

SNEHA TALREJA

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PROFILE SUMMARY

IIT Bombay alumnus with a MTech degree in Communication and Signal Processing including a **Research Assistantship**, with 6.5 years of core **R&D industry expertise** in semiconductor-based data storage domain. Experienced **visiting professor** in multiple **engineering colleges** with a proven track record in firmware-embedded development, knowledge of computer organization, **NAND flash memory**, **image processing**, UART, MATLAB and **several coding languages**.

Proficient in **training** and **mentoring** juniors, providing a good amalgamation of deep understanding of industry best practices, emerging trends and technical expertise. Passionate about contributing to **students' academic growth** while preparing them for successful careers in science.

ACADEMIC HIGHLIGHTS

Qualification	University	Year	CPI / %
MTech. (Comm. & Signal Proc.)	Indian Institute of Technology, Bombay (IIT-B)	2017	8.50
B.E. (EXTC)	TSEC, University of Mumbai	2013	73.01
XII	Maharashtra State Board (HSC)	2009	89.50
X	ICSE	2007	90.57

GATE ENTRANCE EXAM DETAILS

Score: 763 **Rank:** 792 **Marks:** 65.33 **Year:** 2014 **Branch:** Electronics & Communication (EC)

JOURNAL PUBLICATION

"Facial Expression Recognition", International Journal of Emerging Technology and Advanced Engineering (IJETAEE), May '14

WORK EXPERIENCE

Visiting Professor, Mukesh Patel School of Technology Management and Engineering (Dec '23 – Present)

- Tutored Drone Technology as a multi-disciplinary subject to TE students along with practical lectures
- Taught Signal and Image Processing to SE Artificial Intelligence batch of 60 students
- Coached Computer Organization and Architecture to multiple SE Computer Engineering batches of 60 students each
- Tutored Basic Electronics to two SE Computer Engineering batches of 60 students each
- Tutored Computer Architecture to two year two Artificial Intelligence batches of 60 students each
- Managed assignments, poster presentations, mid-term exams, end-term exams and paper correction

Visiting Professor, IPCV, DJ Sanghvi College of Engineering (Jan '24 – May '24)

- Tutored Image Processing and Computer Vision to a TE Computer and Data Science batch of 65 students
- Conducted weekly practical lectures for one batch in Python and **OpenCV** using **Colab** and **Jupyter**
- Managed assignments, mid-term exams and paper correction

Visiting Professor, ITC, KJ Somaiya College of Engineering (Jan '24 – May '24)

- Conducted tutorials along with their paper checking for three batches on Information Theory and Coding

Firmware Engineer, R&D Engineering, Western Digital (earlier SanDisk)

(Jul '17 – Dec '23)

Key Responsibilities

- **Developed APIs and UDAs** for in-house controller-based test platforms to **build firmware** for BiCS **NAND memories**
- Set up **ESPEC oven chamber** to function with test platform remotely for multi-DUT qualification runs
- Spearheaded several ideation endeavours aimed at **automating development** activities to enhance platform features
- **Supervised** dev and validation teams to drive **10+ deliveries** of a continual, timeline-specific user-centric project
- **Driven regular** grooming, retrospective and stand-up meetings for the team aligning with **agile methodology**
- Active participation across multiple company initiatives targeted to boost **cross-functional collaboration**
- Implementation and analysis of **hardware schematics**, NAND design manuals, datasheets and **timing diagrams**

Achievements and certifications

- Received **CoC - Recognition Award** for exemplary dedication and effort in a cross-functional project
- Awarded with **multiple recognitions** by platform users for on-time excellent project deliveries and trainings
- Certified with **High Impact Presentations** from **Dale Carnegie India**, Dec '21
- Appreciated by management for good **leadership skills** with detailed customer requirements, on-time delivery, **good communication skills** and driving meetings with leaders and important projects at stake

Engineer, Pratham Student Satellite Program, IIT Bombay

(Dec '14 - Jun '15)

- Supported for the initial research of the initiative taken for the first satellite designed completely by students (with the help from ISRO) to measure the Total Electron Count of ionosphere

Research Assistant, IIT Bombay

(Jul '14 - Jun '17)

- Developed and analyzed file transmission module in **GNU Radio** using **DPSK Modulation**
- Implemented the **FM radio signal** reception model using **USRP N210** as well as **RTL-SDR**
- Volunteered for the arrangements of **Bombay Information Theory Seminar** (BITS '16)

SKILL SET

Programming Languages: C, C++, Python, Bash script

Software Platforms: Metaware Debugger, JTAG, MATLAB, Arduino, GNURadio, CodeVisionAVR, LATEX, Jupyter, Mission Planner, ArduPilot, MavLink, SITL, RDS

Hardware Platforms: GoLogic logic analyzer, USRP N210, RTL-SDR Dongles, ATmega 16, ESPEC oven

OS: Windows, Linux

Tools and Methodologies: GIT, JIRA, Confluence, Bitbucket, Kanban board, Scrum (Agile)

TECHNICAL PROJECTS

MTech. Project: Software Defined Atmospheric Radar Receiver

(May '16 - Jun '17)

- Built a testbed for wind velocity measurement by creating **GNU Radio** modules using radar technology
- Implemented **OMP**, a **compressive sensing algorithm** to reduce transmission power to **2%**
- Noisy winds at different velocities present as close as **300m** can be measured accurately

B.E. Project: Facial Expression Recognition using Image Processing

(Jul '12 - Apr '13)

- Developed a system in **MATLAB** for facial expression recognition based on FACS system
- Created a **database of 300 images** and extrapolated the expressions for the test images.
- Achieved an accuracy of **76.13% using only PCA** and **77.86% using PCA cascaded with DCT**.

Noise Reduction using Delay and Sum Beamforming

(Jul '15 - Dec '15)

- Extracted a **desired speech signal** from interfering signals using broadband beamforming
- Extracted signal enhanced by passing it via **Savitzky-Golay filter** to smoothen out broadband interfering signals

Millimeter Wave 5G and MUSIC & ESPRIT DOA Estimation Algorithms

(Jan '15 - May '15)

- Analyzed **5G beamforming in adaptive linear arrays** and implementation challenges at the **PHY** and **MAC** layers
- Compared and deduced the performance of **MUSIC and ESPRIT algorithms** and deduced that either is used based on the tradeoff between computational power and accuracy requirements

Transmission of BPSK symbols wirelessly using Alamouti coding scheme

(Jan '15 - May '15)

- Implemented **2x2 and 4x4 Alamouti** encoder-decoder system software-defined radio
- Evaluated the block over a **Gaussian channel** model for various noise levels

Microcontroller and RF-based Anti-Noise Pollution system

(Jan '11 - Dec '11)

- Developed a system to supplement conventional horns using eco-friendly communication with **CC2500 RF** transceivers by programming **ATmega16** in **Embedded C** using CodeVisionAVR
- Won **first prize** in a project exhibition event in tech-fest, SPIT, Mumbai and **second position** in TCET, Mumbai

Line follower robot based on Arduino

(Aug '11)

- Programmed a robot on Arduino using **ATmega168** to successfully follow a black (white) line on a white (black) surface using **UART**

POSITIONS OF RESPONSIBILITY

NGO Volunteer, Tej Gyan Foundation

(2012 - Present)

- Managed a department at one center which consisted of around **100 people** for a year
- Conducted three workshops on **Power of Thoughts** for a total of around **200 youngsters**.
- Addressed a crowd of **500** on the onset of **River March** for the rejuvenation of rivers in Mumbai