

# Suyog Hawal, M.Tech.

Phone: +91-7776918989

Email: [suyog.hawal@gmail.com](mailto:suyog.hawal@gmail.com)

LinkedIn: [www.linkedin.com/in/suyog-hawal/](http://www.linkedin.com/in/suyog-hawal/)

Address: Rajsmrit, Siddhivinayak Colony, Shamraonagar, Sangli. 416416



## Educational profile

### Masters of Technology

Nanotechnology

2013, CGPA 8.59 (Distinction)

School of Electronics, VIT University, Vellore

Dissertation Title: Polarization independent terahertz planar metamaterials (IIT, Madras).

### Bachelor of Engineering

Electronics and Telecommunication

2010, 64.63 % (First class)

Shivaji University, Kolhapur.

## Professional Experience

### Research Project Trainee (SEDA, Space Application Center, ISRO Ahmedabad) 2016

- Design and optimization of concentrators for image sensing and energy harvesting applications using Lumerical FDTD
- Design and optimization of CCDs using Sentaurus TCAD tools.
- Training of above tools to a few scientists working at ISRO.

### Project Intern (Electrical Department, IIT Madras) 2013

- Worked and assisted for Projects on electromagnetic metamaterials and Plasmonics with M.S. and Ph.D. students. Designed and customized RCWA algorithm for Metamaterial Simulations in MATLAB environment.
- Used COMSOL Multiphysics for analysis of Split Ring Resonators for antenna applications.
- Teaching Assistance for course on FDTD simulations for nanophotonic devices.

### Teaching Assistant (School of Electronics, VIT Vellore) 2012

- Teaching Assistant, at 'Synopsis TCAD' simulation lab, VIT, Vellore
- One day Faculty Development Programme on "Photonics and Optical Engineering" organized by Photonics and Microwave Division, VIT, Vellore.

### Teaching Assistant (IIT Bombay) 2015-2020

- Teaching assistant for Raman Spectroscopy: WITEC 300 RAS instrument (operate the machine for Raman, AFM and fluorescence imaging and spectra for different samples), MEMS, IIT Bombay.
- Teaching Assistant for Inhouse Solar Simulator: Sciencetech SF150 at NCPRE, IIT Bombay.
- Teaching Assistant for material synthesis and characterization techniques lab for second year students.
- Teaching Assistant for various courses such as 'Electronic properties of materials', 'Laser Processing and Nanostructures', 'Data analysis and interpretations', 'PhD Seminar course (MM801)'

### Assistant Professor (Department of E.&Tc., PVPIT Budhgaon) June 2014- Dec 2015

Course Instructor for

- Antenna and Wave Propagation (for two semesters) + Antenna Characteristic Lab
- Analog Electronics Circuit design-II + Circuit design lab
- Operational Research

## Publications

- "Sub-wavelength lithography of complex 2D and 3D nanostructures without two-photon dyes", RP Chaudhary, A Jaiswal, G Ummethala, **SR Hawal**, S Saxena, S Shukla, Additive Manufacturing 16, 30-34, 2017 <https://doi.org/10.1016/j.addma.2017.05.003>
- "Localized polymerization using single photon photoinitiators in two-photon process for fabricating subwavelength structures", G Ummethala, A Jaiswal, RP Chaudhary, **S Hawal**, S Saxena, S Shukla, Polymer 117, 364-369, 2017 <https://doi.org/10.1016/j.polymer.2017.04.039>
- "One-step, subwavelength patterning of plasmonic gratings in metal-polymer composites", RP Chaudhary, G Ummethala, A Jaiswal, **S Hawal**, S Saxena, S Shukla, RSC Advances 6 (114), 113457-113462, 2016 <https://doi.org/10.1039/C6RA22604C>

## International Conferences

- Presented work on “Surface Plasmon Resonance Analyzer Operation & Applications”, at 1<sup>st</sup> SET international conference at VIT University, Vellore.
- Presented work on “FDTD based Simulation of Surface Plasmon nanolithography” at 2<sup>nd</sup> SET international conference at VIT University, Vellore.
- Presented Poster at 9th International conference on Nanophotonics (INCP 2016) on “Investigation of plasmonic contribution in extraordinary transmission through microhole” held at Taipei, **Taiwan**.
- Presented a Poster at META 2016, “Focusing of EM waves through square micro hole aperture” at Torremolinos, **Spain**.
- Presented work on “Visible-NIR Electromagnetic Wave Concentration Using Metallic Aperture for Photodetectors” at Space Technology cell (STC), organized by SAC, **ISRO, Ahmedabad**.

## Research Experience

- Synthesis and optimization for ZnO nanoparticles with variable sizes, shapes and growth techniques.
- Fabricating the nanoparticle photodetector.
- Characterization techniques of nanoparticles and 2D materials such as absorbance spectroscopy, photoluminescence spectroscopy, Scanning electron microscopy, Transmission electron microscopy, X-ray Diffraction spectroscopy etc.
- Characterization of photodevices such as solar cell, photodetectors using solar simulator, tunable lasers.
- Two photon lithography techniques for fabrication of polymeric and nanoparticle-polymer composite micro and nanostructures.
- Design and analysis of semiconductor devices using Synopsis TCAD tools such as Sentaurus Structure Editor, Sentaurus Device, Sentaurus Visuals, Sentaurus workbench.
- Design and Simulations of plasmonic and metamaterial devices using Lumerical FDTD software, Comsol Multiphysics, HFSS.
- RCWA simulations of 2D and 3D metamaterials using MATLAB.

## Software skills

- **Device Simulations:** Synopsis Sentaurus TCAD tools(Intermediate), COMSOL(Intermediate), HFSS (Naive), Lumerical (Intermediate),
- **Programming Languages:** C, C++ (Intermediate), Python (Naive), MATLAB(Intermediate)

## Achievements

- Achieved **FIRST POSITION** for oral paper presentation in third SET international conference held at VIT University.
- Awarded DST fellowship during M.Tech. in Nanotechnology coursework.
- Selected for the MHRD fellowship with Teaching Assistantship for PhD at IIT Bombay.

## Extracurricular Activities

- Actively participated in social issues due to natural calamities and urbanization for last few years for the betterment of citizens nearby my residence.
- Member of TejGyan Foundation from last ten years working for humanity and better tomorrow.
- One of the organizers in the 7<sup>th</sup> National symposium for Material research scholars (MR-15) at MEMS, IIT Bombay.
- Conducted many free classes for GATE preparation for undergraduate students.

## Hobbies

During my free time, I like to wonder and capture the moments of the nature. I am running a YouTube channel named 'Happy World of Suyog' ([www.youtube.com/@SimplySuyog](http://www.youtube.com/@SimplySuyog)). I like to read and write. I keep writing on my blog named “Vishw Taryanche”, ([www.suyoghawal.blogspot.com/](http://www.suyoghawal.blogspot.com/))