JASH SHAH

Course : **B.E. (Hons.)**, Elect. & Instrumentation, 2022
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CGPA : 7.71

ACADEMIC DETAILS

COURSE	INSTITUTE/COLLEGE	BOARD/UNIVERSITY	SCORE	YEAR
CLASS XII	Shiv Ashish Higher Secondary School	Central Board of Secondary Education (CBSE)	9.6 CGPA	2018
CLASS X	Nirma VidyaVihar School	CBSE	10 CGPA	2016

Subjects / Electives	Probability and Statistics, Control Systems, Vector Algebra and Matrices, Computer Vision, Signals and Systems, VLSI design, Business Communication, Microprocessor Interfacing, Artificial Intelligence and Algorithms, Computer Programming, Digital Design
Technical Proficiency	Python3, C Programming, C++ Language, MATLAB, PCB Design, Electronics Hardware Design, Machine Learning, Embedded Systems, Computer Vision, Robotics, Genetic Algorithms, Internet of Things, Blockchain Development, Electrical Machine Design, Electric Vehicles, Github, Neural Networks, Verilog, Tensorflow, NumPy, Problem Solving, Deep Learning, Pandas, LTSpice, OpenCV

SUMMER INTERNSHIP / WORK EXPERIENCE

Embedded System Design Head, Inspired Karters - Formula Students (IKR-FS) BITS Pilani — Oct 2018 - Present

- Designed all the **High and Low voltage circuitry** for the car such as precharge-discharge and safety circuits.
- PCB designed on **KI-CAD and Eagle CAD** and simulated on **MultiSim**.
- Designing the Control and Communication of the entire vehicle using **STM32F412Zg MCU** and commercial **Kvaser CANLoggers.**
- Worked with **BMS, DCM, DAQ, Motor Controllers** and other integrated sensors like **IMU** (Inertia Measurement Units), **GPS and Touchscreen HMIs**.
- Developed an **extended application layer** to minimize the **CAN based starvation** and include **Over the air updates**.

Summer Intern, Silvertouch Technologies Pvt. Ltd. — May 2020 - Jul 2020

- Research and development of a high-quality facial demographics system using customized Image processing scripts embedded to an **SVM classifier** with **4 layers of customized ensembling**.
- Use of Digital Image Processing techniques involving various transforms and kernels like **SIFT, HoG, Gabor Filters and LBP**.
- Embedded this model in **STM-32 firmware** as an IoT application on **AWS platform** to generate a "Song Reccomendation System" for Bars/Cafes**.**

POSITION OF RESPONSIBILITY

Core Team Member (Embedded System Design) - Inspired Karters - Formula Student (IKR-FS) BITS Pilani — Mar 2020 - Present

- Worked as '**Junior Electric Engineer**' and " **Senior Specialist (Electronics)** " in 2018-2020 and in 2020 was promoted to " **Embedded System Design Head** "
- Designed the entire **control and coordination system** of the Electric vehicle. Currently, a staff of around 7 - 10 junior engineers is working with me.

Apogee and Oasis Coordinator - IEEE SB BITS Pilani — Apr 2020 - Present

- Incharge of **planning and coordination** of IEEE SB events in the BITS Pilani's **official cultural as well as technical fests**.
- IEEE's Point of contact and **student chapter's outreach head**.

Treasurer - Gurjari Cultural Association BITS Pilani — Mar 2020 - Present

Gurjari Association is the **official cultural association Gujarat** at BITS Pilani, with about **200+ members**. As the treasurer, I am responsible for the **growth and management of funds** at Gurjari Association.

PROJECTS

Smart Elevators - ML - PLC integration — Aug 2020 - Present

- **PLC level integration of customized firmware** using **Modbus Protocol** to implement smart and touchless elevator solutions.
- **RNN and CNN** based modules along with **Digital Signal Processing techniques** for detecting the floor number and detecting humans.
- **IoT based API** for remote-over the air updates and customization.

Genetic Algorithm Based maze solver - AI for Robotics, Path Planning — Dec 2019 - Feb 2020

- Implemented **Micromouse robot** for an intelligent path mapping and planning using **UltraSonic sensors**.
- **Genetic Algorithm and Flood Fill algorithm** for path planning.
- Robust and efficient **PID** for fast turnings.
- Developed a **web-based simulation software** for prototyping the software, using **Python scripts and Flask**.

E-voting System based on Blockchain - Software Development — Dec 2018 - Feb 2019

- Smart Contract, using **Solidity language** was deployed on Etherium Testnet.
- **Web3** based web interfacing was performed.
- **Truffle Framework** used with **NodeJs for Web socketing**.
- The system was tested on **Ganache Blockchain platform** on the localhost.
- **MySQL DBMS** used to send this data to web application, after extracting it from the chain.

Stair Climbing Robot - Robotics — Jul 2020 - Aug 2020

- Fully **autonomous** stair climbing (ascent as well as descent)bot, capable of detecting and handling up to 4 kg of weight.
- **Raspberry PI 3** controlled **Yolo3 - Python** module based stair detection and navigation.
- **Theft detection alarms and tracking systems** for making the product market-ready.

Dark Web Analysis from Crime Detection - Deep Learning, Web Scarping **Aug 2020 - Present**

- Currently ongoing research project that is funded by Madhya Pradesh Police Department for developing the system for them.
- Involves developing new algorithms for analyzing the dark web using Knowledge Graph based approach.
- Primitive ML algorithms based models to be used in amalgumation to the new generated models.

CERTIFICATION	CERTIFYING AUTHORITY	DESCRIPTION
Industrial IoT on Google Cloud Platform	Coursera	Made an IoT application using the GCP to analyse the real-time traffic patterns in New Jersy, using an API provided by Google's AI-based traffic camera.
Deep Learning Specialization by Andrew Ng	Coursera	
Introduction to FPGA design for Embedded Systems	Coursera	
Computer Communications	Coursera	
Data Science in Real life	Coursera	Theoretical course on the techniques of data science and their real-life applications.

CONFERENCES AND WORKSHOPS

CES Asia 2019

Organized by: **CES Asia** | Date: **Jun 2020**

- Participant at the CES Asia 2019 held in Shanghai, China.
- Studied the latest technological trends.
- Attended the launching and key-note events of 5G, IIoT and self-driving technologies of companies like Hawaii and Mercedes Benz.

COMPETITIONS

Swadeshi Microprocessor Challenge **Sep, 2020**

- This is an ongoing competition by Govt of India.
- My team is working on creating a Drone driver using RISC-V architecture based the FPGA board - Shakti, that has been developed recently by IITM.

Formula Bharat FSEV Concept Challenge 2020 **Jul, 2020**

- Part of the **Winning team** (online round, further rounds in Jan 2021) of an **International competition** held annually for student-based formula racing **car designing and racing competition**.
- This year nearly 40 colleges had participated including IITs, NITs and some International colleges.