# Xue Zheng

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## RESEARCH INTERESTS

Machine Learning, Optimization, Federated Learning.

## EDUCATION

**The Ohio State University**                                                    Columbus, OH
M.Sc., Electrical and Computer Engineering                          Jan 2020  - Dec 2021
Advisor: Parinaz Naghizadeh
Relevant Coursework: Machine Learning, Data mining

**Harbin Institute of Technology at Weihai**                       Weihai, Shandong
B.Eng., Information and Electrical Engineering                      Sep 2014  - Jun 2018
Merit Student of Harbin Institute of Technology

## RESEARCH EXPERIENCE

**The Ohio State University**                                                    Columbus, OH
Master's Researcher                                                            Mar 2021  - Present
Working Paper: Decentralized Multi-Agent Federated Learning with Heterogeneous Agents
Advisor: Parinaz Naghizadeh
- Applied centralized Federated Learning to decentralized topology
- Applied by a directed graph
- Designed an algorithm to obtain the directed graph
- Tested on Fashion MNIST dataset

**Harbin Institute of Technology at Weihai**                       Weihai, ShanDong
Undergraduate Researcher                                                   Jan 2018  - Jun 2018
Quantitative Photoacoustic Imaging Algorithm Based on Sparse Decomposition
- Recovered absorption coefficient through photoacoustic image obtained from simulation
- Updated algorithm for dictionary training by means of K-SVD dictionary
- Decomposed original signals by orthogonal matching pursuit algorithm and recovered absorb coefficient and luminous flux through signals after decomposition
- Wrote program by means of MATLAB

## PROJECT EXPERIENCE

**Voice-Controlled Home Automation**                               Columbus, OH
Team member                                                                    Sep 2020  - Dec 2020
- Used Bluetooth of the cell phone to control the devices
- Bluetooth signal was sent by cell phone and received by Arduino
- The devices were controlled by Arduino

**OSIAC Machine Instructions Design**                             Columbus, OH
Personal project                                                               Jan 2020  - Apr 2020
- Implemented the machine instructions of OSIAC machine by microinstructions
- Wrote programs on Linux virtual machine
- Including 8 double operand instructions, 6 single operand instructions, 6 branch instructions, and 3 special instructions

**Tracking Car**                                                                 Weihai, ShanDong
Team member                                                                    May 2017 - Jun 2017
- Determined and corrected routes of the car by infrared sensing device; controlled the motor by single-chip microcomputer
- Wrote control program by C language and performed commissioning to the object

**Automatic Door Design Based on Verilog**                     Weihai, ShanDong
Personal project                                                               Jul 2016  - Aug 2016
- Design the automatic door that can be induced by a passerby to open, close, and output images and voice.
- Programmed control program by Verilog and bottom-up design

## WORKING EXPERIENCE

**Teaching Aid(Grader) of Computer Architecture and Design**           Columbus, OH
Electrical and Computer Engineering Department                Aug 2021  - Dec 2021
- Scored homework and machine problems
- Answered questions for students during office hours

## SKILLS LIST

Computer: C, Python, Java, Matlab, Verilog, Assembly language