



Important dates

Registration closing date: September 7, 2021

Workshop date: September 8, 2021



Program venue



Host details

Amit Ghosh
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About the workshop

Under the Scheme for Promotion of Academic and Research Collaboration (SPARC) program of Ministry of Human Resources and Development, Government of India; IIT Kharagpur, Lawrence Berkeley National Laboratory, have joined hands for the workshop on 'Application of Data Science in Biological Systems' where Indian and American project partners aims to cover state-of-the-art research challenges & breakthrough technologies behind the current trends in the field of biomedical and bioenergy research. The objective is to cover the recent research efforts across the globe by involving lectures delivered by distinguished academicians & researchers from India & the USA.

Target audience



Academicians, research scholars, UG, PG students, faculty members / professionals & industry personnel working in the concerned / allied discipline.

Registration URL:

<https://erp.iitkgp.ac.in/CEP/courses.htm> to apply ONLINE.



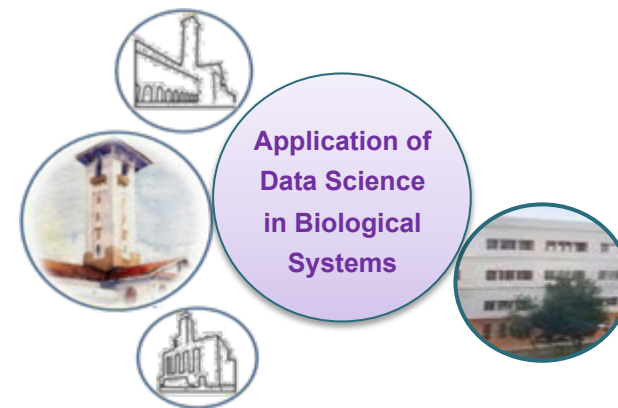
The maximum number of participants will be 50 (Fifty) on first-come-first-serve basis. The list of selected participants will be notified to their personal e-mail address.



Registration Fee

There is **NO REGISTRATION / PROGRAM FEE** for attending the workshop.

INDO-US SPARC WORKSHOP



September 8, 2021



Scheme for Promotion of Academic and Research Collaboration



Sponsored by
Scheme for Promotion of
Academic and
Research Collaboration
(SPARC), MHRD, GoI

Organized by
School of Energy Science
and Engineering, IIT
Kharagpur

In collaboration with



Joint BioEnergy Institute



Lawrence Berkeley
National
Laboratory, USA



University of Michigan,
Ann Arbor,
USA



About SPARC

Scheme for Promotion of Academic and Research Collaboration (SPARC) is a Ministry of Human Resource Development (MHRD), GoI initiative to improve research ecosystem in India. It supports national premier educational institutions by facilitating academic and research collaborations between Indian institutions and the best and selected institutions across the world's 28 nations. The collaborative educational networks will work on common issue of national or international relevance. It encourages international faculty, for Indian institution visits and short- / long-term stays to teach courses and conduct workshops for the benefit of Indian researchers and students in the selected research area.



About IIT Kharagpur

Indian Institute of Technology Kharagpur (IIT KGP), the first and largest of 26 members IIT family was established in the year 1951 at Hiji detention camp at Kharagpur in West Bengal, India. This is probably one of the very few Institutions in the World which started its journey in a prison house. Since its inception in May 1951, this Institute has been transformed into a breeding ground for the dissemination of knowledge in the field of engineering and technology to reach the frame of a world class Institute. The Institute takes pride in its relentless effort to provide the best platform for both education as well as research in the areas of science and technology, infrastructure designs, entrepreneurship, law, management, and medical science and technology. The campus is lush green, calm and quiet and free from urban noise and pollution, an ideal temple for education and research. The campus is imaginatively laid out with a beautiful lake, green parks, huge playgrounds, big auditoriums, students' hostels, residential zones for faculty and staff members, health centre, cultural-cum-social and recreational zones for campus community. The Institute campus has all elements to fall in love at first sight.



Key resource persons



Dr. Hector Garcia Martin
Staff Scientist,
Joint BioEnergy Institute,
Lawrence Berkeley National Laboratory
Berkeley, California, USA



Dr. Sriram Chandrasekaran
Assistant Professor,
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University of Michigan, Ann Arbor
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Dr. Debdoot Sheet
Assistant Professor,
Department of Electrical Engineering,
Centre of Excellence in Artificial
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Dr. Pralay Mitra
Associate Professor,
Computer Science & Engineering,
Center for Computational Data
Science
Indian Institute of Technology Kharagpur



Organizing team

Workshop Convenor



Amit Ghosh
Assistant Professor,
School of Energy Science and
Engineering,
Indian Institute of Technology Kharagpur

Workshop Co-convenor



Riddiman Dhar
Assistant Professor,
Department of Biotechnology,
Indian Institute of Technology Kharagpur



Workshop outline

Machine learning and data science analysis in current biology enables the capturing of the interactions between the genetic factors, phenotypes and other variables corresponding to different components of biological systems, based on large 'omics' data. It aims to introduce major insights into emerging paradigms that apply systems concept and engineering formalisms to design and construct new cell systems for biomedical, metabolic engineering and biofuels. Discussion in this workshop will include practical guidance for the practitioner in terms of data management, algorithm libraries, computational resources. Additionally, a variety of applications ranging from pathway construction and optimization to genetic engineering optimization, drug discovery & repurposing, and cell system design will also be discussed.

This one-day workshop will bring together Indian and the USA speakers to define a bird's eye view on recent development of data science tools and their applications in metabolic engineering and biomedical approaches. This workshop will enlighten upon the cutting edge data driven tools, their applications, associated challenges and its promising future scopes in the field of biological system design and creating robust cell factories.

Talk content

- Machine learning for metabolic engineering
- Deep learning for clinical and health applications
- Drug discovery and repurposing using transparent AI
- Machine learning for Protein Engineering
- Analysis of multi-omics data with genome-scale models