Mohil Patel

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Education

Indian Institute of Technology Bombay
Mumbai, India

B.Tech with Honors in Electrical Engineering | **Minor in Computer Science** | **GPA: 9.58/10.0** *Class of 2020*

Coursework: *Computer Architecuture, Processor Design, Algorithmic Digital Design, Operating Systems, Computer Networks, Machine Learning, Data Structures & Algorithms, Digital Image Processing, Probability & Random Processes, Linear Algebra and Real & Complex Analysis*

Experience

Nvidia
Hyderabad, India

Software Engineer | GeForce Now - Cloud Gaming Service *Jul. 2020 - PRESENT*

- Part of Nvidia's Cloud Game Streaming QoS team, handling runtime algorithms to change streaming parameters based on network conditions
- **Ran experiments** & analyzed results (**using python**) to understand the **impact of networks parameters on cloud game streaming**
- Implemented new algorithms & optimized existing features (**C++**) to improve user experience by reducing stutters, latency, packet loss, etc

Samsung RnD Institute
Bangalore, India

Software Engineer Intern | Smart Devices *May 2019 - Jul. 2019*

- Worked on Samsung's Smart Devices Team, responsible for analyzing data generated from smart devices & generating useful insights
- **Surveyed multiple research works on clustering techniques** & implemented them **in python** to understand and predict user behaviour

Department Academic Mentorship Program, IIT Bombay
Mumbai, India

Department Academic Mentor | Electrical Engineering Department *Apr. 2018 - May 2020*

- **Mentored 16 students** as a part of department mentorship program designed for helping academically under performing students

Projects

Combining Sketch and Tone for Pencil Drawing Production

Personal Project | Github Repository *Mar. 2021 - May 2021*

- Studied a pencil drawing generation technique from natural images, involving Line Drawing Generation and Pencil Texture Rendering
- Implemented the code using **OpenCV & Java**, producing both Colored and GrayScale Pencil Drawing Images from a Natural Image

CHIP-8 Emulator

Personal Project | Github Repository *Jan. 2021 - Mar. 2021*

- Chip-8 is a 8-bit interpreted language with 35 opcodes & 4KB memory used in 1970s in many microcontrollers
- Designed a chip-8 emulator with additional functionalities like timer, keyboard & graphics **using C++ and SDL2.0**

Real-Time Server Based Communication with Hardware Encryption

Final Year Project | Guide: Prof. Madhav Desai | Github Repository *Jul. 2019 - May 2020*

- Designed an end-to-end server based **full duplex communication system** operating at **8KHz sampling rate** with **hardware encryption**
- Implemented the communication system using **MQTT based server** (messaging protocol for IoT Devices) written in **python**
- Implemented **hardware encryption engine (AES-128)** using **FPGA (Artix-7)**, & also designed microphone & speaker circuits for end points

Computer Architecture: Superscalar

Course Project | EE-739: Processor Design | Github Repository *Jan. 2019 - Apr. 2019*

- Implemented a 16-bit Superscalar Architecture with **2 instruction fetch width** & **4 parallel pipelined-execution units** using **VHDL**

Texture Synthesis using Non-Parametric Sampling

Course Project | CS-663: Digital Image Processing | Github Repository *Oct. 2018 - Nov. 2018*

- Understood and implemented a research paper (by same title) for generating large texture images from small input image in **MATLAB**

Skills

Languages C/C++, Python, Embedded C, Java, VHDL, Verilog, LaTeX, HTML, CSS, JavaScript

Tools Perforce, Git, Matlab/Octave, NumPy, Pandas, SciPy, Docker, Arduino, Code Composer Studio, Quartus, Vivado, NGSPICE