张 伟 (Charmve)

Email： yidazhang1@gmail.com Mobile： (+86) 153 0145 3650 Website: charmve.github.io

Employment

高级软件研发工程师 **Momenta /Mpilot** **江苏苏州 2021.09-present**

- 天马山 L 项目成员，负责智能驾驶软件系统在 Al 计算平台上的自动化集成部署，构建智能驾驶计算平台软件解决方案，包括英伟达-Orin/Xavier、华为 MDC 等车载嵌入式计算平台；
- 熟悉自动驾驶系统软件架构，数据闭环和功能闭环，熟悉感知模块、系统集成，熟悉 C++高性能计算、性能优化，算法移植部署；
- 带领团队完成多个 millstone 交付，获得 2021 年度最佳产品落地奖、飞轮嘉奖令；

软件研发工程师 **未来安全研究院/奇虎 360** **北京 2020.07-2021.09**

- 和冀磊一起工作，UnicornTeam 队员，研究方向为无线电安全和漏洞安全；
- 针对低功耗蓝牙协议栈的安全问题进行深入研究，基于模糊测试方法对其进行 fuzz 漏洞挖掘。在此基础上，实现了针对特定低功耗蓝牙进行阻断和中继的技术专利方案，该软件实现方法也作为物联网设备的安全漏洞扫描工具，实现每年近 60 万元创收。
- 第二个负责的项目为面向攻击者视角下的工业互联网安全评估平台，通过主被动方式，静态扫描工控场景下设备的网络安全状态，建立网络拓扑图，基于漏洞匹配 CVE 和 ATT&CK 技战术建立攻击链路，基于知识图谱建立整个网络拓扑结构中的安全评估，完成网络安全感知和风险控制解决方案。
- 该项技术平台已经成功在多家工业企业投入使用，个人申请 3 项发明专利和 2 项软件著作权，成功为公司带来百万级盈利。

创始人 **扬州迈微电子科技有限公司** **江苏扬州 2018.08-2020.07**

- 主要业务范围：创新电子设计、智能嵌入式系统设计、计算机视觉解决方案；举办电子设计冬/夏令营，承接赛前集训。与此同时，公司团队成员的学术科技成果又反哺于公司业务，有良好的商业模式。
- 获得包括全国大学生创新创业省基金项目、江苏伯藜创投基金支持；荣获互联网+创新创业大赛全国三等奖、华东赛区一等奖，江苏省伯藜创业计划大赛一等奖；年利润达 26 万；
- 个人及团队成员发表学术论文十余篇，专利申请二十余项，软件著作权十余项。

Educational background

扬州大学，信息工程学院（人工智能学院） **创新电子 601 实验室成员** **2016.09-2020.06**

- 连续三年国家励志奖学金、唯一一名双收国家级奖学金和费孝通奖学金获得者，专业成绩专业前 1%；
- 获得中国大学生机器人创新设计大赛全国二等奖、全国大学生 FPGA 设计邀请赛全国二等奖、全国大学生电子设计竞赛省二等奖、全国大学生互联网+创业大赛华东赛区一等奖、全国三等奖等多项项奖；
- 全国大学生社会实践“强国一代新青年”、全国大学生“百佳志愿者”、“大学生公益之星”荣誉称号获得者；
- 发表 SCI 及中文核心期刊四篇、申请发明专利 13 项、授权软件著作权 9 项，发布专著一部。

扬州大学，外国语学院 **双学位** **2017.09-2020.06**

- 辅修第二学位：经贸英语，第二外语日本语等级：JLPT N3，英语 CTE6、雅思 6

南京大学，电子科学与工程学院 **江苏省大学生万人计划学术交流项目** **2019.01-2019.02**

- 入选江苏省大学生万人计划，作为本校唯一一名本科生入选，发表一作 SCI 论文一篇；
- 参加学术讲座及人工智能开发实训，学习人脸识别、目标检测、图像处理等内容，并通过 arm 中国人工智能开发课程考核
- 作为学生代表进行口头报告“基于机器视觉的农业病虫害识别研究”，获得“优秀营员”和“每日之星”

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.

Books

[1] **Wei Zhang*. Computer Vision in Action** *Computer Vision Algorithms and Applications*, **a Chinese closed-loop e-book contains source code, notebook, tech community.**

[Project website] | [**Online book**] | [GitHub] | 在线阅读 简体中文 | Stars 1.3k

Patents and Copyrights

★ 16 发明专利:

[6] **张伟**. 自动驾驶量产集成项目中的全算法在线仿真工具[P]. (in Examination)

[7] **张伟**. 基于 QEMU 的自动驾驶虚拟仿真系统设计[P]. (in Examination)

[8] **张伟**. 漏洞匹配方法、装置、设备及存储介质[P]. PA21119974CN

[9] **张伟**. 攻击者视角下的安全评估方法、装置、设备及存储介质[P]. PA21119975CN

[10] **张伟**. 一种图像嵌入盲水印的方法、攻击方式及系统[P]. PA21117882CN

[11] **张伟**. 一种基于深度学习的图像嵌入盲水印的方法、系统及设备[P]. (in Examination)

[12] **张伟**. 一种触控模组、系统及反馈控制方法[P]. (in Examination)

[13] 冀磊，**张伟**. 一种低功耗蓝牙通信中继方法、装置、设备及存储介质[P]. PA21100821CN

[14] 冀磊，**张伟**. 一种低功耗蓝牙连接阻断方法、装置、设备及存储介质[P]. PA21100820CN

[15] **张伟**，冀磊. 一种蓝牙设备追踪方法、装置、设备及存储介质[P]. PA21100823CN

[16] **张伟**，冀磊. 一种蓝牙通信参数解析方法、装置、设备及存储介质[P]. PA21100822CN

[17] **张伟**. 一种动态显示系统、装置及方法[P]. PA20120327CN (in Examination)

[18] **张伟**. 一种显示阵列控制电路、装置及光立方 [P]. (in Examination)

[19] 邓小颖，**张伟**，杨啸风，陈卫峰. 一种嵌入实时环境信息的网络摄像头[P]. CN209608763U, 2019-11-08.

[20] 杨啸风，**张伟**，邓小颖，陈卫峰. 基于树莓派的盲人阅读辅助设备[P]. CN209281692U, 2019-08-20.

[21] 王子佳，**张伟**，杨啸风，王伟. 一种基于物联网 RFID 技术的校园一卡通联合商家会员系统[P]. CN208722234U, 2019-04-09.

★ 9 软件著作权:

[22] **张伟**，叶波，屈健强. 360 工控网络攻击链路自动生成平台软件[CP]. 2021SR1816116.

[23] 叶波，**张伟**. 360 工控网络拓扑绘制平台软件[CP]. 2021SR1816115.

[24] **张伟**，邓小颖，刘婉婷. 一种动态表情识别的语音 AI 娱乐互动系统软件[CP]. 2019R11S0455591.

[25] **张伟**，邓小颖，陈磊. 一种动态人脸识别的蓝牙智能小车系统软件[CP]. 2019R11S0455589.

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

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

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

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

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

Awards & Honors

- **2 National 2nd Prize**, Both the 2nd National University Contest on Intelligent Robotic Innovations and 2018 National College Students' FPGA Innovation Design Competition. **Team Leader** 2019.05
- **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

Fundings

Provincial College Students' Innovative Entrepreneurial Training Program, Program Leader 2019.5–2020.5

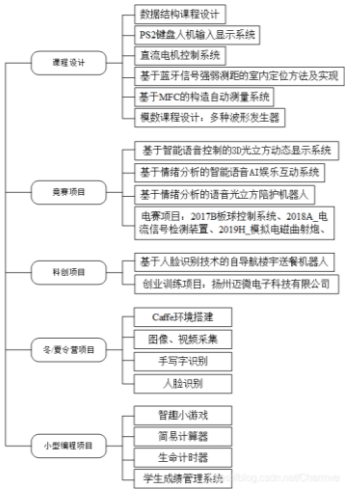
School-level College Students' Innovative Entrepreneurial Training, 2018.5–2019.5

- 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**

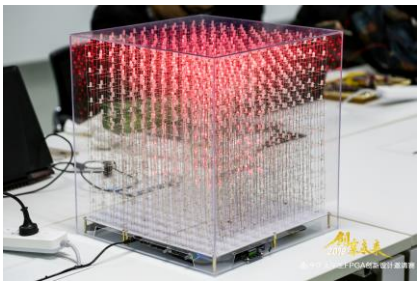
Research Experiences

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 192 Fork 35
  - Scene Text Detection and Recognition [GitHub]
  - PyTorch implementation for Semantic Segmentation [GitHub]
  - Awesome-Lane-Detection [GitHub]

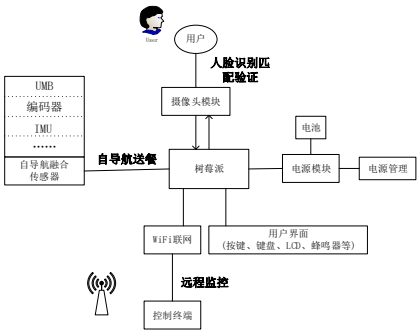
LightCube: A 3D Display System with Intelligent Voice Based on FPGA (National 2nd Prize) 2018.09-2019.05



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
- 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
- **Related work: A Voice Robot Based on Emotion Analysis (National 2nd Prize) [GitHub]** [11] **[Code] | [Paper]** [2] **| [Slides] | [Patents]** [17,18]

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 [29] and realized robot's indoor self-navigation [3]
- A Smart Car System with Tracing and Photography Functions [27]
- A System Used in a Bluetooth-controlled Car for Authentication Based on Dynamic Facial Recognition [25]
- A Webcam Embedded with Real-time Environment Information [26]

TechStack

- 熟练使用 C/C++编程语言，有良好的编码习惯，掌握性能分析、优化技巧；
- 熟悉 Linux、QNX、ROS 系统，熟悉跨平台交叉编译 Cmake\Conan，GDB 调试、Profiling 工具使用；
- 熟悉脚本编写 Python、shell，熟悉 Docker 容器化技术；
- 熟悉多线程、高并发编程，熟悉常见架构及设计模式；
- 测试驱动开发，闭环思维。熟练 GTEST 单元测试、模块测试，掌握 DevOps 技术；
- 具有机器学习、深度学习算法项目经验，了解 TensorFlow 框架，CUDA 编程；

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

Vice-advisor, Ant Academic Study Center 2020.07-now

TechBloger, focus on machine learning, computer vision [CSDN] | [Zhihu] | [Followers: **5.5 k+**] 2020.07-now