Ali Hassan Shah

Experienced Embedded Software Engineer with international experience Seeking a software testing or development position in the Netherlands to apply my proficiency in Python, C and C++.

Information:

Location:	Eindhoven, Netherland	WhatsApp:	+86 186 2197 3868
Visa:	Zoekjaar (Orientation year)	Mob:	+31 684 660 252
Age:	29 Years	LinkedIn:	alibukharai
Experience:	4 Years	Email:	engg.alibukharai@gmail.com

Skills:

- Programming & Scripting: Python, C, C++, Shell scripting,
- Embedded Systems: Device drivers, I2C/SPI/UART protocols, RTOS
- Testing & Automation: Pytest, Test planning, Regression testing, Integration testing
- DevOps & CI/CD: Azure DevOps, Jenkins, GitLab CI/CD, Docker
- Version Control & Tools: Git, GitHub, GitLab
- Project Management Jira, Agile, Confluence
- Operating Systems: Linux (Ubuntu, RHEL)

Work Experience:

AMD, Shanghai China **02/2023 - Now**

Senior Embedded Software Engineer

1. Contributed to the development and enhancement of the Linux RAS tool for AMD's MI-series server-class GPUs, ensuring robust reliability and serviceability at the system level.
2. Developed and integrated features into the RAS tool for advanced GPU I/O virtualization, including SR-IOV and GIM, improving multi-tenant server GPU deployment.
3. Collaborated with firmware and kernel teams to support end-to-end enablement of RAS, AMD-SMI, and ROCm-SMI components in HPC and data center environments.
4. Integrated RAS and telemetry tools with the ROCm software stack, aligning with platform management requirements and scalability needs.
5. Led the development of a Python wrapper for the RAS C/C++ toolchain, enabling easier integration with automation workflows and packaging the tool for Python ecosystem use.
6. Participated in Agile-based architecture design discussions, contributing to system-level requirements, driver integration, and feature enhancement for MI300X and NAVI GPU families.
7. Optimized deployment processes by building CI/CD pipelines using Jenkins and Bash, enabling reproducible builds and streamlined system integration cycles.

Espressif Systems, Shanghai China **09/2022 – 12/2023**

Embedded Software Engineer

1. Designed and implemented C and C++ firmware components and device drivers for ESP32-based RTOS systems, focusing on sensor integration (e.g., I2C, MT6701) and peripheral communication.
2. Developed embedded device driver and user applications for IoT and Matter protocols, including motor control (BLDC), Button driver, and Edge-AI model integration using ESP-DL and ESP-KWS.
3. Created a complete BLDC motor control system, including sensor less and sensor-based control logic and a custom driver for high-precision positioning using the MT6701 Hall sensor.
4. Integrated ESP-BOX with OpenAI APIs by developing a C library and an LVGL-based GUI chatbot, expanding AI access to edge devices in constrained environments.

5. Enhanced firmware distribution and usability by adding TinyUF2 support for secure bootloader integration across ESP32 variants.
6. Developed Arduino-compatible drivers, including a Matter-compliant button driver, to improve community adoption and IDE integration.
7. Built a Python GUI using Tkinter to streamline training and deployment of AI models on ESP SoCs, improving user experience and lowering entry barriers for customers.

TEC (PVT) Ltd. Industry **06/2017 – 06/2019**

Embedded Software Trainee Engineer

1. Set up WCDMA and LTE testing environments using Linux and Shell.
2. Configured RBS (Radio Base Stations) for both WCDMA and LTE nodes.
3. Pre-studied newly introduced telecom features and executed verification tests for their validation.
4. Conducted workshops and technical presentations for internal and client-facing teams.
5. Collaborated with Customer Unit engineers to ensure feature alignment with network infrastructure requirements.
6. Gained hands-on experience with version control (Git/Gerrit), issue tracking (JIRA), and Agile methodologies.

Project Experience (AMD Shanghai):

AMD-RAS Tool Unification for RAS Tool for all platform **01/2025 – 06/2025**

Description: Led the unification of RAS tooling across AMD platforms to standardize reliability and monitoring across GPU families.

Responsibilities: (Developer)

- Refactored codebase to support multiple GPU architectures (NAVI-MI-SRIOV).
- Worked cross-functionally with platform, firmware, and ROCm teams to align RAS features.
- Ensured consistent diagnostics and telemetry integration across platforms.

RAS Tool Development SRIOV environment **08/2024 – 12/2024**

Description: Extended the RAS tool to support SR-IOV and GIM, enabling virtualized GPU management in multi-tenant environments.

Responsibilities: (Developer)

- Integrated SR-IOV and GIM capabilities into the RAS tool for resource sharing.
- Ensured compatibility with virtualized ROCm environments.
- Participated in Agile planning and architecture reviews with firmware, driver and SRIOV GIM teams.

RAS Tool Development for MI-Series GPUs **02/2024 – 08/2024**

Description: Developed a user-mode RAS tool for AMD MI300/MI308 GPUs, enabling real-time monitoring and injection of uncorrectable errors in data center environments.

Responsibilities: (Developer)

- Implemented core RAS functionalities aligned with ROCm diagnostics stack.
- Designed error injection and monitoring mechanisms for NPI project (MI300/MI308).
- Adding gTest cases and adopted TDD to implement new features
- Created a Python wrapper using ctypes for the shared C/C++ library for Microsoft.

Project Experience (Espressif Shanghai):

BLDC Motor Control using ESP32(MCU) **08/2023 – 10/2023**

Description: Designed a C-based control system for BLDC motors on ESP32, supporting both sensor and sensor-less modes.

Responsibilities: (Developer/Tester)

- Developed MT6701 Hall-sensor driver for precise rotor positioning.
- Created a 5V analog knob solution interface for real-time speed control.
- Add test case and a make a complete low-level driver solution for ESP-Makers

ESP-BOX Integration with OpenAI **04/2023 – 08/2023**

Description: Developed an embedded AI assistant on ESP-BOX by integrating OpenAI API with a C-based chatbot and GUI interface.

Responsibilities:

- Created a C library and LVGL-based interactive GUI for OpenAI-powered RTOS chatbot.
- Enabled TinyUF2 support for secure demo deployment on ESP-BOX.
- Set up regional server access for OpenAI in mainland China and maintained cross-SOC compatibility.

Arduino Button Driver Library **01/2023 – 04/2023**

Description: Implemented a Matter protocol compatible button driver for ESP32 with Arduino integration.

Responsibilities: (Developer)

- Developed a C language button driver following Matter specifications to guarantee compatibility and reliable performance on ESP-SOCs.
- Designed an Arduino wrapper for the button driver, streamlining integration into the Arduino IDE and enabling its use as a standalone library for enhanced usability and convenience

ESP-KWS Customer Support GUI **09/2023 – 01/2023**

Description: Created a Python-based GUI tool for training and deploying keyword spotting (KWS) AI models on ESP32.

Responsibilities: (**Developer**)

- Used Tkinter to develop an intuitive customer-facing UI.
- Integrated ESP-DL and ESP-KWS for end-to-end AI deployment.
- Focused on reducing user complexity and improving onboarding experience.

Educational Background:

Master of Engineering – Electronics and Communication Engineering **2019 - 2022**
Fudan University, Shanghai China

Bachelor of Science – Electrical Engineering **2013 - 2017**
COMSATS Institute of Information Technology, Abbottabad, Pakistan

Scholarship:

- **Excellent** International Student Scholarship 2020, **Fudan University**.
- **Chinese language scholarship** (CLS) offered by Pakistan in China shanghai, 2017-July 2019.
- Selected for Internship by **Government of Pakistan** at "**TEC (PVT) Ltd. Industrial Consultants,**" 2017

Languages:

- English
- Chinese
- Urdu