

Education

- Aug 2016–
Ongoing **Ph.D.**, IITB-MONASH RESEARCH ACADEMY, (Thesis submitted),
Thesis Title: **Influence of particle smoothness and substrate mechanics on the clustering of self-propelled rods**, *Dr. Prabhakar Ranganathan, Prof. Raghunath Chelakkot, Prof. Mandar M. Inamdar*.
- Development of new computational model to study the dynamics of bacterial colonies.
 - Development of ACTIVE module (in-house package) to implement activity in LAMMPS (SANDIA National Laboratory).
- 2014–2016 **Master of Technology**, INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI,
Thesis Title: **Stokesian dynamics Simulation of Shear thinning and Shear thickening Suspensions in bounded shear flow**, *Prof. Anugrah Singh*.
- Implementation of shear thickening & shear thinning behaviours for stokes flow.
 - Investigated the mechanism behind the shear thickening behaviour and its dependence on inter-particle interactions.
- 2010–2014 **Bachelor of Technology**, ALIGARH MUSLIM UNIVERSITY,
Chemical Engineering.
GPA – 7.98/10

Experience

- Jan 2017–Dec
2017 **Educational Content Creator**, VEDANTU, BANGALORE, INDIA (*Part-time*).
 - Delivered high quality teaching content for **Mathematics** at senior secondary and secondary levels to the client.
- July 2017 –
Dec 2017 **Publication Database Manager**, IITB-MONASH RESEARCH ACADEMY, MUMBAI, INDIA (*Part-time*).
 - Developed an improved data management system for publication data collection and analysis using MS-Excel.
- July 2015 –
Dec 2020 **Teaching Assistant**, MONASH UNIVERSITY, AUSTRALIA, IIT BOMBAY, & IIT GUWAHATI (*Part-time*).
 - Worked as a part of the teaching team in organising and conducting weekly tutorial and workshop sessions for the engineering unit Fluid Mechanics-II (MEC3451) consisting of about 150 undergraduate students.
 - Prepared and evaluated the examination and quiz papers on online platform **Moodle**.
 - Conducting weekly laboratory sessions, Marking lab reports, and providing feedback to students.
- June, 2013 **Industrial Summer Trainee**, CHEMICAL DIVISION, GRASIM INDUSTRIES LIMITED, NAGDA, INDIA.

Skills

- Languages Python, C/C++, MATLAB, FORTRAN
- Frameworks Pandas, Numpy, Scikit-learn, Matplotlib, Seaborn
- Utilities Anaconda, Git, Vim, Jupyter Notebook, XMGrace, GNUPlot, \LaTeX , Unix
- Software packages LAMMPS, HOOMD-blue, Packmol, Moltemplate, Ovito, OpenFOAM, VMD
- WebD HTML, Markdown

Achievements

- 2020 **Society of Rheology Student Travel Grant**, *Society of Rheology*.
- 2016-2021 **Institute Fellowship**, *IITB-Monash Research Academy*.
- 2014-2016 **GATE Fellowship**, *Ministry of Human Resource Development, Govt. of India*.
- 2013 **II Prize, Case Study, AMU Future Energy Leaders Conclave**, *AMU & SABIC*.

RESEARCH PUBLICATIONS

Imaran *et al.*, "Cluster and conquer: the morphodynamics of invasion of a compliant substrate by active rods", *Soft Matter*, 17:7459–7465, 2021, 2021, doi:0.1039/d1sm00860a

Imaran *et al.*, "Surface roughness mediated phases in a dense system of self-propelled rods", [In Preparation]

Imaran *et al.*, "Stigmergic furrowing by an active suspension in a soft substrate", *22nd Australasian Fluid Mechanics Conference (AFMC)*, 2020, doi: 10.14264/cac8c23, Dec., 2020, Brisbane, Australia.

Imaran *et al.*, "Substrate stiffness shapes stigmergy in active furrowers", *International Congress on Rheology*, Dec., 2020.

Imaran *et al.*, "Stigmergy exploits mechanics I!", *COMPFLU*, Dec., 2019, Bhopal, India.

M. Imaran & A. Singh, "Stokesian dynamics simulation of shear rate dependent rheology of dense suspensions in bounded flow", *International Congress on Rheology*, July, 2016, Kyoto.

M. Imaran & A. Singh, "Rheology of shear thickening suspensions in bounded shear flow", *COMPFLU*, 2016, IIIT Hyderabad, India.

M. Imaran & A. Singh, "Stokesian Dynamics Simulation of shear thinning suspension", *CHEMCON*, 2015, IIT Guwahati, India.

M. Imaran & M. Aleem, "Corruption and its tackling measures", *Global Professional Peace Summit*, 2013, IIT Delhi, India.

Extra Curriculars

2015 **CHEMCON- 68th Annual Session of Indian Institute of Chemical Engineers**, *Organiser- Student team.*

2013 **United Nations RIO+20 India Certification Program, AMU**, *Campus Ambassador.*

2013 **Yuva Meet**, *Selected for participation in 2-day conference on Sustainable development .*

2012-2014 **Literary and cultural fest, AMU**, *Event organiser.*

2011-2013 **University film festival, AMU**, *Organising member.*

2016-onwards **Team member:**, *Voluntary initiatives to promote youth education, career guidance, crowd-sourcing, and research based think tank on issues related to under-privileged groups .*

Interests

- **Hiking & Trekking:** Several trails & hikes in Westerns ghat, India, and Victoria, Australia - **Reading:** Current socio-political issues