Amr Elansary

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Relevant Experience

Baxter International   *Palm Beach Gardens, FL*

- **Senior Principal Software Engineer 10/2024 - Current**
  - **Primary role:** Lead a team to develop, test, and maintain software for collecting data from medical devices such as ventilators and dialysis machines.
    - Write full-stack (C#, HTML, ASP.NET, jQuery, JavaScript, MS SQL) software for application. Back-end routes data to Electronic Medical Record (EMR).
  - **Primary contribution:** Added encryption and authentication in communication between various components of backend to meet security standards.
  - **Primary contribution:** Parallelized processing of patient waveforms to reduce data extraction time by **50-80%**.
  - **Primary contribution:** Added audio processing (details are proprietary).
  - **Primary contribution:** Proposed and implemented customer usage history database to allow service team to identify issues in the field.
  - **Primary contribution:** Wrote software drivers for various medical device manufacturers to make them compatible with our application.
  - **Primary contribution:** Identified fault with proprietary serial device and wrote new firmware to fix. Then created new manufacturing process and coordinated with manufacturing facility to produce new units.
  - **Primary contribution:** Identified wiring incompatibility and designed new cable for usage with dialysis machines to allow extracting ongoing case data via serial communication.

Lutron Electronics   *Boynton Beach, FL*

- **Senior Design and Development Computer Engineer 12/2021 - 03/2024**
  - **Product:** automation of wireless light, shade, and temperature controls for new and existing homes and offices.
  - **Technologies:** 802.15.4 (Thread and Zigbee), CoAP, Bluetooth (BLE), PIR occupancy sensors, microcontroller (ARM), EFR32, STM32, UART, I2C, JTAG.
  - **Tools/Languages:** embedded C/C++ (microcontroller and Linux), Python, C#, Java, RTOS (FreeRTOS, Zephyr, proprietary), CMake, gcc, Docker, CI/CD (Jenkins), Kubernetes.
  - **Primary role:** Senior developer and technical lead for the embedded platform team on Athena. The platform team's directives are designing/implementing all core system features and providing support to keep the product and feature teams moving. The teams being supported are **50 people** in total.
  - **Primary contribution:** Created **3 independent, operator-driven GUI's** in **1 week** that wirelessly updated **21,000+** out-of-date units.
  - **Primary contribution:** Identified root cause and fixed UART issue in our network software that had been previously investigated for **1+ years**. The issue consisted of **7 different issues** with similar symptoms. This issue blocked all firmware updates to the wireless protocol.
  - **Primary contribution:** Identified and fixed **112 software defects** (cumulative including prior positions).
  - Develop and maintain the build pipeline (shared responsibility with company-wide DevOps team).
  - Onboard new team members. Taught via a mixture of lectures, individual walk-throughs, clear instructions, and setup scripts.
  - **Primary role:** Selected from **~100 engineers** as the embedded developer on the new innovation team for the company.
  - **Primary contribution**: feasibility study for new technology (details are proprietary). As of 04/2023, this project is **the only one** to successfully go from an idea to a product feature since the team's formation in 02/2022. Included Android mobile app prototype.
  - **Additional Roles:**
    - Security Champion for Wireless Devices: monitor software base for vulnerabilities and attend security champion updates.
    - Supervisor: Basic oversight and support for supervisees.
    - Recruiting: Attend university career fairs representing the company. Conduct on-campus and on-site interviews.
- **Design and Development Computer Engineer 06/2019 - 12/2021**
  - **Primary role:** Senior embedded developer on Athena. The primary directive was to spec, design, implement, review, bench test, and unit test software for product features.
  - **Primary contribution**: Suggested and created initial structure for CMake, unit tests, merge gates, and Docker for building. Learned FreeRTOS by reading *Mastering the FreeRTOS* and applying it then taught the rest of the team for use in our products. Then owned and maintained every aspect of the build pipeline for **20+ developers** prior to having a dedicated team. Through many iterative improvements, build time was reduced from an **hour and a half** to **15 minutes**.
  - **Primary contribution**: Automated generation of special firmware used for timing analysis without requiring manual modifications.
  - **Primary contribution**: Enabled customer field support via automatic generation of C++ and Python logging code based on JSON input.
- **Senior Project Computer Engineer 11/2016 - 06/2019**
  - **Primary role:** Embedded developer on Vive. The primary directive was to spec, design, implement, review, bench test, and unit test software for product features.
  - Reduced the per-piece cost by designing and implementing a light dimming algorithm that needed less hardware components.
  - Led discussions then formalized the output into customer requirements. Created system and software designs.
  - Traveled to customer sites to observe how the customer uses the product. Also visited customer sites to fix reported problems.
- **Project Computer Engineer 07/2015 - 11/2016**

Education

Master of Engineering	**The University of Maryland**	*College Park, MD*	**2018 - 2020**
• Cybersecurity			
Bachelor of Science	**The Pennsylvania State University**	*State College, PA*	**2011 - 2015**
• Electrical Engineering			

Skills

- *Professional proficiency* – C# | C | C++ | ARM | Git | Python | Agile | Cryptography | DevSecOps | Jenkinsfile | CppUTest | Bluetooth | Thread | Docker | FreeRTOS | HTTP | JavaScript | SQL | .NET | .NET Framework | ASP.NET | REST | OpenAPI | Firmware Update | Product Development | Automated Testing | Cross-Compiling | CMake | GDB | ARMv7-M | GCC | STM | SiLabs | Light dimming via FET and triac-based algorithms | Linux | Bash | Powershell | GUI | Recruiting
- *Adequate proficiency* - Android | Golang | Swift/Java for iOS/Mac | Ruby for web applications

Professional Awards

- Lutron's voluntary innovation competition: individual project won "best long-term value" in 08/2021. Details are proprietary.
- Lutron's voluntary innovation competition: team project won "best overall" in 10/2021. Details are proprietary.
- Lutron's Quality challenge coin: recognition for "willingness to do whatever it takes to take care of the customer". 09/2023

Hobbyist Projects

- Arduino lights ($30 budget): Used an Arduino, relays, a surge protector, and decoration lights to make the lights dance to music. 2013
- Android AR: Created an Android app that uses the camera and Google ARCore to place and store absolute coordinates. 2022
- macOS/iOS: Created an iPhone/Mac app that lets users leave messages for each other. Uses AWS and HTTP requests. 2022