

## Zhen Wei

150 4th St APT 514, Oakland, CA 94607

812-241-2067

weizhen1883@gmail.com

wzben.com

### Objective:

Direct hired full-time leadership or senior individual contributor role in embedded systems area, with a focus on team management, strategic project execution, and hands-on technical innovation. Combining extensive expertise in embedded systems, firmware development, and hardware design with proven leadership skills to drive engineering excellence, mentor teams, and deliver impactful technological solutions in a dynamic organization.

### Skills:

#### Leadership and Strategic Management

- **Technical Leadership:** Experienced in managing multidisciplinary engineering teams, balancing technical development with strategic project objectives.
- **Cross-Functional Collaboration:** Adept at bridging gaps between hardware, firmware, software, and manufacturing teams to streamline project workflows.
- **Mentorship and Talent Development:** Proven track record of mentoring junior engineers, fostering growth, and building high-performing teams.
- **Project Lifecycle Management:** Skilled in planning, executing, and delivering complex engineering projects on time and within budget.

#### Embedded Systems and Electrical Engineering

- **Circuit Design & PCB Layout:** Proficient in designing complex electronic circuits, multi-layer PCB layouts, and managing the end-to-end manufacturing process for PCBA and final products.
- **Embedded Firmware Development:** Skilled in C programming for 8-bit, 16-bit, and 32-bit microcontrollers, as well as Linux-based embedded systems, including kernel customization and device driver development.
- **Serial Communication Protocols:** Experienced with UART, SPI, I2C, USB, RS485, and other serial communication standards for reliable data exchange in embedded systems.
- **Wireless Communication Systems:** NFC communication, wireless power transfer, and advanced wireless protocols including BLE, Wi-Fi, Zigbee, Thread, and proprietary 2.4GHz solutions.
- **Power Systems Design & Management:** Proficient in designing AC/DC and DC/DC converters (Buck, Boost, Buck-Boost topologies), intelligent battery charging and management systems (including multi-cell balancing, thermal management, and state-of-charge estimation), and optimizing energy efficiency for embedded and IoT devices.
- **Analog & Digital System Design:** Skilled in analog circuit design, signal integrity analysis, IC-level analog design, and digital system design using Verilog.
- **Sensor Integration and Data Acquisition:** Experience in integrating environmental and biometric sensors, including advanced filtering and data processing algorithms.
- **Signal Processing & Communication Systems:** Capable of designing basic signal processing workflows and developing robust communication system architectures.
- **Simulation & Modeling:** Proficient in MATLAB for system simulation, control algorithms, and GUI design; experienced with LabVIEW for system testing and automation.
- **Automated Testing Frameworks:** Proficient in developing fully automated testing frameworks for embedded systems, covering unit testing, integration testing, and end-to-end hardware validation.
- **Brain-Computer Interface (BCI):** Knowledgeable in designing and programming systems for brain-computer interface applications.
- **Bioelectronic Stimulation Systems:** Experienced in designing bioelectronic stimulation systems for neural and biomedical applications, integrating brain-computer interfaces (BCI) for signal acquisition, precise control, and adaptive therapeutic modulation.

#### Software Engineering and Development

- **Embedded Software Development:** Proficient in low-level firmware development, secure bootloaders, and cross-platform library design for embedded systems.
- **Programming Languages:** Expertise in C, C++, Python, C#, and Java for embedded and application-level development.
- **Operating Systems:** Proficient in Linux kernel customization, real-time operating systems (RTOS), and shell scripting.
- **Data Analytics and Automation:** Skilled in Python and MATLAB for data analysis, simulation, and system automation.
- **Application Development:** Experienced in building cross-platform applications for Windows, iOS, and Android environments.
- **Web Technologies:** Proficient in full-stack development using HTML5, JavaScript, CSS, PHP, Node.js, Django, and AngularJS.
- **Database Systems:** Experienced with both SQL (MySQL, PostgreSQL) and NoSQL (MongoDB) databases.
- **CI/CD Pipelines:** Experienced in setting up and managing Continuous Integration/Continuous Deployment (CI/CD) pipelines using tools like Jenkins, GitLab CI, and Docker to automate build, test, and deployment workflows.

#### Regulatory Compliance & Standards

- **Product Certification:** In-depth knowledge of regulatory requirements including FCC, CE, RoHS, and UL.
- **Medical Device Compliance:** Proficient in FDA Class 3 medical device design protocols, including risk analysis and pre-market approval (PMA) requirements.
- **Quality Management Systems:** Experienced in implementing ISO standards and ensuring product compliance throughout the design and manufacturing lifecycle.

#### Tools & Development Platforms

- **CAD and PCB Design Tools:** Altium Designer, Eagle PCB, OrCAD, Onshape, SolidWorks.
- **Version Control Systems:** Git, SVN.
- **Testing and Prototyping Platforms:** Raspberry Pi, Arduino, FPGA, Logic Analyzers, and Oscilloscopes.

#### Multilingual Proficiency

- **Chinese:** Native Fluency
- **English:** Professional Proficiency

## Experience:

### **Iota Biosciences powered by Astellas Pharma**

**Alameda, CA**

*Manager, Embedded Systems and Circuits*

*October, 2022~ Present*

- Managed and led the Embedded Systems and Circuits team, overseeing the design and development of electrical circuits, PCB layouts, firmware, and testing software for cutting-edge medical devices, balancing team leadership (50%) with hands-on technical contributions (50%).
- Built and mentored a high-performing engineering team, driving professional growth through clear performance evaluations, OKR (Objectives and Key Results) planning, and regular feedback sessions to ensure alignment with organizational goals.
- Developed and implemented team performance metrics and KPIs to monitor productivity, technical output, and overall project effectiveness, fostering a culture of accountability and continuous improvement.
- Directed the design and development of external stimulation and sensor reading systems for research and animal study platforms, delivering reliable and precise experimental tools.
- Spearheaded the Deep Brain Stimulation (DBS) system development, successfully advancing the Class 3 implanted medical device to the pre-Design Verification (pre-DV) phase, meeting regulatory and technical milestones.
- Collaborated cross-functionally with engineering, research, manufacturing, and quality assurance teams, identifying resource gaps, addressing technical challenges, and ensuring smooth communication to align objectives across departments.
- Conducted resource planning and workload distribution, optimizing team efficiency while balancing multiple projects and priorities.
- Contributed technically to system architecture design, hardware development, and firmware implementation, ensuring robust integration across embedded systems and medical device platforms.

### **Iota Biosciences powered by Astellas Pharma**

**Alameda, CA**

*Principal Electrical Engineer*

*November, 2022 ~ October, 2023*

- Led the end-to-end design and development of Class 3 implanted medical devices, overseeing electrical, firmware, and system architecture to meet stringent medical regulatory standards.
- Designed and implemented BLE communication systems with integrated security protocols, ensuring reliable and secure wireless data transmission for medical applications.
- Developed firmware architectures tailored for embedded medical devices, optimizing performance, energy efficiency, and reliability in critical environments.
- Engineered wireless power and communication systems, enabling efficient energy transfer and robust data communication between implantable and external devices.
- Created customized electrical circuits and hardware testing systems, ensuring device performance, safety, and compliance with medical certification standards.
- Designed a universal communication protocol supporting both wired and wireless communication, enhancing interoperability across multiple medical devices.
- Led the development of a cross-platform ASIC control library, simplifying integration across diverse microcontroller platforms for stimulation and control systems.
- Spearheaded the design and deployment of stimulation ASIC control systems tailored for animal studies, ensuring precision and repeatability in experimental setups.
- Collaborated cross-functionally with manufacturing and Automated Test Equipment (ATE) teams, addressing technical challenges and optimizing manufacturing workflows for scalability and consistency.
- Acted as a key liaison between engineering, manufacturing, and quality assurance teams, bridging technical gaps and facilitating seamless project execution across departments.

## Experience:

### **Ivani LLC**

**Saint Louis, MO**

*R&D Lead and Senior Electrical Engineer*

*March, 2022 ~ November, 2022*

- Led the design and development of SDKs and APIs, enabling seamless integration and functionality across multiple platforms.
- Oversaw the development of demo projects tailored to customer requirements, showcasing product capabilities and performance.
- Designed and implemented a Multi-Protocol Development Kit, supporting diverse communication protocols for enhanced system compatibility.
- Managed team operations and project workflows, ensuring alignment with technical objectives, resource optimization, and on-time project delivery.

### **Ivani LLC**

**Saint Louis, MO**

*Senior Electrical Engineer*

*September, 2020 ~ March, 2022*

- Led the end-to-end design and production process for the ISA Super Sensor, ensuring delivery within a constrained budget.
- Designed electrical hardware integrating multiple sensors, including PIR, temperature, humidity, and daylight sensors, optimized for cost and performance.
- Developed firmware for the nRF52833 BLE SoC, focusing on sensor control and efficient data communication.
- Conducted extensive testing and performance analysis to validate hardware and firmware functionality.
- Designed and implemented an automated test system for the ISA Super Sensor to streamline quality assurance and production scalability.
- Managed the factory production process and supply chain operations, ensuring on-time delivery and adherence to quality standards.

### **Ivani LLC**

**Saint Louis, MO**

*Electrical/Software Engineer*

*June, 2015 ~ September, 2020*

- Led on product design for Ivani NPS Network Node for Sinclair Hotel and NuLEDs PoE lighting System.

- Designed hardware and PCB for Ivani NPS RS485 Network Node.
  - Designed firmware for PIC and nRF52 MCU.
  - Designed firmware update bootloaders over RS485.
  - Designed control and monitor app for the system by using C# for the Windows system.
  - Managed the manufacturing and production process.
- Designed API library for custom.
  - C API library for customizing Ivani NPS algorithms.
  - Created the static and dynamic libraries for IAR and OpenWRT.
- Designed a smart PoE LED Driver prototype with 100W power delivered through the PoE system.
- Designed a cross-chip Hal library to help reduce repeated code on applications for different chips.
- Designed an IoT system for NWay Smart Switch.
  - Designed AC wave cut dimming circuits.
  - Designed AC to DC voltage converter supports 1-way, 2-way, and 3-way switches.
  - Designed BLE control firmware, and control app on a smartphone.
- Designed an embedded system for the Ivani Net DC Lighting System.
- Designed an embedded system for a smart faceplate that can monitor power usage from the outlet.
  - Matthew Wootton, Justin McKinney, Michael Crowell-Ingram, Evan Dorsky, Saarth Mehrotra, Erin Pierce, Victoria Preston, Jonathan Clark, Zhen Wei. *Electrical monitoring and network-enabled electrical faceplate*. Apr 21, 2020. Patent number: 10627253.
- Designed circuits and PCBs for modular demo and test platform for Network Presence in BLE and Zigbee systems.
- Wrote firmware for demoing, testing, and data collecting for Network Presence in BLE and Zigbee SoC.

**Experience:**

**Rose-Hulman Ventures**

**Terre Haute, IN**

*Electrical Engineer Internship*

*April, 2013 ~ March, 2014*

- Developed embedded systems for nuclear source housing control and Kissell Soil Sampler, utilizing TI MSP430 microcontrollers for firmware, hardware, and PCB design.
- Designed and programmed a PLC-based control system for CLM Pallets Recycling, integrating a Siemens PLC with a touchscreen GUI for enhanced user interaction and process automation.
- Delivered end-to-end solutions, including hardware development, firmware implementation, and interface design, ensuring reliable performance and ease of use.

**Experience:**

**Sichuan Sinnoz Technology**

**Chengdu, Sichuan, China**

*Co-Founder & CTO*

- Oversaw all technical decisions, ensuring alignment with business goals and product strategy.
- Built and led a cross-functional engineering team, managing product development, project timelines, and resource allocation.
- Spearheaded the design and development of the Smart Pet Health System, including hardware, firmware, and software integration.
  - Smart Pet Water Fountain: Designed hardware and firmware for a BLE-based system capable of recording pet drinking behavior, with algorithms distinguishing between water consumption and evaporation. Successfully launched in the Chinese market.
  - Smart Cat Litter Box: Led hardware, firmware, and Wi-Fi/BLE communication interface design (HTTP & MQTT protocols). Product successfully launched in the Chinese market.
  - Smart Pet Bowl Prototype: Developed a weighting sensor algorithm to improve measurement accuracy and optimize performance.
- Managed the development of iOS and Android applications for product control and data visualization, alongside custom web-based platforms for customer integrations.
- Collaborated with production teams to streamline the manufacturing process, ensuring quality control and timely delivery of products to market.

**Education:**

**Master of Science in Electrical Engineering**

**September, 2014 ~ May, 2016**

*Rose-Hulman Institute of Technology, Terre Haute, IN*

**GPA 3.70/4.00**

**Bachelor of Science in Electrical Engineering** with Minors in Computer Science and Robotics

**September, 2010 ~ May, 2014**

*Rose-Hulman Institute of Technology, Terre Haute, IN*

**GPA 3.51/4.00**

**Publish:**

**Design of a Modular Educational Robotics Platform for Multidisciplinary Education**

*Zhen Wei and Dr. Carlotta A. Berry, American Society for Engineering Education, June 2018*

**Honors:**

John A. Curtis Best Presentation Reword for published paper, Design of a Modular Educational Robotics Platform for Multidisciplinary Education

Award appreciation letter from Solar Turbines for Spray Rig Location Project

**Activities:**

Eta Kappa Nu (Electrical and Computer Engineering honorary), Member 2013

EcoCAR, Member, 2013