manufacturing and Automation
- Awarded: China Petroleum (CNPC) Scholarship; Innovation and Technology Scholarship

ACADEMIC PROJECTS

Research: Human Support Robot (HSR) By Toyota Research Institute (TRI) 09/2019-05/2020
Team leader | Supervised by Professor Kira Barton in UMich
- Modified Mask R-CNN model for object recognition and localization using ImageNet Data Set
- Accomplished HSR Challenge to detect and grasp objects with various shapes
- Control joints motion with ROS based on TF package to grasp objects after target recgonition

Research: 3D Printer Automatic Fault Detection and Control 09/2019-12/2019
Smart and Sustainable Automation Research Lab | Supervised by Professor Chinedum Okwudire in UMich
- Designed real-time monitoring system of extrusion based 3D printing. Built robust while low-cost close loop control for Additive Manufacturing (AM)

Trajectory Optimization for Robotic Car 09/2019-12/2019
Project in SELF DRIVING CARS
- Identify vehicle types by image segmentation and classification based on VGG19 deep learning model
- Applied MDP control after vision classification to avoid collision along trajectory

Research: Intelligent Systems Data Analysis 05/2018-05/2019
Intelligent Structural Systems Laboratory (ISSL) | Supervised by Professor Fotis Kopsaftopoulos in RPI
- Identified the flight state of a self-sensing wing with multi-functional sensing networks embedded
- Employed experimental and simulation data for the identification of parametric and supervised stochastic models using machine learning
- Summarized a critical assessment and survey of data-driven intelligent aerospace systems
- Conducted data analysis and uncertainty quantification of guided waves for structural health monitoring

Bench-Top Testing of Blimp Hardware and Software 05/2018
Lab in EMBEDDED CONTROL
- Aimed to build direction and speed control systems for the Blimp and successfully adjusted to the desire heading by changing the thrust speed on both sides of blimp and using keypad to set various value that were displayed on LCD
- Tested functionality of logic circuit on protoboards with logic probe, multimeters and oscilloscopes
- In charge of compiling C codes for the C8051 microcontroller with SiLabs IDE and debugging procedure according to the output from HyperTerminal Software

Experimental Position Control Using a Proportional Controller
Lab in MODELING AND CONTROL 04/2018
- Carried out simulation using "Maxon Motor M1V5 DRV8833" motor subsystem block to build closed loop proportional controller for position and verified driver linearity with a ramp voltage input
- Selected appropriate reference position for experiment and compared plotted experimental response with theoretical results
- Fine-tuned simulation by changing signal frequency and motor speed ,and setting up engine parameters using Laplace transform

Laboratory of Robotic Fish 10/2015-10/2016
Team leader | Supervised by Professor Yonghong Liu in China University of Petroleum (East China)
- Implemented embedded control system, enabling robotic fish to locate objects as well as minimizing time to send ball in goal
- Self-studied knowledge of software control and hardware programming relevant to embedded control, wrote C++ codes independently and transformed into C8051

PROFESSIONAL SKILLS

- **Programming Language:** Python, Java, Julia
- **Software & Skills**: MATLAB, NX, AutoCAD, SolidWorks, Microsoft Office, 3D Print

EXTRACURRICULAR ACTIVITIES

Formula Hybrid Club, ICE (Internal Combustion Engine) 09/2017-06/2018

- Designed the assembly position of the engine, and assembled it
- Saved power through designing and manufacturing a cooling fan of the engine, and added the temperature control sensor to ensure that the fan works only when the temperature reaches a certain range

Vice President in CAD Club 09/2015-10/2016

- Conducted training sessions, covering the usage of AutoCAD and application process of patents
- Organized to develop members' software skills and helped members obtain patents certificates