Cheng Liao

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EDUCATION EXPERENCE

Wuhan University of Technology (WHUT), ***Wuhan, China*** ***Sep. 2019 – Jun. 2023***
School of Mechanical & Electronic Engineering

- Bachelor of Engineering in Measuring & Control Technology and Instrumentation
- Major: Measuring & Control Technology and Instrumentation (First year: Electronic Business)
- GPA: **3.18/4.0** (Average Score: **82.37%**)
- Core Course: Engineering Graphics(74.6), Principle & Application of Sensors(77.4), C Programming(100), Python Programming(93.34), Microcontroller Principle & Its Application of Measure & Control System(86.3), Imagine Detection & Processing Technology(85.3), Modern Instrument Design(92.5), Circuit of Instrument & Meters(91.8)

PROJECTS EXPERIENCE

REACH Surgical, INC. ***Jul. 2024 – May 2025***
Project: *IRIS-R Endoscopic Stapler Platform Control System Development*
Position: Embedded Systems Developer

- Focused on R&D of the next-generation reusable endoscopic stapler control system, targeting high safety and precision for medical applications.
- Developed an embedded platform based on NXP MCU and ThreadX RTOS, integrating NFC, UI display, motor control, and log management.
- Developed the ADAPTOR-SULU submodule by establishing NXP + NFC master-slave communication for model identification, protocol parsing, and real-time data polling.
- Ported and encapsulated GUIX, LevelX, and FileX components to support UI rendering, storage management, and file system functionality.
- Built a unified driver interface supporting multi-slave device management; designed and implemented log storage and data verification & backup mechanisms, improving the scalability, portability, and stability of the communication module.
- Implemented power-on self-tests, abnormal condition alerts, and extreme condition detection to ensure system reliability and medical safety.

ANKER Innovations Technology Co, Ltd. ***Jun. 2023 – Jul. 2024***
Project: *Home Solar Energy Storage System Based on AC Coupling*
Products: *Anker SOLIX X1 (Hybrid & AC) & Anker SOLIX MI80S/L (**Market-Deployed**)*
Position: Embedded Systems Engineer

- Developed a residential energy storage system (ESS) for the North American and European markets, based on ARM + FreeRTOS architecture.
- Coordinated the Power Conversion System (PCS) and Automatic Transfer Switch (ATS), enabling intelligent scheduling across the battery, PV array, and utility grid, with seamless grid-tied/off-grid switching.
- Designed the main controller for PCS/ATS, implementing 4G/Wi-Fi communication protocols, internal communication links, and power-on self-test (POST) mechanisms.
- Led embedded development of the heat pump energy conversion module, implementing BLE + MQTT communication, second-level reporting, and remote strategy deployment.
- Co-developed communication protocols between ESP32 and Yuneng microinverters, improving system compatibility and PV performance.
- Built production test modes and executed FCT/ATE processes to accelerate mass manufacturing.
- Adopted modular programming with unified API interfaces to support platform-based development and cross-project feature reuse.

Wuhan University of Technology ***Sep. 2019 – Jun. 2023***

Graduation Design: *Design of a Blind Path Guiding System Based on Semantic Segmentation*

Mar. 2023 – Jul. 2023

Focus: Deep Learning, Semantic Segmentation, Image Processing, Intelligent Embedded System Design

- Designed a guiding device using semantic segmentation technology to identify urban blind paths and obstacles on the path.
- Assisted visually impaired individuals by providing audio instructions to navigate safely and avoid obstacles when necessary.
- Ported a lightweight semantic segmentation network to extract navigable tactile paving areas and obstacles from input images.
- Implemented inference acceleration using NVIDIA TensorRT high-performance engine to enable real-time processing.
- Proposed an obstacle avoidance algorithm based on image processing to enhance navigation safety.

Project: *Research on BeiDou-Based Swift Deployment System for Miniature AGVs* ***Dec. 2021 – Nov. 2022***

Focus: BDS + GPS, 3D Environment Construction, Autonomous AGV Deployment, Collision-Free Trajectory Planning, STM32 Embedded Development

Patent: BeiDou-Based Dual-Mode AGV Positioning System (Registration No. 2023SR0232320)

- Developed an AGV deployment system enabling rapid establishment of channel scenes beyond visible range for miniature Automated Guided Vehicles (AGVs) in outdoor environments.
- Achieved precise dual-mode positioning using BeiDou Navigation Satellite System and GPS, supporting collision-free trajectory planning and rapid deployment of miniature AGVs at target locations.
- Utilized compound eye cameras to gather environmental data and construct 3D visualized scenes, enhancing situational awareness.

EXTRACURRICULAR ACTIVITIES

- Participated in the Campus Radio Station as an anchor and broadcast director.
- Founded a class radio station, responsible for program planning, audio recording and editing.

AWARDS & HONOR

- Professional Technician, China Instrument and Control Society (CIS) ***May. 2023***
- Received long-term incentive for new graduate employee (ANKER) ***May. 2024***

PROFESSION SKILLS

- Programming: Proficient in C/C++, Java, Python, SQL; familiar with WeChat mini-program and front-end development.
- Embedded Systems: Experienced with L.MX RT, STM32, GD32, ESP32; skilled in Keil, VSCode, FreeRTOS, ThreadX, driver development (UART, RS485, I2C, SPI, CAN), and protocols (TLV, JSON, ModBus-RTU).
- Control & Simulation: Proficient in Proteus, Multisim, MATLAB/Simulink; developed interfaces with LabVIEW and Qt.
- Robotics & AI: Experienced in ROS, PyTorch, and deep learning model deployment.
- Mechanical Design: Skilled in CAD (Autodesk Inventor), familiar with Keyshot and 3ds Max.
- Media Production: Experienced in Adobe Audition, Premiere Pro; capable of professional voice-over and audio editing.
- Languages: CET-4 certified; preparing for TOEFL.