

MANDEEP SINGH

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<https://itsmandeepsingh.github.io/>

EDUCATION

PEC University Of Technology, Chandigarh, India

Graduated with a Bachelors in Technology in Computer Science and Engineering

June 2017

(CGPA : 8.25/10)

Govt. Model Senior Secondary High School, Chandigarh

Central Board of Secondary Education | XII

May, 2013

(Percentage: 88.2%)

WORK EXPERIENCE

Western Digital Corporation, Bengaluru, India

July 2017 - Present

Senior Engineer, Firmware Engineering

- Worked on the firmware development and unit testing of compact flash memory cards – CFexpress Extreme Pro.
- Handled implementation of features in flash translation layer for optimization of memory utilization – Garbage collection, Read scrub, Data flow routing and Stream detection.
- Developed unit test cases for verifying IO performance according to Video Performance Guarantee (VPG) profile.
- Filed two patent applications (in processing):
 - Proposed a scheme for dual write programming to improve the block budget by 50 percent as compared to the traditional dual write programming method.
 - Proposed an idea to reduce the effective power consumption of flash storage device in idle and non-operational power states.

Zoukloans, Noida, India

January 2016 – May 2016

Web Development Internship

- Development of APIs and services for the customer onboarding application. The newly developed interface facilitated the customers to onboard faster without any hassle.

ACADEMIC PROJECTS

Monitoring system for analyzing driving behavior using smartphone sensors

Undergraduate Capstone Project

- An application that uses built-in smartphone sensors to identify abnormal and rash driving patterns (sudden acceleration and sudden break) of users to warn the concerned authorities.
- Applied k-mean clustering (k=2) and support vector machine algorithms on the extracted features like mean and standard deviation of readings along all the three axes of accelerometer.
- Challenges: Disturbances in the smartphone's orientation. As a result, the force of gravity acting vertically downwards and other unwanted external forces starts impacting the accelerometer readings.
- Technologies: Python, Java, MongoDB, scikit-learn and NumPy libraries.

PEC Insight native android application

Final Semester Project

- Developed an android application for managing academic and administration activities like keeping track of academic grades and achievements, acknowledgement of participation in extra-curricular activities by the concerned authorities, compilation of academic achievements and results, discussion forums for technical societies etc.
- Technologies: Java, Node.js and MongoDB.

PAPER PRESENTATIONS

International Data Technology Conference (hosted by Western Digital)

California, 2020

- Securing over-the-air flash firmware update using blockchain and P2P networking: Proposed a distributed ledger based verification mechanism for securing over-the-air flash firmware update process for wireless storage devices.
- Design of an efficient low-cost test bench for compact flash cards firmware verification: The idea is to emulate a real camera host environment by modifying the existing test suite and environment to run on top of the evaluation board, customized for configurability and lower command latency making it suitable for testing compact flash cards.

TECHNICAL SKILLS

- Programming languages: C, C++, Python, Java, HTML, JavaScript, PHP, Prolog and Assembly language.
- Databases: SQL and MongoDB.
- Tools and other: LeCroy Protocol analyzer, JTAG metaware debugger, Microsoft Unity and MATLAB.

EXTRACURRICULAR ACTIVITIES

- Involved in CSR events organized by NGO's like "Rise Against Hunger" and "Dream A Dream".
- Contributed to open source library NumPy by fixing a bug and implemented test scenarios to verify the fix.
- Awarded by certificate of merit in Inter-department basketball tournament.