

Yash Sanghvi

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Education



B.Tech + M.Tech, Mechanical Engineering,

Indian Institute of Technology Bombay (IITB), 2013-2018

- GPA: 9.39/10
- Ranked 2nd in the Dual Degree Batch out of 48 students

Awards



- **Gold Medal** by PM Narendra Modi, Chief Guest at the 56th Convocation of IITB, for being the most outstanding student considering academics + extracurriculars
- **Institute Organizational Roll of Honor**, for the digital and technological transformation of NSS, changing the archaic image of social service to one more relatable by millennial IITians
- **Institute Technical Citation**, for taking IITB to the space age through the launch of Pratham satellite in 2016

Skills



Professional Experience



Mar, 2020 - Present

Lead, Data Science, [Carnot Technologies Pvt. Ltd.](#)

Carnot is an agri-IoT startup with 8000+ telematics devices installed on tractors across India, generating > 10 GB data per day

- Developed geo-data and usage-data based algorithms to determine tractor buying tendency of farmers
- Engineered Carnot's data lake, perhaps the largest private collection of farmers' data (more than a million farmers)
- Identified the right spots for OEMs for performing marketing and sales activities based on the location intelligence performed on the telematics data received from our IoT devices
- Cofounded and maintained the [Data Kisaan](#) publication for sharing our data insights with the outside world, appreciated by Dr. Rajesh Jejurikar, Executive Director, Auto and Farm Sectors, Mahindra Group

May, 2019 – Feb, 2020

Senior Firmware Developer, [Carnot Technologies Pvt. Ltd.](#)

- Reduced device cost by > 10% by implementing a custom bootloader to perform self-OTA (Over-The-Air) update of the microcontroller
- Adapted the ARM cortex M3 code to M0, enabling the use of a cheaper microcontroller, further reducing cost by 10%
- Created SMS-based diagnosis and troubleshooting mechanism to debug devices remotely, saving >33% recalls

Sep, 2018 – Apr, 2019

Research Associate, [NCAIR](#)

NCAIR is an industry-academia consortium founded at IITB to improve the manufacturing ecosystem in India; partners include Boeing and DMG-Mori

- Determined the state of the shop floor machines (ON/ OFF/ Cutting) using current and vibration sensors
- Developed the server side scripts for data collection and processing

| | | |
|---------|------------------------------|---|
| Data | Analytics and ML | Numpy, Pandas, Dask, Shapely, Scikit Learn |
| | Data Visualization | Plotly, Seaborn, Dash, Streamlit, Matplotlib |
| | Data Storage | PostgreSQL (with PostGIS extension), MySQL, Redis |
| Cloud | AWS | Compute: Lambda, EC2, EBS, Storage: S3, S3 Glacier, RDS, Hosting: Amplify, Networking: API Gateway, Route53 |
| | Azure | Compute: Function App, App Service, Storage: Storage Account, SQL Database, Networking: API Management |
| | Heroku | Heroku Postgres, Redis, Scheduler |
| IoT | Communication | WiFi, HTTP, HTTPS, TCP/IP, UDP, BLE, LoRa, Zigbee, GSM, LTE |
| | Firmware | RTOS, Peripherals: SPI, I2C, UART, CAN |
| | Microcontrollers | ESP32, 8266, STM32F0, F1, ATmega 8, 16, 32, nRF51xxx, Arduino |
| Android | Programming Language and IDE | Java (Android Studio). Link to my first Android App: DIEM - Daily Income and Expense Manager |

Publications



- Sanghvi Y., Sikka A., Ranade A.R. (2020) **Quality Assurance Practices for Student Satellite Teams**. In: Sastry P., CV J., Raghavamurthy D., Rao S. (eds) *Advances in Small Satellite Technologies. Lecture Notes in Mechanical Engineering*. Springer, Singapore.
https://doi.org/10.1007/978-981-15-1724-2_42
- Sanghvi Y., Tewari A. et al., **Manufacturing Analytics: IoT based Overall Equipment Effectiveness (OEE) Measurement and Improvement** poster presentation at Applied Materials India Engineering and Technology Conference (IIT Bombay, India), September 27, 2018

Human Languages



- English
- Hindi
- Gujarati (Mother Tongue)
- Marathi

Public Speaking



- Delivered a [speech](#) representing the U.G. batch at the Institute Valedictory Function, 2018
- Delivered an [Institute Lecture](#) on Pratham, the first satellite of IIT Bombay, for the esteemed alumni of the institute

Consultation Roles



Oct, 2019 - Present

IoT Consultant, [Machine Intelligence Program, IIT Bombay](#).

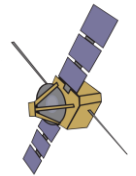
- Advising a team of 10 firmware and software engineers in Prof. Asim Tewari's group in various projects under the ambit of MIP:
 - Smart Energy Meter
 - Structural Health Monitoring using IoT
 - Site Survey Kit

May, 2019 – Feb, 2020

Firmware Consultant, [Zargun Electronics and Science](#).

- Advised a team of 3 engineers developing the firmware of the Smart Waste Module of Zargun ES, with special focus on:
 - RTOS
 - Over-The-Air (OTA) update
 - Captive Portal

Projects and Internships



May, 2016 – Jul, 2016

Pratham, [1st Student Satellite, IIT Bombay](#)

- Led the Electrical Subsystem, consisting of Power and Onboard Computer segments
- Developed the flight-firmware (embedded C) in a team of two
- Presented before the ISRO Scientists in the Critical Design Review (CDR) and Pre-Shipment Review (PSR) to secure a launch slot
- Satellite **launched** on 26th September 2016, onboard PSLV-C35

May, 2016 – Jul, 2016

Mechanical R&D Intern, [Hindustan Unilever Limited](#)

- Developed an eco-friendly refrigeration system for Pureit Floor Standing RO water purifier
- Reduced carbon footprint by >40 kg CO₂ e/unit by modifying the system to work with the eco-friendly HC R-600a refrigerant
- Awarded Pre-Placement Interview based on output and leadership skills displayed during the internship

Miscellaneous Highlight

May, 2015

Founder, [OLI – NSS, IITB](#)

- Ideated and created this YouTube channel under NSS, to fill the gap in educational content in regional languages on the internet
- Amassed over 100,000 subscriber and 1,00,00,000 views
- Invited by the Ministry of Human Resources and Development (MHRD) to partner with them on their platform [DIKSHA](#)
- Used by the schools of Giridih, an insurgency-affected district in Jharkhand, to educate students in absence of permanent teachers
- Lectures broadcasted on Bihar Doordarshan TV channel, to educate students at home during the lockdown

