Nishant Mishra

nishant-mishra.com
n.mishra@student.utwente.nl

PUBLICATIONS

▪ ***Vancomycin functionalized WO_3 thin film-based impedance sensor for efficient capture and highly selective detection of Gram-positive bacteria***

Biosensors and Bioelectronics 136 (2019): 23-30

▪ ***MoS_2/TiO_2 Hybrid Nanostructure-Based Field-Effect Transistor for Highly Sensitive, Selective, and Rapid Detection of Gram-Positive Bacteria***

Advanced Materials Technologies (2019): 1900615

▪ ***Reconstituted Fe-Azurin based device for resistive memory switching***

Submitted to the International Workshop on the Physics of Semiconductor Devices, 2017

SKILLS

Cleanroom Fabrication

▪ **Basic Mask designing** using ProjeCAD, IntelliCAD, and CleWin for metalization and microchannel etching

▪ **Process flow Design** for semiconductor processing

▪ **Photolithography of Si and Glass substrates** including wafer cleaning, priming, spin-coating, development, wet etching and optical inspection

▪ **Physical Vapour Deposition** using Varian 3117 Thermal evaporator

Analysis and characterization

▪ **Semiconductor characterization** using Keithley 4200 and 4200A parameter analyzers. Experience with Keithley 2636B, Keithley 2400 SMUs

▪ **Impact Electrochemistry Measurements** including Chronoamperometry and Cyclic Voltammetry using Variable Gain Sub Femto Ampere Amplifier DDPCA-300

▪ **Electrochemical Impedance Spectroscopy** using BioLogic SP-150 Potentiostat

▪ **Data analysis and plotting** using MATLAB and Origin2019

▪ **Infrared Spectrum analysis** using Thermo Scientific Nicolet iN10MX infrared imaging microscope

▪ **UV-Vis Spectrum analysis** using Eppendorf Biospectrometer

Chemical lab

▪ **Basic Wet lab skills** familiarity with micropipettes, balances, centrifuges and basic wet lab equipment

▪ **PDMS Casting** for microfluidics

▪ **Silver Nanoparticle Synthesis** using chemical methods

Other

▪ **Finite Element Method Simulations** using COMSOL

▪ **Basic microcontroller based automation** using Arduino uno, ESP8266 and ESP32

EXPERIENCE

ECSens, Enschede (The Netherlands) - *Research Intern*

Jul 2020–Dec 2020

- Mask Design using CleWin5
- Amperometric measurements
- Data analysis of the electrical measurements

Student Union, University of Twente, Enschede (The Netherlands) - *Secretary Buddy September 2020 edition*

Jul 2020–Present

- Responsible for data management and correspondence with the Buddy program

Indian Institute of Technology Delhi, New Delhi (India) - *Research Intern*

Dec 2017–Sep 2019

- Characterized a Bioimpedance sensor for bacteria detection
- Fabricated and characterized a Polysaccharide-based Resistive memory device on a flexible substrate
- Characterized a BioFET sensor for bacteria detection

Indian Institute of Technology Delhi, New Delhi (India) - *Research Intern*

Jun 2017– Aug 2017

- Fabricated and characterized a Protein-based Resistive memory device on a flexible substrate

Electronics Club IEEE GTBIT, New Delhi (India) - *Member*

Aug 2015–Dec 2017

- Conducted an academic-industry workshop on Renewable Energy Resources
- Conducted a two-day Hardware Hackathon
- Taught a Special Interest Group on the Basics of C

EDUCATION

University of Twente, Enschede (The Netherlands) - *Master of Science in Electrical Engineering (EQF level 7)*

Sep 2019 – Present

Specialization: Lab on a chip Systems for Biomedical and Environmental Applications

Part of the Master Research Honours program

Thesis Title: *Ultrafast expanding microbubble valve array for use in a microreactor to measure sub millisecond reaction kinetics*

Guru Tegh Bahadur Institute of Technology, New Delhi (India) - *Bachelor of Technology in Electrical and Electronics Engineering (EQF level 6)*

Aug 2014–May 2018

Affiliated with **Guru Gobind Singh Indraprastha University** *First Division*

Delhi Public School, R. K. Puram, New Delhi (India) - *All India Senior School Certificate Examination (EQF level 4)*

2013-2014

Mathematics, Physics, Chemistry, Computer Science, English

PROFESSIONAL DEVELOPMENT

Dutch B1 (Certificate)

University of Twente, Enschede (Netherlands)

Nanotechnology for Health (Certificate)

University of Twente (FutureLearn), Enschede (Netherlands)

Device Characterization with the Keithley 4200-SCS (Audit)

Keithley Instruments, Inc (Nanohub), Cleveland (United States)

Micro & Nano fabrication (MEMS) (Certificate)

École Polytechnique Fédérale de Lausanne (EdX), Lausanne (Switzerland)

Primer on Semiconductor Fundamentals (Audit)

Purdue University (EdX), West Lafayette (United States)

Circuits and Electronics 1: Basic Circuit Analysis (Certificate)

Massachusetts Institute of Technology (EdX), Cambridge (United States)

The Arduino Platform & C Programming (Certificate)

University of California, Irvine (Coursera), Irvine (United States)

AWARDS AND HONOURS

- 2016- Second Place in Tesla Turbulence -IEEE GTBIT: Quiz on hardware, networking, electronics, boolean logic, and Computer assembly