Sarthak Bhatt

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EDUCATION

Master of Science Degree in Computer Science, California State University, Sacramento — July 2023

Bachelor of Science Degree in Computer Science, UTU, UK, India — May 2016

COURSEWORK

Advanced Computer Architecture	**Operating Systems**	**Computer Software Engineering**
Advanced Algorithms and Paradigms	**Software Systems**	**Computer System Structure**

SKILLS

- Programming Languages: C, C++, Python.
- Firmware Development: Firmware Versioning, Bootloaders, Memory Management, Interrupt Handling, Peripheral Drivers.
- Driver Development: WDK, WDDM, DirectX, Git, Quickbuild, CMake, Visual Studio, Arduino, RISCV, ARM, GCC, File Systems.
- Machine Learning & AI: Scikit-learn, Neural Networks, Regression Models, Image Processing, Pandas, Numpy, Streamlit.
- Debugging Tools: Oscilloscopes, GDB, Logic Analyzers, JTAG, Windbg, KVM GT.
- Power Management: Low-power Design, Battery Management, APCI.
- Embedded Protocols: I2C, SPI, UART.

EXPERIENCE

Graphics PnP Software Intern — **Intel Corporation** — **Feb 2022 - Aug 2022**

- Strengthened code development skills in Visual Studio, actively contributed to ULT branches, and utilized Git for CI/CD to optimize driver performance.
- Identified and corrected an Async flip count anomaly in firmware logging by introducing a verification step, then validated the solution using workload tests within a KVM GT test system using WinDBG.
- Developed a tool using Intel Level Zero Sysman API that streamlined the debugging process, reducing diagnostic time by 25%. The tool allows direct extraction of Power and Performance metrics from driver builds, eliminating the need for point-specific debugger breaks.

Core Graphics Software Intern — **Intel Corporation** — **Sept 2021 - Feb 2022**

- Collaborated with cross-functional teams, including hardware and firmware unit, to develop and debug graphics drivers.
- Resolved customer issues involving Timeout Detection and Recovery using WinDBG and the knowledge of driver code process.
- Gained expertise in WDDM architecture and DirectX, with a deep understanding of the graphics pipeline.
- Joined weekly "Bugscrub" meetings to evaluate driver health, assign bug responsibility based on component, tracking tasks across stages.

SAP HANA Consultant — **Waddaya Solutions** — **May 2015 - Aug 2018**

- Expertly managed SAP planning, sizing, installation, upgrades, and maintenance; adept at tuning, troubleshooting, and documenting within intricate heterogeneous environments.
- Proficiently collaborated with project, process, and development teams, end-users, and SAP Worldwide support both during and post-project implementation.
- Demonstrated ability in developing and supporting a large business information system with a commitment towards Enterprise Security and Risk Management.
- Capacity Planning/Hardware Sizing, Vendor Selections with a systematic approach to conducting the requirements.

PROJECTS

- **Smart E-Signature Management System for CalPERS:** Architected a sophisticated E-Signature portal leveraging Python. Initially, converted handcrafted signatures to grayscale, transformed them into binary matrices, and subsequently utilized Canny Edge Detection to eliminate noise. Efficiently stored the processed signatures in an SQL database, enabling smooth PDF document signing.
  Features: *Bulk Signing, Multi-Factor Authentication, Document Version Control, Secure Signature Storage.*
- **Smart Face and Color Detection Mobile Robot** (ATmega-328p/Arduino & OpenCV): Designed an autonomous mobile robot equipped with the capability to recognize faces and imitate gestures based on color bands on the user's hand. Utilized the Viola-Jones algorithm for face detection and a tailored color recognition algorithm to translate gestures into the robot's movements.
  Features: *Face Recognition, Gesture-Based Movement Control, Integration with Wheeled Mobile Robot Movement Interpretation*.
- **AI-Powered Health Monitoring Dashboard for Canines**: Designed and Crafted a dashboard using Streamlit and Scikit-learn in Python that classifies the current condition of canines suffering from Congenital Heart Failure using Random Forrest Classifier with **98% success.**
  Features*: Patient Profile Overview, Treatment Progress Matrix, Symptoms Logger, Health Risk Assessment, Medical Report Generator*.
- **Gesture-Imitating Mobile Robot with Face and Color Recognition:** Engineered a custom circuit for ATmega-328PU and integrated the Arduino bootloader; programmed using Arduino for computer-based face detection via Viola-Jones algorithm, interpreting color band gestures from the user's hand to convert into servo motor commands, achieving fluid robot motion without an external console.