

# Rohit Nimje

## Ph.D. Research Scholar

343A Technology Tower,  
Advanced Computational and Simulation Laboratory,  
Centre for Nanotechnology Research, VIT Vellore – 632014, India.

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## EXPERIENCE

### Research Scholar

**Vellore Institute of Technology, Vellore**

06/2020 - present | Vellore, TN, India

### Junior Research Fellow

**Indian Institute of Science Education and Research, Bhopal**

05/2019 - 03/2020 | Bhopal, MP, India

### Research Intern

**Pralhad P. Chhabria Research Centre, Pune**

05/2018 – 03/2019 | Pune, MH, India

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## EDUCATION

Ph.D. | 8 GPA

(Computational Nanoelectronics)

**Vellore Institute of Technology**

08/2020 (Ongoing) | Vellore, TN, India

Post Graduate | 6.81 GPA

M.Tech (Nanotechnology)

**Vellore Institute of Technology**

2015-2017 | Vellore, TN, India

Under Graduate | 7.05 GPA

Electronics & Telecommunication Engineering

**Sant Gadge Baba Amravati University**

2011-2014 | Amaravati, MH, India

Diploma | 74.67 %

Electronics & Telecommunication Engineering

**Priyadarshini Polytechnic**

2009-2011 | Nagpur, MH, India

Intermediate | 76 %

Minimum Competency Vocational Course - Electronics Technology

**Maharashtra State Board**

2007-2009 | Wani, MH, India

Matriculation | 44.92 %

Vocational Training Course

**Maharashtra State Board**

2007 | Wani, MH, India

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## TRAINING

Two Days Hands-on Workshop on Quantum Mechanics & Simulation' 22nd to 23rd July 2024.

'Summer Training Program on VLSI and Embedded Systems', 24th June to 12th July 2024

Python with Data Analytics and Data Science', at Technogeeks, Pune. Oct-May 2024.

INUP-i2i Hands-on Training on Nanofabrication and Characterization Techniques. 4<sup>th</sup>-14<sup>th</sup> September 2023 at CENSE, IISc Bangalore.

'Open-Source Software Development Methods.' September – 2021, Coursera (Online)

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## SUMMARY

I bring strong analytical, programming, and hands-on experience in nanofabrication and nanomaterial characterization. I aim to deepen my knowledge and skills in 2D materials-based optoelectronics devices for spin quantum qubits applications.

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## SKILLS

### MATLAB

Solving the electron wavefunction in the one-dimensional quantum well system using finite difference scheme numerical techniques.

### Python (Pandas, NumPy)

Machine learning project for parametric analysis for monolayer transition metal dichalcogenides to calculate exciton energy, binding energy and lifetime.

### C++ Libraries (DUNE, PETSc, SLEPc)

Build open-source software on a non-linear eigenvalue solver computationally using finite element analysis on the Red Hat Linux server.

### 3D TCAD device simulation

Parameter optimisation and device calibration of GAA triple-stacked Nanosheet FET

### Cadence EDA tools

Circuit simulation and layout design

### Micro and Nano Characterization

AFM, STM, FE-SEM, XRD, UV-Visible, & IR spectroscopy

### Nanofabrication Techniques

Ebeam / Laser lithography, Photo Lithography/UV thermal Exposure, spin coater, Deposition: Chemical, physical: DC sputtering, Dry & Wet Etch

### Electrical Measurement

Voltage-Capacitance, Voltage – Current characteristics for Al/SiO<sub>2</sub>/Si (MOS) capacitor on four-prob measurement

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## PUBLICATIONS

### Research Journal Article

1. **Rohit Ramesh Nimje**, Dr. Ashutosh Mahajan, ‘Analytical estimation of lifetime of quasi-bound states in II-V semiconductors quantum well.’ IOP Physica Scripta 98.9 (2023): 095014. (Impact Factor: 2.6)  
<https://doi.org/10.1088/1402-4896/acea03>

### Conference

1. **Rohit Nimje**, Shubham, Ashutosh Mahajan, and Rajan Kumar Pandey, ‘Mitigation of Self-Heating by Buried Oxide Engineering in sub-5-nm GAA Nanosheet FETs’, IEEE International Conference on Smart Electronics and Communication Systems 2024, IIIT Kottayam, Kerala, India. The paper was accepted for publication on 27<sup>th</sup> October 2024, and the conference date was 6<sup>th</sup> & 7<sup>th</sup> December 2024.  
<https://doi.org/10.1109/ISENSE63713.2024.10872322>

### Patent

1. ‘A Composition for Removal of Hazardous Substance from Aqueous Solution and the Method Thereof.’ (Indian Patent) Publication date: 22<sup>nd</sup> October 2024, Patent No.: 552907 Application Number: 202421008436.  
Contributors: **Rohit Nimje**, Jayant Rajaram Pawar, Trupti Saket Bhosale, Sachin Rondia, Rohan Sharadanand Phatak, Amar Mohite, Jyoti Manojkumar Shinde, and D. K. Agarwal.

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## REFERENCES

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Vellore Institute of Technology,  
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