

Yavkrit Vashishtha

yvashishtha04@gmail.com | +91 6359100188 | linkedin.com/in/yavkritvashishtha | Chandigarh, India

SUMMARY

Embedded Software Engineer and Research Scholar with 2+ years of industry experience in firmware development, Linux-based systems, and protocol integration for IP camera platforms. Pursuing Integrated M.Tech + Ph.D. in Biomedical Instrumentation & AI at AcSIR (CSIR), focusing on Terahertz-based diagnostic imaging. Proficient in C/C++, Python, Linux, RTOS, ONVIF, SUNAPI, SPI, I²C, and UART.

PROFESSIONAL EXPERIENCE

- Academy of Scientific and Innovative Research (AcSIR / CSIR-CSIO)** **Jan 2025 – Present**
Research Scholar – Integrated M.Tech + Ph.D., Biomedical Instrumentation & AI *Chandigarh, India*
- Designing Terahertz (THz)-based non-invasive diagnostic imaging systems for early detection of diabetic foot ulcers and related biomedical conditions.
 - Architecting embedded sensor networks and AI-driven analytics pipelines integrating THz signal acquisition, processing, and classification.
 - Developing intelligent imaging algorithms using deep learning (TensorFlow) for biomedical data modelling and anomaly detection.
- eInfochips (An Arrow Company)** **Jun 2023 – Jan 2025**
Embedded Software Engineer *Ahmedabad, India*
- Developed and integrated ONVIF (Profiles S, G, T, M) and SUNAPI-compliant functionalities for PTZ and multi-sensor IP cameras (Hanwha, Honeywell) in C++ on Linux.
 - Built RESTful API integrations for Video Management Systems (VMS), improving protocol compliance and interoperability; implemented Network Storage Drive (NSD) module enabling secure IP-based data caching.
 - Developed low-level peripheral drivers (GPIO, SPI, I²C, UART, ADC) on STM32 microcontrollers within modular BSP layers via Yocto build system and ARM cross-compilation.
 - Applied RTOS task scheduling, interrupt handling, and memory optimization to improve firmware reliability; led unit testing and debugging with cross-functional teams.
- vivo / DBG Technology Co. Ltd.** **Jun 2021 – Jun 2022**
Associate Manufacturing / System Engineer (Internships) *Noida & Bawal, India*
- Performed PCBA validation, SMT line operations, touchscreen calibration, and CCD inspection across mobile production lines for OPPO, VIVO, Realme, and Xiaomi devices.
 - Supervised assembly-line operators and ensured adherence to quality, functional, and reliability testing standards under tight production timelines.

PROJECTS

- LIME – Li-Fi Integrated Message Encoder** | *Embedded Systems, Optical Comms, C/C++* **2022 – 2023**
- Designed and implemented a bidirectional free-space optical communication system using laser diodes and solar panels as transceivers, achieving secure, wire-free data transmission at up to 9600 baud.
 - Engineered custom firmware for microcontroller-based modulation/demodulation (OOK – On-Off Keying), enabling real-time text and binary data transfer with <1% BER under controlled conditions.
 - Eliminated RF interference and EMI by leveraging visible light spectrum; demonstrated viability for secure short-range communication in EMI-sensitive environments such as hospitals and aircraft.

TECHNICAL SKILLS

Languages: C, C++, Python, SQL, Bash
Embedded & Hardware: STM32 Microcontrollers, Arduino, Raspberry Pi, RTOS, BSP Development, Yocto, Cross-compilation (ARM), GPIO/SPI/I²C/UART/ADC Drivers
Protocols & Standards: ONVIF (S/G/T/M), SUNAPI, RESTful APIs, TCP/IP, UART, SPI, I²C
AI / Data Science: TensorFlow, Data Structures & Algorithms, AI-based IoT Systems, Signal Processing
Tools & Platforms: Linux, Git, Postman, Visual Studio Code, GDB, Make/CMake, Google Test / Google Mock

EDUCATION

Academy of Scientific and Innovative Research (AcSIR) **Jan 2025 – Present**
Integrated Dual Degree – M.Tech + Ph.D., Biomedical Instrumentation, AI & Embedded Systems *Chandigarh, India*
Charotar University of Science and Technology (CHARUSAT) **Jul 2019 – May 2023**
B.Tech, Electronics & Communication Engineering – CGPA: 8.69/10 *Anand, India*

CERTIFICATIONS

Advanced Certification in Data Science & AI – IIT Madras (Pravartak Technologies / Intellipaat) | C++ OOP & STL – Udemy | C++ Unit Testing: Google Test & Mock | Advanced C Programming: Pointers & Memory Management | AI for Managers – Microsoft & LinkedIn | Android App Development