Wei ZHANG (Charmve)

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Educational background

Yangzhou University (YZU), School of Information Engineering (the Institution of AI)　　　　**2016.09-2020.07**

- Bachelor of Science in Electronic Information Science & Technology, GPA: 83.2/100; Rank: 6/41, class of 2016
- **Dual Degree** in Business English, GPA: 80.76/100; Rank: 23/76, the second language: JLPT-N3:75
- Awards: Totally won **12** national and provincial awards, **28** municipal and school-level awards, **3** Funds

Winter Academic Program at Nanjing University (NJU), School of Electronic Science and Engineering　　**2019.01-2019.02**

- Being the only student who passed the selection in YZU (Only **100** undergraduates were selected from Jiangsu Province)
- Orally reported the study of " Identification of Agricultural Diseases and Pests Based on Machine Vision" as a **student representative**
- Completed the Arm Smarter Connected(ASC) Course on AI Development held by Arm Education and IThing Edu
- Familiar with AI chip platform development, such as EAIDK (R3399), Zynq, and AI framework PyTorch, Tengine

Employment

Research Software Development Engineer,　　　　**Future Security Labs, Qihoo360**　　　　**2020.07-present**

Beijing, China

- **Security research of Industrial Control Systems (ICS):** Responsible for the establishment and improvement of *the threat assessment system for industrial control assets and equipment*. Industrial network equipment scanning, data display, CVE vulnerability matching, attack link backtracking, attack tree display
- **Bluetooth Low Energy (BLE) security research**: *BLE automatic fuzz tool*. familiar with BLE protocol stack, BLE vulnerability mining, blocking [9], and relay [10]

Publications

[1] **Wei Zhang**. "*A Survey of Field Programmable Gate Array-Based Convolutional Neural Network Accelerators*". International Journal of Electronics and Communication Engineering. 14(12) 2020. 419-427. https://publications.waset.org/10011686/pdf

[2] **Wei Zhang**. "*A Design of 3D Dynamic Display System Based on Voice Control*". Internet of Things Technologies. (Preprint)

[3] **Wei Zhang**. "*F-LS: An indoor positioning method and implementation based on Bluetooth low energy location fingerprint-least squares fusion*". Electronics World. (Preprint)

[4] **Wei Zhang**. "*A Simulated Electromagnetic Curved Shooting Gun Based on Monocular Ranging: Design and Implementation*". Internet of Things Technologies. (Preprint)

[5] Gao Kaige, Liu Chunlin, **Wei Zhang**, Wang Kangni, Liu Wenlong. (2020). *Pyroelectricity and field-induced spin-flop in (4-(Aminomethyl)pyridinium)2 MnCl4·2H2O*. Royal Society Open Science. 7. 200271. 10.1098/rsos.200271.

Patents and Copyrights

★ **NINE Patents:**

[6] Invention. **Wei Zhang**. A 3D Dynamic Displayer System, a Device and a Method [P]. (in Examination)

[7] Invention. **Wei Zhang**. Display array control circuit, device and light cube [P]. (in Examination)

[8] Invention. **Wei Zhang**, Lei Ji. Method, Device, Equipment and Storage Medium for Analyzing Bluetooth Communication Parameters [P].

[9] Invention. Lei Ji, **Wei Zhang**. Method, device, equipment and storage medium for blocking Bluetooth Low Energy (BLE) connection [P]. (in Examination)

[10] Invention. Lei Ji, **Wei Zhang**. Bluetooth Low Energy (BLE) Communication Relay Method, Device, Equipment and Storage Medium [P]. (in Examination)

[11] Invention. **Wei Zhang**, Lei Ji. A Cellular Network-like Indoor Positioning Technology Scheme and Implementation Based-on iBeacon [P]. (in Examination)

[12] Xiaoying Den, **Wei Zhang**, Xiaofeng Yang, Weifeng Chen. A Webcam Embedded with Real-time Environment Information [P]. CN209608763U, 2019-11-08.

[13] Xiaofeng Yang, **Wei Zhang**, Xiaoying Deng, Weifeng Chen, et al. A Reading-aid Device for the Bling Based on Raspberry Pi [P]. CN209281692U, 2019-08-20.

[14] Zijia Wang, **Wei Zhang,** Xiaofeng Yang, Wei Wang, et al. A System for All-purpose Campus Card United with Business Member

Based-on IOT and RFID Technology [P]. CN208722234U, 2019-04-09.

★ **SEVEN Granted Software Copyrights:**

[15] An Interactive AI System Software Featuring Dynamic Facial Expression Recognition and Voice Chatting[S]. **Wei Zhang**, Xiaoying Deng, Wanting Liu. 2019R11S0455591.

[16] A System Software Used in a Bluetooth-controlled Car for Authentication Based on Dynamic Facial Recognition[S]. **Wei Zhang**, Fuzhou Shen, Xiaoying Deng, Lei CHEN. 2019R11S0455589.

[17] An Eco-regulation System Based on Internet and Real-time Monitoring[S]. S Fan, J Sun, Fuzhou Shen, **Wei Zhang**,. 2019SR0619769.

[18] A Smart Car System with Tracing and Photography Functions[S]. Fuzhou Shen, **Wei Zhang**, Saibo Fan, Lei Chen. 2019SR0676736.

[19] A 3D Dynamic Display System Based on Intelligent Voice[S]. **Wei Zhang**, Fuzhou Shen, Ce Sun, et.al. 2019SR0223080.

[20] A Robot Control System Server Based on WebServer Technology[S]. **Wei Zhang**, Xiaofeng Yang, Xiaoying Deng. 2018SR879516.

[21] An Intelligent Rainbow Light System Software Based on Wi-Fi Module[S]. Shaowei Qian, X. Ge, **Wei Zhang**, et.al. 2018SR773134.

Research Experiences

Practicum4ECE: Major Coursework Design Project (Ranking 1st in All Major Courses Design Projects) [GitHub]   2017.09-2020.06
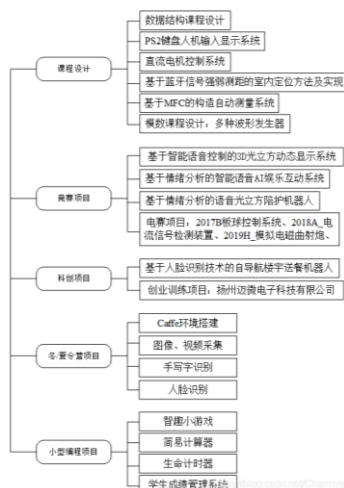
- *Electronic Engineering Practice*: an indoor positioning method based on the combination of location fingerprints and least squares, the positioning accuracy up to 18.3cm

- *Interface Technology*: built an automatic measurement system, used MFC host computer to conduct program control over signal generator and oscilloscope, realized the automatic measurement of the designated hybrid digital-analog circuits

- ***Open Source*: My research interests lie at Computer Vision and Machine Learning.**

- Mirror & Glass Detection in Real-world Scenes [GitHub], Transparent-Object-Segmentation[GitHub]
- Surface-Defect-Detection [GitHub]   ☆ Star 294   Y Fork 61
- Scene Text Detection and Recognition [GitHub]
- PyTorch implementation for Semantic Segmentation [GitHub]
- Awesome-Lane-Detection [GitHub]

LightCube: A 3D Display System with Intelligent Voice Based on FPGA (National 2nd Prize)   2018.09-2019.05
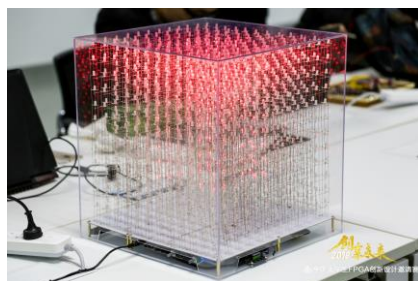
- Surveyed the design and implementation of FPGA-based hardware accelerators under different platforms and network models over the past decade, and analyzed their differences, pros and cons.[1]

- Designed a full-colored 12*12*12 LED cube array

- Designed cascade driver circuit with low power consumption, and used it to connect multiple ready-made LED cubes to make up an advanced LED cube dynamic display system

- **Evolution work: A Voice Robot Based on Emotion Analysis (National 2nd Prize) [GitHub]** [15]
[Code] | [Paper] [2] **| [Slides] | [Patents]** [6,7]

A Design of Indoor Self-navigating Meal Delivery Robot Based on Facial Recognition (Awarded as Excellent Project)   2018.05-2019.05
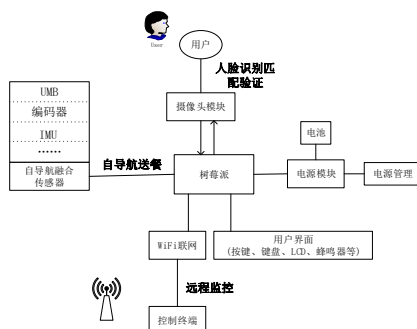
- Familiarized with Raspberry Pi, and used it to recognize simple facial expressions based on statistics of face feature points (accuracy rate: **86.3%**)

- Independently established LAN server based on Web Server [20] and realized robot's indoor self-navigation [3]

- A Smart Car System with Tracing and Photography Functions [18]

- A System Used in a Bluetooth-controlled Car for Authentication Based on Dynamic Facial Recognition [16]

- A Webcam Embedded with Real-time Environment Information [12]

Awards & Honors

- **National 2nd Prize**, the 2nd National University Contest on Intelligent Robotic Innovations.   **Team Leader**   2019.05
- **National 2nd Prize**, 2018 National College Students' FPGA Innovation Design Competition.   **Team Leader**   2018.12
- **National 3rd Prize, 1st Prize in East China**, 2019 "Discovery Cup" Software Design Competition of National College Students' "Internet Plus" Innovation Contest, National College Student Electronic Design Competition (Provincial **2nd Prize**)   **Team Leader**   2019.04
- National Encouragement **Scholarship** (**5%**);   Fei Xiao-Tong **Scholarship** of Morality Cultivation (**1/794**)   2017.11&2018.11
- Great Title of "*New Youth for a Powerful Nation*" of National Summer Voluntary Teaching (selected among **300 people nationwide** by

the Department of Schools of Central Committee of the Communist Youth League of China, China Youth Daily and people.cn)   2018.10

- **East China Region 2ⁿᵈ Prize**, National College Student Embedded Chip and System Design Competition and Smart Interconnect Innovation Competition   2019.10

Funding

Provincial College Students' Innovative Entrepreneurial Training Program,   2019.05 – 2020.05

- Yangzhou Maiwei Microelectronics Co., Ltd., No. 201911117138T, **Principal Investigator**

School-level College Students' Innovative Entrepreneurial Training   2018.05 – 2019.05

- A Design of Indoor Self-navigating Meal Delivery Robot Based on Facial Recognition, No. x20180186, **Principal Investigator**
- E-reading Aids for Visually Impaired People Based on Optical Character Recognition (OCR) and Text to Speech (TTS) Techniques, No. x20180186, Participator

Social Practice and Volunteer Experiences

Technical Blog Analyst, Global Affairs, Synced Technology   2020.08 - present

Vice-advisor, Ant Academic Study Center   2020.07 - present

TechBloger, focus on machine learning, computer vision [CSDN] | [Zhihu] | [Followers: **4.2 k+**]   2020.07 - present

Volunteer Experiences (OVER 250 hours of volunteer services)

- Won the honorary title of "Top100 Volunteer" initiated by *www.zggyw.org*, and got full membership of *International Association of Volunteers* Youth Action Committee   2018.11
- Volunteering for *The 19th Sports Games of Jiangsu*, as an assistant referees of the youth team of basketball games   2018.08
- *AIESEC International Volunteer, Yangzhou Jianzhen International Half Marathon*, **Outstanding volunteer**   2018.04&2019.04
- Responsible for the recruitment of volunteers in mainland China for *The 2019 World Summer Special Olympic Games*,   Group leader