

DARSHAN SHAH

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PhD candidate under the PMRF scheme, using computational systems biology and multiscale modelling to unravel complex cellular processes, having strong communication skills from teaching and working independently as well as in a team, currently seeking a dynamic and inspiring role to successfully transition to the industry.

EDUCATION

Institute	Program	Year	CGPA/%
Indian Institute of Technology Bombay	Ph.D. in Chemical Engineering	2024	9.46 /10
Indian Institute of Technology Bombay	B.Tech. in Chemical Engineering with Honors with Minor Degree in Management	2015	9.44 /10
Swami Ramkrishna Paramhans College	Intermediate – H.S.C. Board	2011	89.0 %
P. G. Garodia School	Matriculation – I.C.S.E. Board	2009	90.7 %

KEY ACHIEVEMENTS AND AWARDS

- Recipient of the **Prime Minister's Research Fellowship (PMRF)**, India's most prestigious Ph.D. Fellowship
- **PMRF Lecturer and Teaching Associate** at BMS College of Engineering and IIT Bombay
- Secured **Department Rank 2** (out of 100) for the Chemical Engineering undergraduate batch of 2015
- Awarded **1st Prize in Chemophilia** (2015), the pan-India Chemical Engineering Quiz for students
- Obtained an **All India Rank of 601** (top 0.13% out of 5 lakh entrants) in the IIT Joint Entrance Exam, 2011

RESEARCH AND INDUSTRIAL EXPERIENCE

INDIAN INSTITUTE OF TECHNOLOGY BOMBAY | Guides: Profs. K.V. Venkatesh, A. Majumder (July '18 – Present)
Ph.D. Thesis: Modelling collective cell migration using a Systems Biology framework

- Investigating wound healing capabilities in epithelial cells via a **multiscale computational model**
- Quantified cell and nuclear membrane dynamics using fast, automated, unbiased **image processing algorithms in MATLAB** that returned robust test statistics like RMSE and shape factor

METFLUX RESEARCH PVT. LTD., MUMBAI (December '16 – July '18)
Co-founded the company to develop and utilize in-silico human metabolic models to solve healthcare problems

- Formulated a 'Risk Score' metric for early-stage low-cost **cardiovascular disease risk assessment**
- Developed a **child wellness model in Python** and created a web platform to be deployed in schools

DR. REDDY'S LABORATORIES LTD., HYDERABAD (July '15 – November '16)
Worked as a Process Engineer in the API-R&D unit of one of the largest pharmaceutical companies of India

- Programmed an **integrated GUI in Visual Basic** to achieve desired particle size distribution, form or yield during crystallization via real-time dynamic feedback control using Process Analytical Technology (PAT)
- Introduced **MATLAB and Chemometric techniques** for advanced pre-processing of spectral data to build quantitative multivariate models and to identify reaction kinetics

UNIVERSITY OF MICHIGAN | Guide: Prof. H. Scott Fogler (May '14 – July '14)
Mesh and Time Step optimization of the Michigan Wax Predictor using Fortran

- Performed **sensitivity analysis and parameter optimization** using the Greedy Algorithm to identify bottlenecks in the code, achieving a **10X increase in accuracy** and **3X decrease in computation time**

SOFTWARE SKILLS

- **Programming Languages:** MATLAB, Python, C++, XML, Excel, Mathematica, Fortran, Visual Basic
- **Computational Techniques:** Numerical Methods, Multi-omics Analysis, Data Fitting and Modelling, Optimization, Regression, Hypothesis Testing, Network Analysis, Differential Equations, Image Processing, Machine Learning, Monte Carlo Simulations