

PROFESSIONAL EXPERIENCE

SENIOR RESEARCH FELLOW @ INDIAN INSTITUTE OF TECHNOLOGY, NEW DELHI (1st JUNE, 2020 - PRESENT)

PROJECT: "RCOD (Reliable Covid-19 Diagnostics) – *"automated microfluidic Chip for Sars-Cov-2 diagnosis."* (In Collaboration with Reliance Jio)

- 1) Developed and optimized the biochemistry for performing solid-phase RNA extraction on a silica membrane and performed the stability studies for the formulated buffers.
- 2) Coded and Automated the RNA extraction and LAMP process with pre-stored reagents in the microfluidic cartridge using the pneumatic system.
- 3) Calibrated the optical module used for fluorescence detection and collaborated with the design team to optimize the design of the microfluidic cartridge for successful integration of RNA extraction & LAMP assay.
- 4) Evaluated ultrasonic welding for air-tight bonding of Injection molded cartridge components and devised a quality control system to test the cartridge for external leakage.

JUNIOR RESEARCH FELLOW @ INDIAN INSTITUTE OF TECHNOLOGY, NEW DELHI (22nd JULY, 2019 – 31st MAY, 2020)

PROJECT: "Microfluidic based detection of nCD64 for diagnosis of bacterial infections" (Under the flagship of Prof. Ravi K. Elangovan & Till Bachmann)

- 1) Developed biochemistry for Magnetic Nano-particle based immunocapture and enumeration of target Neutrophils.
- 2) Designed and fabricated PDMS Microfluidic device for magnetic capture of target Neutrophils.

RESEARCH ASSOCIATE @ WRIG NANOSYSTEMS PVT LTD, NEW DELHI (8th MAY, 2018 – 29th JUNE, 2019)

PROJECT: "Development of Complete blood count (CBC) point of care device"

- 1) Developed and optimized biochemical formulation for visual counting of erythrocytes, leukocyte 5-part differential and platelets.
- 2) Developed CBC channel based on surface and material properties of different thermoplastics, adhesives, hydrophobic and hydrophilic substrates.
- 3) Collaborated with design team for design and fabrication of hemoglobin detection device.
- 4) Evaluated and optimized reagent dispensing and drying process.

EDUCATION

College (2014-2018)

- B.Tech- Biotechnology from Amity University, Uttar Pradesh. CGPA- 8.46

High School

- Class XII (2011-2013), DAV PUBLIC SCHOOL, Amritsar | CGPA- 8.6
- Class X (2010-2011), DAV PUBLIC SCHOOL, Amritsar | CGPA- 9.4

TECHNICAL KNOW-HOW & CORE SKILLS

INTERDISCIPLINARY:

- Autodesk inventor for 3D modeling (Basics)
- Laser cutting polymeric materials.
- Python
- Matlab for Image processing (Basics)
- Six sigma green belt

CORE BIOTECHNOLOGY:

- Molecular Biology techniques (DNA and RNA extraction, PCR, LAMP etc.)
- Mammalian cell culture techniques (adherent & suspension)
- Hematology
- Microbiology techniques (Culture and biochemical testing)
- Spectroscopy and fluorescence microscopy.

INTERNSHIPS & WORKSHOPS

- AMR Dx Bootcamp at IIT-Delhi (Feb 4-5th, 2020) – awarded runner up by Satya Prakash Dash & Till Bachmann
- End semester project entitled as: "Development of Blood Parameter testing Device" at Wrig Nanosystems Pvt Ltd (February 12th, 2018- April 7th, 2018)
- Summer Research Internship at IISER, Bhopal on "Investigation of mechanism for secretion of Wnt protein in Drosophila Melanogaster" (May 18th 2017- July 18th 2017)
- workshop on "techniques in microbiology" held by nVision IIT Hyderabad & Techinvest (February 16th- 18th, 2017)

HOBBIES

- Story-telling & Poetry
- Solo backpacking & coddwompling
- Stand-up comedy

LANGUAGES KNOWN

- English (Written & Verbal)
- Hindi (Written & Verbal)
- Punjabi (Written & Verbal)
- French (Written)