Nishant Mishra

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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 Clewin, ProjeCAD, and IntelliCAD for metalization and 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

▪ **XeF_2 Vapour phase etching** using Xactix E1 Gas phase etcher

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 the Turkevich method

Other

- **Finite Element Method Simulations** using COMSOL
- **Basic microcontroller based automation** using Arduino uno

EXPERIENCE

Twente Pathway College, Enschede (The Netherlands) - *Module Coordinator Computer Science*

March 2022–Present

- Development of course materials
- LMS Setup
- Seminar instruction
- Remedial instruction
- Project and academic writing supervision
- Evaluation

Twente Pathway College, Enschede (The Netherlands) - *Physics Teacher*

Sept 2021–Present

- Seminar instruction
- Remedial instruction
- Project and academic writing supervision
- Evaluation
- Development of course materials

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–Sept 2021

- Data management and correspondence with the Buddy program

Indian Institute of Technology Delhi, New Delhi (India) - *Research Intern* Dec 2017–Sep 2019, Jun 2017– Aug 2017

- Characterized a BioFET and Bioimpedance sensors for bacteria detection
- Fabricated and characterized Protein and Polysaccharide-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) - *University Teaching Qualification (BKO)*

Dec 2021–present

- Designing a lesson and course (Certificate)
- Supervising Students (Certificate)

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

Sep 2019 – 30 Aug 2021

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

Master Research Honours program: *Additional 15 EC of general academic training for students in the top 10% of their cohort*

Thesis: *Design and fabrication of an ultrafast expanding microbubble valve array for use in a microreactor to measure sub millisecond reaction kinetics - 7.3*

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)

How to Teach in an International Classroom (Certificate)

University of Twente, Enschede (Netherlands)

Suicide prevention training (Certificate)

113 Zelfmoordpreventie, Amsterdam (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)