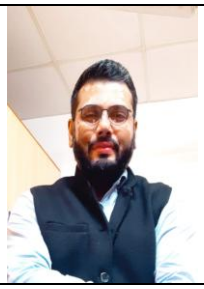
NAME	**ABHISHEK SENGUPTA**	
DESIGNATION	Assistant Professor - III	
EMAIL ID	asengupta@amity.edu; sbdaresearch@gmail.com	
CONTACT NUMBER	+91-8800662904	
RESEARCH INTERESTS	I am currently conducting extensive studies in the field of biological networks, constraint-based and predictive modelling, and multi-omics data integration. My research involves the application of Systems Biology and Machine Learning to analyse and model the complex biological systems. I am focused on generating hypotheses based on multi-dimensional data analysis to gain a deeper understanding of physiological systems and discover new insights into disease mechanisms, putative prognosis and therapeutics. Amity University, Noida is home to our dedicated research group that focusses on using computational methods to explore various aspects of biology and medicine. Our team is particularly interested in studying metabolic and gene regulatory pathways and networks, understanding disease development, unravelling molecular mechanisms, and identifying potential drug targets and potential markers. Our ultimate aim is to create accurate computational models and user-friendly web-tools/databases/pipelines/algorithms that can help advance scientific knowledge in these areas. **Key Research Areas:** • Reproductive Health and Fertility • Mental Health and Wellbeing • Infectious Diseases and Microbiomics • Vitiligo Pathogenesis and Therapeutics **Core Research Focus:** • AI/ML in Predictive Healthcare • Genome Scale Metabolic Modeling • Biological Network Inference and Analysis • Biomarker and Target Identification • Multi-Omics Data Integration and Analytics • Tool, App, Database and Pipeline Development	

EDUCATIONAL QUALIFICATIONS:

Name of College / University	Degree	Year
AUUP, Noida	B. Sc (Hons) Biotechnology	2006
Nottingham Trent University, Nottingham, United Kingdom	M.Sc Bioinformatics	2007
Amity University, Uttar Pradesh, Noida	Ph. D Biotechnology (Bioinformatics)	2015

Title of Ph.D. thesis: "Modeling and Analysis of Human Energy Metabolic Network"

EXPERIENCE (in chronological order): Total 20 Years Research & Teaching

Designation	Type of post held (teaching/ research)	Name of the Institute	Year (From – To)
Assistant Professor	Teaching and Research	Systems Biology and Data Analytics Research Lab, Center for Computational Biology and Bioinformatics, Amity Institute of Biotechnology, Amity University, Noida. (Lab website: www.sbdaresearch.in)	2009 – till Date
PhD Scholar	Research	Systems Biology, Center for Computational Biology and Bioinformatics, Amity Institute of Biotechnology, Amity University, Noida	2011-2015
Lecturer	Teaching	Krupanidhi Degree College, Bangalore, Affiliated to Bangalore University, Karnataka	2008-2009

No. of Ph.D. students supervised	03 (Ongoing) 02 (Thesis submitted)
No. of PG students supervised:	95
No. of UG students supervised:	270
PUBLICATIONS – 47	1. **Abhishek Sengupta**, Sudeepti Kulshrestha, Ritu Redhu, Ankur Chaurasia, Payal Gupta, Muskan Syed, Pooja Vijayaraghavan, Somesh Gupta, Priyanka Narad, "**Systems Biology Approach Reveals Succinyl-CoA and Hydroxy citrate as potential therapeutics for the treatment of Vulvovaginal Candidiasis", Next Research, 2025, 100190, ISSN 3050-4759,** https://doi.org/10.1016/j.nexres.2025.100190. 2. Colaco, S., Narad, P., Singh, Kumar A., Gupta, P., Choudhury, A., **Sengupta, A.**, Modi, D. "**FertilitY Predictor—a machine learning-**

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9. Majumdar, G., **Sengupta, A**., Narad, P. *et al.* **"Deep Inception-ResNet: A Novel Approach for Personalized Prediction of Cumulative Pregnancy Outcomes In vitro Fertilization Treatment (IVF)".** *J Obstet Gynecol India* **73**, 343–350 (2023). https://doi.org/10.1007/s13224-023-01773-9.

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12. T. Gupta, S. Vashistha, S. Kulshrestha, P. Narad and **A. Sengupta**, **"Mucormycosis Metabolic Network Modeling: A Constraint-Based Approach,"** *2023 6th International Conference on Information Systems and Computer Networks (ISCON)*, Mathura, India, 2023, pp. 1-5, https://doi.org/10.1109/ISCON57294.2023.10111947.

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14. Kulshreshtha S, Narad P, Singh B, Modi D, **Sengupta A**. "**Identification of Distinct Vaginal Microbiota Signatures Contributing Toward Preterm Birth Using an Integrative**

Computational Approach". Microbiol. Biotechnol. Lett 2023;51:109-123. https://doi.org/10.48022/mbl.2210.10008

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Book Chapters

1. Sharma, P., Gupta, T., Kulshrestha, S., Gupta, P., Choudhury, A., Modi, D., **Sengupta, A.** (2024). **Time Series Analysis in Reproductive Health Data. In: Sengupta, A., Narad, P., Majumdar, G., Modi, D. (eds) Data-Driven Reproductive Health. Springer, Singapore**. https://doi.org/10.1007/978-981-97-7451-7_9

2. Kulshrestha, S., Gupta, P., Chikara, A., Kapoor, K., Syed, M., Narad, P., **Sengupta, A.** (2024). **Reproductive Health Data Mining: Case Studies. In: Sengupta, A., Narad, P., Majumdar, G., Modi, D. (eds) Data-Driven Reproductive Health. Springer, Singapore**. https://doi.org/10.1007/978-981-97-7451-7_11

3. Kulshrestha, S., Gupta, P., Nikhil, H., Arunima, N.P., Nair, Gopika S., Lalitha, A., Gurha, S., Singh, Pratap V., Bedse, M., **Sengupta, A.** (2024). **Genomics and Transcriptomics in Reproductive Health. In: Sengupta, A., Narad, P., Gupta, D., & Modi, D. (Eds.). (2024). Systems Biology and Machine Learning Methods in Reproductive Health (1st ed.). Chapman and Hall/CRC**. https://doi.org/10.1201/9781003487548

4. Anandaram, H., Mittal, K., Gupta, P., Kulshrestha, S., Choudhury, A., Syed, M., Narad, P., Modi, D., Gupta, D., **Sengupta, A**. (2024). **Proteomics and Metabolomics in Reproductive Health. In: Sengupta, A., Narad, P., Gupta, D., & Modi, D. (Eds.). (2024). Systems Biology and Machine Learning Methods in Reproductive**

	Health (1st ed.). Chapman and Hall/CRC. https://doi.org/10.1201/9781003487548 5. Narad, P., Gupta, R., Kulshrestha, S., **Sengupta, A.** (2024). **"Systems Biology in Understanding the Human Gut Microbiome and Related Diseases Highlighting Metabolic Modeling and Analysis. In: Joshi, S., Ray, R.R., Nag, M., Lahiri, D. (eds) Systems Biology Approaches: Prevention, Diagnosis, and Understanding Mechanisms of Complex Diseases"**. Springer, Singapore. **https://doi.org/10.1007/978-981-99-9462-5_17** 6. Narad, P., Gupta, R., Gupta, I., **Sengupta, A**. (2023). **"Protein Engineering Methods to Design Protein Therapeutics. In: Singh, D.B., Tripathi, T. (eds) Protein-based Therapeutics"**. Springer, Singapore. **https://doi.org/10.1007/978-981-19-8249-1_3** **7.** Narad, Priyanka, **Sengupta Abhishek**, Gupta, Payal, Priyadarshini, Payal, Kulshrestha, Sudeepti and Chaurasia, Ankur. **"Integrating artificial intelligence techniques for analysis of next-generation sequencing data"**. *Artificial Intelligence and Computational Dynamics for Biomedical Research*, edited by Ankur Saxena and Nicolas Brault, Berlin, Boston: De Gruyter, 2022, pp. 67-96. **https://doi.org/10.1515/9783110762044-005** 8. Priyanka Narad, Romasha Gupta, **Abhishek Sengupta**, **"Chapter 9 - Plant metabolomics: a new era in the advancement of agricultural research, Editor(s): Pradeep Sharma, Dinesh Yadav, Rajarshi Kumar Gaur, Bioinformatics in Agriculture"**, Academic Press, 2022, Pages 139-160, ISBN 9780323897785, **https://doi.org/10.1016/B978-0-323-89778-5.00008-8.** **9.** Priyanka Narad, G. Naresh, **Abhishek Sengupta, "Chapter 21 - Metabolomics and flux balance analysis, Editor(s): Dev Bukhsh Singh, Rajesh Kumar Pathak, Bioinformatics, Academic Press",** 2022, Pages 337-365, ISBN 9780323897754, **https://doi.org/10.1016/B978-0-323-89775-4.00008-0**. 10. Chaurasia, A., Vats, S., **Sengupta, A**., Bansal, A., Narad, P. (2021). **"Practical Applications of Artificial Intelligence for Disease Prognosis and Management. In: Saxena, A., Chandra, S. (eds) Artificial Intelligence and Machine Learning in Healthcare".**

	Springer, Singapore. **https://doi.org/10.1007/978-981-16-0811-7.** 11. **Abhishek Sengupta**, G. Naresh, Astha Mishra, Diksha Parashar, Priyanka Narad. **"Chapter Five - Proteome analysis using machine learning approaches and its applications to diseases, Editor(s): Rossen Donev, Tatyana Karabencheva-Christova, Advances in Protein Chemistry and Structural Biology, Academic Press"**, Volume 127, 2021, Pages 161-216, ISSN 1876-1623, ISBN 9780323853194, **https://doi.org/10.1016/bs.apcsb.2021.02.003**
PATENTS ***3 Copyrights granted and 1 technology transfer***	**1. Copyright Registered: ARTPRE:** An Online Tool to Predict the Success Rates of Assisted Reproductive Procedures in Indian Subcontinent (Registration number: L-109979/2021) **2. Copyright Registered: FertilitY Predictor:** Web Application for Prediction of the Likelihood of a Successful Sperm Retrieval, Fertilization, Clinical Pregnancy and Live Birth in Males With "Y" Chromosome Microdeletions (Registration number: L-116225/2022) **This product has been commercially licensed APS Life Tech, Pune in October 2023** **3. Copyright Registered: VAGMICROVEDI:** An All-in-one wellness solution for understanding and predicting the likelihood of vaginal infections, STI's, and pregnancy-related complications based on vaginal microbiome composition (Registration number: L-151956/2024)
RESEARCH PROJECTS Ongoing: ***(total no. 01)***	**Ongoing: DBT, Govt. of India,** A hybrid Bayesian approach to address socio-economic challenges in Assisted Reproductive Techniques across Indian sub population through a web-based implementation **amounting to (ongoing) 24.67 lakhs. 2020-2023: Principal Investigator**
AWARDS & HONOURS/ DISTINCTIONS	• DST SERB Young Scientist Travel Award • Selected for Advanced Course on In-silico Systems Biology at WellCome Trust Genome Campus, EMBL-EBI, UK. • Resource Person/Instructor, DBT Sponsored Short Term Training Course on "Application of Metagenomics Tools for Bioremediation Towards Environmental Restoration" on November 14th - 29th, 2017.

	• Resource Person, DST INSPIRE Internship Program for school students. • Reviewer: PLoS One, Heliyon, Frontiers in Pharmacology, Nature Scientific Reports, Nature Molecular Psychiatry • Reviewer: Computers in Biology and Medicine (Elsevier) • Reviewer: BMC Medical Genomics • Reviewer: Journal of Biomolecular Structure & Dynamics (Taylor & Francis) • **Appointed as a board member (AI/Bioinformatics) of the SIG-Applied Genetics of the prestigious Indian Fertility Society – IFS**
MEMBERSHIP with Professional/ Academic bodies	• Indian Fertility Society • Member of Society of Mathematical Biology • Member of European Systems Biology Community • Member of International Society of Computational Biology • Member of Nordic Metabolomics Society • Member of Swiss Metabolomics Society • Member of the Asia Pacific Bioinformatics Network (APBioNET)