Yogen Borkar

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Last updated: 19 Nov 2021

Education

- **Birla Institute of Technology and Science, Pilani** — *Goa, India*
  Bachelor of Engineering in Chemical Engineering — *August 2018 to December 2021 (expected)*
  Cumulative GPA: 8.57
- **PTVA's Sathaye College** — *Mumbai, India*
  Maharashtra Higher Secondary School Certificate (Class 12) — *Graduated May 2018*
  Percentage: 87.08%

Research Experience

Research Intern, BITS Pilani, Goa — *Aug 2021 - Present*
Thesis under Prof. Sutapa Roy Ramanan
- Synthesized an electrochemical sensor for detecting glucose and insulin using graphene-nickel nanocomposites
- Optimizing and standardizing the sensor response

Research Intern, Virtual Sense Global Technologies Ltd., Pune, Maharashtra — *May 2021- July 2021*
Under Dr. Girish Arbale
- Fabricated optimal nanomaterials for breath-based detection of diabetes
- Ideated and synthesized a new nanomaterial and optimized the composition of an existing sensor
- Increased sensitivity and unique response towards specific biomarker

Student Researcher, Team iGEM BITS Goa — *Oct 2019– Nov 2020* *(Link to project)*
Under Dr. Sumit Biswas
- Designed genetically engineered bacterial system to tackle post-harvest losses in sugarcane
- Simulated the toxin-antitoxin system, fructose biosensor and protein-DNA interactions
- Designed a process to scale-up production and conducted economic feasibility analysis
- Awarded the **gold medal** and **two special prizes** at the International Genetically Engineered Machines competition 2020

Research Intern, Dhio Research and Engineering Pvt. Ltd. — *May 2020 – June 2020*
- Researched on multiscale modeling for materials and worked on 'Dissipative Particle Dynamics Modeling for A Carbon Nanocomposite in J-OCTA'
- Evaluated the elastic properties of a polystyrene-based nanocomposite

Projects

Life Cycle Sustainability Assessment — *Jan 2021- May 2021*
Under Prof. Sampatrao Manjare
Studied the limitations of applying Life cycle Assessment methodology to nanotechnology

Study on the effect of coagulation bath on the properties of the nanofibers synthesized via electrospinning — *Aug 2020- Dec 2020*
Under Prof. Sutapa Roy Ramanan
- Studied about effects of various parameters involved in wet electrospinning on fabrication of different morphologies of polymeric nanofibers
- Studied about applications of helically coiled nanofibers in fuel cells

Production of Insulin from Recombinant E. Coli — *Aug 2021- Dec 2021*
As a part of Biochemical Engineering course
- Designed a cyclic fed-batch bioreactor for production of rec. insulin from *E. Coli*

Production Process for Sulphuric Acid — *Aug 2021- Dec 2021*
As a part of Process Design Principles course
- Modeled and simulated the Double Contact Double Absorption process for manufacture of sulphuric acid in ASPEN

Awards

Gold Medal, Special Prize in Best Composite Part and Best Software Tool, 'Sugargain', International Genetically Engineered Machines competition 2020

Biochemical Modeling Head *November 2020*

- Designed genetically engineered bacterial system to tackle post-harvest losses in sugarcane

Second Prize, 'Lab on a Brick', IDEATHON, BITS Goa

Project Lead *October 2019*

- Designed a customizable point-of-care diagnostic device using LEGO bricks based on *microfluidics* and *biosensing* principles

Technical Skills

Programming Languages:	MATLAB, Python, C, R (tidyverse, plotly, highcharter)
Softwares:	COMSOL, ASPEN Plus, J-OCTA, AutoCAD

Relevant Courses

Chemical Engineering:	Introduction to Nanoscience, Material Science and Engineering, Biochemical Engineering, Kinetics and Reactor Design, Process Design Control, Transport Phenomenon, Numerical Methods, Thermodynamics, Engineering Chemistry, Mass Transfer, Separation Processes
Biology/ Chemistry:	Molecular Biology of the Cell, Bio and Chemical Sensors, Supramolecular Chemistry, Polymer Chemistry
Mathematics:	Mathematics I (Multivariable and Vector Calculus), Mathematics II (Linear Algebra and Complex Analysis), Mathematics III (Differential Equations), Probability and Statistics

Other Experience

- **Teaching Assistant for Heat Transfer and Separation Processes:** Responsibilities included conducting tutorials, setting assignments and class tests, correcting answer sheets
- **Instructor for Applications of Engineering Principles to Life Sciences:** Responsibilities included teaching a module on chemical kinetics and mathematical modeling in biology

Volunteer Experience

- Volunteered to teach and help in solving doubts of students in BIO F111 General Biology for the on-campus Academic Assistance Program, an out of classroom, peer-based learning setup
- Taught the 9th and 10th class students of A. A. Padhye School, Devrukh, Ratnagiri, under the able guidance of Mrs. Jennifer Gadgil, giving me valuable knowledge and insight into the efforts that are put into teaching

Extra-curricular Activities

- Coordinator and Convener at Srutilaya, the BITS Goa Indian Classical Music club; responsibilities involved organizing events with internationally acclaimed artists to improve awareness of Indian Classical Music on campus, maintaining faculty relations and event finances and logistics
- Harmonium Player; performed and accompanied on harmonium in multiple cultural events in school and college