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（expected to graduate in December 2021) Jan 2020 - Present
Advisor: Parinaz Naghizadeh
Relevant Coursework: Machine Learning, Data mining, Probability and Random Variables.

Harbin Institute of Technology at Weihai Sep 2014 - Jun 2018
B.Eng., Information and Electrical Engineering
Major: Automation
Awarded Academic Progress Scholarship Award in 2017
Awarded Merit Student Award of Harbin Institute of Technology in 2016
Awarded The Third Prize Scholarship Award in 2015

RESEARCH EXPERIENCE

The Ohio State University Columbus, OH
Master's Researcher Mar 2021 - Present
Working Paper: Decentralized Multi-Agent Learning with Heterogeneous Agents
Advisor: Parinaz Naghizadeh

- Developing algorithms for decentralized learning as an alternative to centralized Federated Learning
- Applied by a directed graph to enable personalized learning
- Designed an algorithm to learn the directed collaboration 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

SELECTED 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
- Wrote software of phone by Java and of Arduino by C

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

Segmentation and Conversion of Handwritten Number and and Letters Weihai, ShanDong
Personal project Sep 2017 - Dec 2017

- Segmented numbers and letters from a picture

- A series of letters and numbers entered from the keyboard will be converted into a picture composed of segmented numbers and letters
- Wrote program by MATLAB

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

TEACHING EXPERIENCE

Teaching Aid of Computer Architecture and Design (ECE 5362) Columbus, OH

Electrical and Computer Engineering Department Aug 2021 - Present

- Scored homework and machine problems
- Answered questions of homework and machine problems for students during office hours

PROGRAM SKILLS

- Python
- Java
- Matlab
- C
- Verilog
- Assembly language

GRE SCORE

Tested on November 23, 2018
Verbal Reasoning: 147
Quantitative Reasoning: 170
Analytical Writing: 3.0

SELECTED AWARDS and RECOGNITIONS

Academic Progress Scholarship Award 2016 - 2017	2017
Merit Student Award of Harbin Institute of Technology 2015 - 2016	2016
The Third Prize Scholarship Award 2014 - 2015	2015
Second Prize, Campus Electronic Design League Match	2015