Siddhant Ekale

Computer Engineer

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Education

Purdue University BS, Computer Engineering CGPA: 3.5/4.0

Work Experience

Digital Control, Inc | *Software Engineer* | *Kent, WA, USA* ***Sep 2017 - Current***

- Software and hardware bring-up for locating devices for horizontal directional drilling. Designed and developed user-space daemons and libraries in C++ to access and utilize hardware components asynchronously on a single-core event-loop based linux system.
- Designed and developed asynchronous library for encrypting/decrypting data sent across peripherals using specialized hardware.
- Modified and brought up linux kernel drivers for hardware peripherals, board bring-up by supporting BSP development.

Helitrak, Inc | *Software Engineering Intern* | *Gig Harbor, WA, USA* *June 2017 - Oct 2017*

- Startup focused at building autonomous rotor recovery and autopilots for R22 and R44 helicopters. Project focused on writing a CAN to USB library(in C) over a HID driver to collect and process telemetry of the helicopter run-time data.
- Designed and developed tools and scripts for processing post test-flight data to check product acceptance criteria.

Lutron Electronics | *Software Engineering Intern* | *Coopersburg, PA, USA* *Jun 2016 - Aug 2016*

- Optimized firmware update algorithms(s-rec transmission) to support up to a 2x speed improvement. (*Project Value: $800 per day*)
- Windows Forms application developed in C#(.NET 4.5 framework) to support the new firmware update algorithms mentioned above.

Purdue University | *Teaching Assistant (Computer Architecture & C Programming)* *Aug 2016 - Dec 2016*

- Instructed students in design & implementation of pipelined MIPS 32 bit single and dual-core processors.
- Conducted weekly lab sessions to assist students learning the 'C' language and teaching them how to debug C code.

Projects

Infiniti (HackIllinois, *Intel, First Prize)* *UIUC 2016*

- Built a game controller by interfacing an accelerometer on an SOC that hosted a javascript racing game on a Django server.
- Role: Calibrated and sampled accelerometer values, helped bring up the Django server and host the JS game built.

DJarvis (HackIllinois) *UIUC 2017*

- Web app that builds a Spotify playlist that matches the listener's emotional state, which is determined using a picture of the person's face processed with Microsoft's Cognitive Toolkit library. Emotional state per-user is tracked for a period of time using a database.
- Role: Design data-flow, Node.js server, webcam capture functionality along with Blob-storage integration.

Limitless Hardwood (Boilermake IV) *Purdue 2017*

- Particle photon powered Wi-Fi IOT project to show user requested data i.e. date-time, trending stock etc. on a small cube.
- Role: API for retrieving bank account information, OLED SPI interfacing, server side communication.

Bus Functional Model *Purdue 2017*

- Designed APB bus functional model in System Verilog to act as a mock transactional interface for cleaner test-bench design.

MIPS Processor Design *Purdue 2016*

- Implemented 32-bit dual core (*MSI protocol*) pipeline processor with set associative LRU caching on an FPGA.
- Contribution (Design and Implementation): Pipelined data-path, i-cache, d-cache, branch predictor, and dual core extension.

Project Glass *Purdue 2016*

- Wearable gear designed for displaying Android Notifications on an OLED projected in front of the eye.
- Weather data extraction using OpenWeatherMap APIs, SPI interfacing for OLED, BLE software bring-up for duplex communication

Compiler Design *Purdue 2016*

- Built a fully functional compiler using ANTLR, for custom turing complete language.
- Designed and developed conversion of Intermediate Code to MIPS Assembly, Register Allocation using dataflow analysis.

Academic Achievements And Leadership

Semester Honors *(Fall 13, Spring 14, Fall 14, Fall 15, Spring 16)*
Cofounder, Purdue Social Services Network *2015*

Relevant Coursework

Data Structures & Algorithms, Design Patterns, Compilers, Computer Architecture, ASIC Design, Embedded Systems, Signals and Systems

PROGRAMMING Skills and Tools

C, C++, Python, Bash, System Verilog, Git, SVN & Perforce