

DR. DIBYENDU B. SEAL

Computational Biology Researcher, Data Scientist, Educator

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PROFILE SUMMARY

A highly-motivated individual with **12+ years of experience** in both industry and academia. With a **Ph.D. in Computer Science and Engineering** focussed on computational biology, I specialize in **multi-omics data integration**, **single-cell RNA-seq data analysis**, and **feature selection/extraction** from large-scale omics datasets. As a postdoctoral research scientist in **DKFZ, Heidelberg, Germany**, I developed and adapted AI/ML models to uncover key molecular signatures from multi-omics datasets, emphasizing **proteomics** and **phosphoproteomics** data, as well as to identify genome-specific targets for personalized medicine in **pediatric leukemia and osteosarcoma**, to improve the quality of life for these patients.

My research also involves developing **ML/DL models** for all sorts of **NGS data analysis**, **gene-gene interaction network analysis**, and **data visualization** to advance molecular insights in health and disease. I have experience with deep learning for computer vision, building data science solutions using **Dataiku DSS**, and working with **Large Language Models (LLMs)**. In addition to my research endeavors, I have a strong academic background, having taught several courses and supervised student dissertations at **both UG and PG levels**. My scholarly work includes several publications in peer-reviewed journals, conferences, and book chapters, contributing to advancements in computational biology and data science.

PROFESSIONAL APPOINTMENTS

Assistant Professor (W.B.E.S., Gr. - 'A')

Department of Computer Science, A.P.C. Roy Govt. College

Mar 2025 – Present Siliguri, West Bengal, India

Postdoctoral Research Scientist

Proteomics and Cancer Cell Signaling, German Cancer Research Center (DKFZ) & KITZ – Hopp Children's Tumor Center

Nov 2023 – Feb 2025 Heidelberg, Germany

Associate Data Scientist

Tatras Data Services Pvt. Ltd.

Feb 2023 – Oct 2023 Mohali, India (Worked remotely)

Assistant Professor

A. K. Choudhury School of I.T., University of Calcutta

Jul 2017 – Jan 2023 Kolkata, India

Assistant Professor

Department of CSE, Future Institute of Technology

Feb 2017 – Jul 2017 Kolkata, India

Assistant Professor

Department of CSE, UEM

Jul 2015 – Feb 2017 Kolkata, India

Systems Engineer

TATA Consultancy Services Limited

Jul 2011 – Aug 2013 Kolkata, India

ACHIEVEMENTS

- **2017** Awarded the prestigious **TCS Research Scholarship** (TCS Research Scholar Program Cycle'13)
- **2015** Ranked **4th** (**1st class with distinction**) in M.Tech (CSE), Department of Computer Science and Engineering, University of Calcutta
- **June, 2015** Qualified **CBSE-UGC National Eligibility Test (NET-LS)** (Computer Science and Applications)
- **2014** Qualified **GATE (CS)**
- **December, 2013** Qualified **State Eligibility Test (SET)** (Computer Science and Applications)
- **2011** Ranked **4th** (**1st class with distinction**) in MCA, A. K. Choudhury School of Information Technology, University of Calcutta
- **2011** **1st position** in IBM DB2 certification course held at A. K. Choudhury School of Information Technology, University of Calcutta
- **2008** Awarded the **TOPPER medal** by Vivekananda College for scoring the highest marks (**1st class**) from this college, in B. Sc. (Computer Science Honours) 2005-2008 batch, under University of Calcutta.

- **2022- Present** Reviewer for Elsevier journals **Artificial Intelligence in Medicine**, **Computers in Biology and Medicine**, and **Computational and Structural Biotechnology**.
- **2025** Acted as a **reviewer** in the International Conference on **Web 6.0 and Industry 6.0 (Win 6.0 2025)** held during Feb 21-22, 2025 in Kolkata, India.
- **2024** Acted as a **reviewer** in the International Conference on **Artificial Intelligence and Sustainable Computing (AISC) 2024** held during July 11-13, 2024 in India.

PART-TIME APPOINTMENTS

Part-time Contractual Lecturer

Department of Computer Science, Gurudas College

Aug 2014 – Jul 2015

Kolkata, India

Guest Lecturer

Department of Computer Science, Vidyasagar College (Day)

Sep - Mar (2013-14, 2014-15)

Kolkata, India

EDUCATION

Ph.D. (Tech.) (CSE)

University of Calcutta

2017 – 2023

Kolkata, India

- **Thesis title:** On Multi-Omics Data Integration and Single-Cell Data Analysis: Machine Learning Based Methodology.
- **Supervisor:** Prof. (Dr.) Rajat K. De, Machine Intelligence Unit, Indian Statistical Institute, Kolkata, India.

M.Tech (CSE)

University of Calcutta

Jul 2013 – Jun 2015

Kolkata, India

M.C.A.

University of Calcutta

Jul 2008 – Jun 2011

Kolkata, India

B.Sc. (Computer Science Hons.)

Vivekananda College, University of Calcutta

Jul 2005 – Jun 2008

Kolkata, India

ISC (Stream: Science)

Orient Day School

2005

Kolkata, India

ICSE (Stream: Science)

Vivekananda Mission School

2003

Kolkata, India

TECHNICAL PROFICIENCY

- **Tools & Programming languages** Python (Spyder, Jupyter notebook, Google Colab), R (Rstudio), Dataiku DSS, SQL, C, C++, Core Java, Visual Basic, Unix Shell (Bash), MongoDB, Neo4j
- **Version control:** Git/GitHub
<https://github.com/deeplearner87>
- **Libraries** Numpy, Pandas, Scikit-learn, Keras, Tensorflow, OpenCV, Transformers, Openai
- **Certifications**
 - ML Practitioner, Core Designer, Advanced Designer by Dataiku
 - Lean Six Sigma Green Belt by Tata Consultancy Services Limited
 - IBM Database Associate (DB2 9 Fundamentals) by IBM

- **2024** Acted as a **reviewer** in the 3rd International Conference on **Intelligent and Cloud Computing (IColCC)**, held on May 2-3, 2025 and organized by the Center for Cybersecurity, Department of Computer Science and Engineering, Faculty of Engineering and Technology (ITER), Siksha 'O' Anusandhan (Deemed to be) University, Bhubaneswar, Odisha
- **2024** Acted as a **reviewer** in the International Conference on **Smart Systems and Wireless Communication (SSWC 2024)**, 29 - 30 Nov 2024, Organised by Department of Information Technology, JIS College of Engineering
- **2023** Delivered a talk as an **invited speaker** in the workshop on **Big Data Analytics** organized by UGC-HRDC and Department of AKCSIT, University of Calcutta during 21st-27th March, 2023.
- **2022** Acted as a **Program Committee Member and Reviewer** in the 3rd International Conference on **Data Science and Applications (ICDSA)** held during March 26-27, 2022 in India.
- **2020** Imparted **C++ training** as a **facilitator** to In-Semi Technology Services Pvt. Ltd. (Bengaluru) employees during 9-17 September, 2020.
- **2019** Acted as a **reviewer** in the **IEEE 5th International conference on Opto-Electronics and Applied Optics OPTRONIX 2019**.
- **2019** Acted as a **facilitator** in the 2-day workshop on **"Python programming and Introduction to Machine Learning"** organized by Computer Applications department, Future Institute of Engineering and Management and Society for Data Science (S4DS) held on 8th and 10th May, 2019.
- **2019** Represented **University of Calcutta** as the **Nodal Officer** in the two-day training workshop on Academic MIS, jointly organised by National Project Implementation Unit (NPIU) and State Project Implementation Unit, North East (SPIU-NE) held during 15-16 March 2019 at **Indian Institute of Information Technology Guwahati (IIITG), Guwahati, Assam**.
- **2019** Acted as a **facilitator** in the 3-day workshop on **"Basic Python programming with Introduction to Machine Learning"** held during 25-27 February, 2019 at The Bhawanipur Education Society College, Kolkata.
- **2019** Acted as a **facilitator** in the 3-day workshop on **"Machine learning for data analytics using R"** organized by Department of I.T., B. P. Poddar Institute of Management and Technology in collaboration with AKCSIT, University of Calcutta during 29-31 January, 2019.
- **2018** Acted as a **member of the National Advisory Committee** for the three day workshop on **"Recent Trends in Computer Science & Information Technology"** during 23-25 March, 2018.
- **2018** Acted as the **Joint Convener** of 1-Day workshop on **"Data Science"** – 21st March 2018 (Under TEQUIP III) at University of Calcutta.
- **2018** Acted as a **member** of the Organizing committee for the workshop on **"Data Analytics with R"** organized by university of Calcutta in collaboration of Future Institute of Engineering and Management, Kolkata during 4-5 January, 2018.

PUBLICATIONS (LATEST)

Journals

- Maitra, C., **Seal, D.B.** and De, R.K., 2024. NeuroDAVIS: A neural network model for data visualization. *Neurocomputing*, 573, p.127182. [I.F. 5.5](#)
- Maitra, C., **Seal, D.B.**, Das, V. and De, R.K., 2023. Unsupervised neural network for single cell Multi-omics INTegration (UMINT): an application to health and disease. *Frontiers in Molecular Biosciences*, 10, p.1184748. [I.F. 6.113](#)
- **Seal, D.B.**, Das, V. and De, R.K., 2022. CASSL: A cell-type annotation method for single cell transcriptomics data using semi-supervised learning. *Applied Intelligence*, pp.1-19. [I.F. 5.019](#)
- **Seal, D.B.**, Das, V., Goswami, S. and De, R.K., 2020. Estimating gene expression from DNA methylation and copy number variation: a deep learning regression model for multi-omics integration. *Genomics*, 112(4), pp.2833-2841. [I.F. 4.31](#)

Conference proceeding(s)

- Maitra, C., **Seal, D.B.**, Das, V., Vorobeychik, Y. and De, R.K., 2023, December. UMINT-FS: UMINT-guided Feature Selection for multi-omics datasets. In 2023 IEEE International Conference on Bioinformatics and Biomedicine (BIBM) (pp. 594-601). IEEE.
- **Seal, D.B.**, Das, V. and De, R.K., 2022, December. scARMF: Association Rule Mining-based feature selection Framework for Single-Cell transcriptomics data. In 2022 IEEE International Conference on Bioinformatics and Biomedicine (BIBM) (pp. 3144-3151). IEEE.

Book chapter(s)

- **Seal, D.B.**, Aich, S., Das, V. and De, R.K., 2023. Deep Learning-Based Prediction of Time-Series Single-Cell RNA-Seq Data. In *Applied Computing for Software and Smart Systems: Proceedings of ACSS 2022* (pp. 213-226). Singapore: Springer Nature Singapore.

See more at my [Google Scholar](https://scholar.google.co.in/citations?user=MXgDvsAAAAAJ&hl=en) page: <https://scholar.google.co.in/citations?user=MXgDvsAAAAAJ&hl=en>

PERSONAL DOSSIER

- Marital status Married
- Religion Hindu by birth, Humanity by choice
- Nationality Indian

LANGUAGES

English
Bengali
Hindi
German



- 2016 Acted as a member of the organizing committee for 3rd International Conference on Opto-Electronics and Applied Optics, 2016 (Optronix-2016) held at UEM, Kolkata campus (18-20 August, 2016); [IEEE UEMCON 2016](#), The 7th IEEE Annual Ubiquitous Computing, Electronics & Mobile Communication Conference, New York City, USA (20-22 October, 2016).
- 2016 Acted as a member of the organizing committee for "Innovation in Science Pursuit for Inspired Research" event under DST, Govt. of India-sponsored INSPIRE Internship program at UEM, Kolkata campus (7-11 September 2015, 18-22 January 2016).

REFEREES

Prof. (Dr.) Rajat K. De

@ Professor (Machine Intelligence Unit)
Professor-in-Charge (Computer & Communication Sciences Division)
Indian Statistical Institute, Kolkata, India.

✉ rajat@isical.ac.in

Prof. (Dr.) Amlan Chakrabarti

@ Head (IT & Tech. Innovation Cell)
Department of Higher Education,
Govt. of West Bengal
Professor & Director,
A. K. Choudhury School of Information Technology,
University of Calcutta, Kolkata, India.

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achakra12@yahoo.com

Dr. Vivek Das

@ Senior Research Scientist, Integrated Omics - AI & Analytics in Development,
Novo Nordisk A/S, Novo Nordisk Park 1,
2760 Måløv, Denmark.

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