CHINMAY TOMPE

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EDUCATION

New York University Tandon School of Engineering *Spring 2021-May 2022*

Master of Electrical Engineering

Courses: Probability and Stochastic Processes, Real Time Embedded Systems, Internet & Arch Protocols

Areas of interest: Digital Signal Processing, Wireless Communications, Embedded Systems, Advanced Quantum Computing

Part of Control Systems subteam for NYU Hyperloop (VIP)

University of Mumbai (Thakur College of Engineering and Technology**)** *July, 2015 - June, 2019*

Bachelor of Engineering in Electronics and Telecommunication

Related Coursework: Digital Electronics, Signals & Systems, Control Systems, Random Signal Analysis, Discrete-Time Signal Processing, Computer Communication & Networks, Wireless Networks, Internet & Voice Communication, Neural Networks & Fuzzy Logic, Image & Video Processing.

The Coding School and IBM Quantum *September 2020 - May 2021*

Certificate Course on Quantum Computing

Proficient in: IBM Quantum Experience, Qiskit Programming, Grover's Algorithm, Discrete Mathematics, Quantum Mechanics

EXPERIENCE

NeWS Lab, IITH Research Intern *February 2020- October 2020*

- Studied architecture and L1,L2,L3 of 5G NR Rel.15 and deployed Core Network modules on Kubernetes clusters.
- Studied Vehicle-to-Everything (V2X) communication and developed optimized algorithms using ns-3 for scheduling Radio Resources at the gNB and computational resources at the Mobile Edge Cloud. Worked with a PhD student to **develop a joint optimization based algorithm for scheduling and task offloading from UE to MEC. Plan to publish results in IEEE ITSC'21**
- Developed a strong understanding of vehicular mobile communication networks and Mobile Edge cloud scheduling.

Air India Engineering Services Engineering Intern at Electronics Overhaul Department *December, 2017 - January, 2018*

- Received formal and practical training in principles of electronic systems including navigation, power and communication systems along with overhaul procedures of line-replaceable units (LRUs) of Boeing 747, 787 & 777 models including HF Antenna Coupler Unit, Radio Altimeter Transceiver, DAA-4A weather radar antenna and Tethered Passenger Control Unit.
- Studied LRU maintenance manuals and wrote technical documentation for various hardware systems including Radio Communication Panel, Distance Measurement Equipment which were tested and stored in the labs.

Vividh Bharati, All India Radio Intern *December, 2018*

- Trained under specialists at the central satellite uplink station of the national radio broadcaster. Studied the process of producing and transmitting radio programs. Assisted supervisor in converting vinyl records to digital audio formats for storage. Studied the network architecture and maintenance procedure of the station.

StratAgile Tech Intern *June, 2016 - September, 2016*

- Engaged in team assignments on various market research projects for client products. Worked on curating image datasets for *Fashionly* (an image search app). Managed social media and delivered content on consumer electronics.

ACADEMIC PROJECTS

Cloud-based vehicle Breakdown Prediction System *August, 2018 - April, 2019*

- Studied the On-Board Diagnostics(OBD 2) standard, identified and collected relevant sensor data to develop a system that extracted data from a car via RaspberryPi module to selectively upload it to Amazon Web Services EC2 using GSM network.
- Rendered Regression analysis to use O2 sensor reading (taking threshold of 0.45 V) and Mass Air Flow vs. Engine RPM Gradient (threshold = 0.004) to predict the impending failure date of these sensors with 87% accuracy and alert the user.
- The driving behaviour analysis used real-time variations in longitudinal acceleration to classify patterns into three classes and detect driving anomalies using a hidden Markov model.

Gesture Recognition using Image Processing *February, 2018 - March, 2018*

- Used '*letters'* group from 'EMNIST' dataset to train a CNN. Converted camera feed frames into HSV to track a colored ring on a finger by thresholding, in order to detect hand gestures using the trained model. Successfully implemented 7 gestures.

Pro-Agri: Crop disease detection app Independent project *March, 2018*

- Trained AlexNet CNN architecture to detect tomato *yellow leaf curl virus* with 90% accuracy using image datasets & presented it as an application with a multilingual interface & information about the plant disease at *Bitcamp 2018*.

IoT system for car *July, 2017 - September, 2017*

- Developed a prototype for tracking real time location(Neo 6MV2 sensor) of a vehicle and an alert system using MQ3 sensor for checking whether the driver is intoxicated. Successfully uploaded, visualised the sensor data and set threshold for alerts by interfacing the sensors with ThingSpeak(an IoT analytics platform) using Arduino.

Home Automation module *October, 2016*

- Studied, designed and implemented a PCB module using Proteus software with Atmega328 microcontroller interfaced with an Android application via HC05 to remotely toggle switches of connected devices, here, electric bulbs.

Cloud Computing using Open Source technology Independent project *July, 2016*

- Built a fundamental cloud storage system using Eucalyptus software consisting of a Cluster Controller and Node Controller under the guidance of Dr. Deven Shah. Learned Linux, Shell Scripting and VMware.

Experience with publications

IEEE CS Compute Edition 8 **Writer** (2020) **Link:** http://bit.ly/IEEECSCompute8

- Article on Driverless Cars and Automotive world.

IEEE TCET Newsletter Edition 1 & 2 **Chief Editor, Issue 1 & 2 (2018-2019)**
Link: https://issuu.com/chinmay72/docs/ieee_newsletter1

Abhivarg, Department Magazine Chief Editor, Creative Director & Designer (2017-2019) (4 issues)
Link: https://www.tcetmumbai.in/E-Magazines/Abhivarg3.2.pdf

SKILLS

Test and measurement: Signal generators, Oscilloscopes, TI WEBENCH **Operating Systems** : MacOS, Linux, Windows
Network performance evaluation: NS2, Wireshark, Cisco Packet Tracer **Software development**: Eclipse, Android Studio
Electronic design automation: Spice, Microwind,DSCH3 **High level languages**: C, Python, Java
Algorithm development: MATLAB (Project work: Sputnik 1 orbit simulation using Simulink, Eyeball movement artifact detection using TUH EEG corpus dataset), Github.

CO-CURRICULAR ACHIEVEMENTS

Selected to attend ACM *Winter School on Hybrid Cloud* at DREAM:Lab, IISc, Bangalore. *January, 2020*
2nd Place - Analog Contest, Texas Instruments University Program. *March, 2019*
Bronze Certificate- India Innovation Challenge Design Contest 2018. *October, 2018*
Placed in the **top 20** teams during CSI-RAIT Bitcamp 2018, a national level hackathon *March, 2018*
Lab Visits: Semiconductor Lab (Dept. Of Space), Nokia R&D Lab, Bangalore *January, 2018 and April, 2019*
Seminars instructed: 'Machine Learning & OpenCV', 'Adobe InDesign', 'IEEE OU Analytics', 'IEEE Vtools Reporting'
MOOCs Research Impact : Making a Difference Introduction to Cyber Security Cryptography Fundamentals
LSF101x.2, Introduction to Linux Cyber101x: Cyberwar, Surveillance & Security LfE101x: Leadership for Engineers

EXTRA-CURRICULAR ACTIVITIES

Volunteer and member of Rotaract District Club 3141 and TCET Extension work team.
Ambassador for IEEE Industrial Applications Society CMD 'Humanitarian Contest', 2019 .
Volunteer : IEEE *Teacher in-Service Program* of Bombay Section.
IEEE Computer Society India Symposium and *Compute,* a national student newsletter.
Co-Founder of Pawna Paradise campsite.
Part of Green (R)evolution Global Certification Program, 2016 (Initiative by ICCE) for Climate Change.
Communities: Reddit, AWS user group, HAM Radio, Rebble.

Other Interests: Playing the violin, Philosophy, Camping, Graphics designing(Ai & Ps).