Harsiddh Kalariya

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## Technical Skills

* Languages: C, C++, C# (.Net core/framework), Python, Linux Shell Scripting
* Protocols: SPI, I2C, UART, Basics of USB, CAN, VLAN, SNMP etc.
* Skills: Linux Source code customization, YOCTO, Googling, GPT prompting, Cross-Compiling, DSA etc.
* Tools: Linux OS, QT Creator, Visual Studio (Code), SVN, Git, Wireshark, etc.
* Databases: MySQL, SQLite
* ML Libraries: Libs used include Pandas, NumPy, Matplotlib, Scikit-learn, OpenCV.

## Education

**Master of Engineering** **Jan 2022 – April 2023**

University of Guelph, Guelph, ON, Canada

**Bachelor of Engineering** **Jul 2015 – May 2019**

L.D College of Engineering, GTU, Gujarat, India

## Experience

**Embedded Engineer** – MSIPL, Ahmedabad, India **May 2019 – Oct 2021**

* Made a Library for iMX6ULEVK processor to work on SAM card using 7816-3 protocol and for contactless (smart card) card using 14443 protocols. The library contained improved code to interact within 1 second with a smart card. Later, it is used for a defense project.
* Customize Linux OS to work with i.MX6UL processor using YOCTO project.
* Performed research on encryption algorithm RSA PKCS to develop encrypted server communication for L1 registered device.
* Made a custom boot loader to reduce device booting time. Reduced booting time by at least 50%.
* Made detailed research on TI’s AM438x development board. Made a detailed document on the suitability of this device for L1 registered device.
* Worked on SNMP network protocol to control devices in local networks.
* Developed and helped to design an access control system to manage user access on i.MX6UL board using QT creator.

**Manufacturing Software Developer** – Ford Waterloo, Canada **Fed 2023 – Present**

* Device side code migration of TCUs to build next gen TCUs.
* Reduced test time of RF calibration and Verification test for TCU units by ~20%.
* Designed and developed WiFi EOL test to verify Wifi FEM and switching logic on device first boot.
* Designed and developed a semi-automation framework that can be integrated into TestStand for seamless EOL and Serialization operations including GUI interactions and localizations. The framework can be controlled using a single flag to make it a run-time plugin feature.
* Developed serialization solutions to next gen IVI units.
* Designing and developing device drivers that adhere to SOLID principles.

## Achievements & Projects

* Made a [first ML project](https://github.com/Harsiddh123/Sentiment_Analysis) on Sentiment Analysis to explore what ML exactly is and how to use in for real world applications. (University of Guelph, Winter 2022).
* Performed [analysis on breast cancer diagnosis](https://github.com/Harsiddh123/Breast_Cancer_Diagnosis_ML) to extend the use of ML workflow (University of Guelph, Summer 2022).
* A month-long internship completed in 14 days at [Amtech electronics.](https://github.com/Harsiddh123/Achievements/blob/main/intern_ship.pdf) (May 2018)
* Promoted by [Mantra Softech India Private Limited.](https://github.com/Harsiddh123/Achievements/blob/main/promotion_letter.pdf) (September 2020).
* Published an SLR on [Edge Computing Security and possible threat protection](https://arxiv.org/abs/2212.04563) on Arxiv.
* Upgrading skills as needed: [C# Advanced](https://github.com/Harsiddh123/Achievements/blob/main/Udemy_Certificates/Advanced_Csharp.pdf), [Linux Yocto](https://github.com/Harsiddh123/Achievements/blob/main/Udemy_Certificates/Embedded_Linux_Yocto.pdf), [Embedded AOSP](https://github.com/Harsiddh123/Achievements/blob/main/Udemy_Certificates/Visual_Embedded_AOSP.pdf)