Indo-US SPARC online Workshop
on
APPLICATION OF DATA SCIENCE IN BIOLOGICAL SYSTEMS

on 8th September 2021, jointly organized by

SPARC
Scheme for Promotion of Academic and Research Collaboration

jbei Joint BioEnergy Institute

BERKELEY LAB Lawrence Berkeley National Laboratory

SPEAKERS

Dr. Héctor García Martin earned his Ph.D. in Physics from the University of Illinois at Urbana-Champaign in 2003. He worked as a postdoctoral researcher at the Joint Genome Institute, Lawrence Berkeley National Laboratory (LBNL). He is currently Staff Scientist and Deputy Vice President of Biofuels and Bioproducts Division at Joint Bioenergy Institute (JBEI), LBNL, Berkeley. He has worked on developing mechanistic models, machine learning and metabolomics data to improve biofuel production in bioengineered strains. His research is divided among deep learning, metabolic flux analysis, automation and software development for visualization and acquisition of data.

Dr. Sriram Chandrasekaran received his PhD in Biophysics from the University of Illinois at Urbana-Champaign in 2013. He then worked at Harvard University and MIT as a Harvard Junior Fellow and became an Assistant Professor at the University of Michigan-Ann Arbor in 2017. His research has been published in Cell, Genome Biology, eLife, mBio, and PNAS. He is the recipient of the Howard Hughes Medical Institute (HHMI) Predoctoral Fellowship, the Harvard Junior Fellowship, MIT Technology Review's Top Innovators Under 35 (TR35) award, the Harvard William Milton Fund award, and a Distinguished Young Investigator Award at the AICHE COBRA conference.

Dr. Pralay Mitra is an Associate Professor of the Department of Computer Science and Engineering, Indian Institute of Technology Kharagpur. He did his Ph.D. from the Indian Institute of Science, Bangalore, and was a postdoctoral researcher at the University of Michigan, Ann Arbor. Dr. Mitra is also with the responsibility of the Associate Head, Centre for Computational and Data Sciences at the Indian Institute of Technology Kharagpur. Dr. Mitra is actively working on Bioinformatics and Computational Biology. Over the years, he developed expertise in modeling and designing protein structures and protein functions. He has developed several algorithms for protein-protein docking, predicting protein assembly from the crystal structures and protein design.

SPEAKERS

Dr. Debdoot Sheet is an Assistant Professor of Electrical Engineering with a joint appointment at the Centre of Excellence in Artificial Intelligence at the Indian Institute of Technology Kharagpur, and founder of SkinCurate Research. He received the BTech degree in electronics and communication engineering in 2008 from the West Bengal University of Technology, Kolkata, MS and PhD degrees from the Indian Institute of Technology Kharagpur in 2010 and 2014 respectively. His current research interests include deep learning, high density multi-linear algebra tensor computation, computational medical imaging, image and multidimensional signal processing, and social implications of technology. He is a Chartered Engineer since 2021, DAAD alumni and was a visiting scholar at the Technical University of Munich during 2011-12, recipient of the IEEE Computer Society Richard E. Merwin Student Scholarship in 2012, the Fraunhofer Applications Award at the Indo-German Grand Science Slam in 2012, GE Edison Challenge 2013, Distinguished Alumni of IEM Kolkata 2016, Senior Member of IEEE class of 2019, member of MICCAI, Life member of IE (India), BMESI, IUPRAI, and serves as Regional Editor of IEEE Pulse.

Dr. Riddhiman Dhar received his B. Tech and M. Tech degree in Biotechnology and Biochemical Engineering from Indian Institute of Technology Kharagpur in 2008. He then went on to do PhD at the University of Zurich, Switzerland. He received his PhD in Evolutionary Systems Biology in 2013. He was a postdoctoral researcher in the Systems Biology Unit at the Centre for Genomic Regulation (CRG), Barcelona from 2013 to 2017. Since 2017, he has been an Assistant Professor in the Department of Biotechnology at IIT Kharagpur.

Dr. Amit Ghosh is an Assistant Professor of School of Energy Science and Engineering with a joint appointment in PK Sinha Centre for Bioenergy and Renewable at the Indian Institute of Technology, Kharagpur. He earned his PhD from Indian Institute of Science, Bangalore in 2009. Thereafter done his Postdoctoral Research from University of Illinois at Urbana Champaign, during 2009 to 2011. He also worked as a postdoctoral researcher in Joint BioEnergy Institute (JBEI), Lawrence Berkeley National Laboratory, during 2011 to 2015. His research interest includes metabolic engineering for bioproduction; modeling and simulation of microbial and human cells in diseased and normal state. Recipient of Faculty Excellence Award 2020 (IIT Kharagpur) and Ramalingaswami Fellow 2015-2021, DBT govt. of India.

SCHEDULE OF TALKS

Talk 1: Drug discovery and repurposing using transparent AI
Prof. Sriram Chandrasekaran, University of Michigan
8th September 2021 Wednesday 8.30 AM to 9.30 AM, IST.

Talk 2: Leveraging machine learning and automation to make bioengineering predictive
Dr. Héctor García Martin, Lawrence Berkeley National Lab, USA
8th September 2021 Wednesday 9.30 AM to 10.30 AM, IST.

Talk 3: Application of machine learning in bioinformatics
Prof. Pralay Mitra, IIT Kharagpur
8th September 2021 Wednesday 10.30 AM to 11.30 AM, IST.

Talk 4: Metabolic Flux Analysis of lung cells post SARS-Cov2 infection based on RNA-seq data
Prof. Amit Ghosh, IIT Kharagpur
8th September 2021 Wednesday 11.30 AM to 12.00 PM, IST.

Talk 5: Adversarial Learning for Knowledge Integration from Weakly Labelled Datasets
Prof. Debdoot Sheet, IIT Kharagpur
8th September 2021 Wednesday 12.00 PM to 1.00 PM, IST.

Lunch Break

SCHEDULE OF TALKS

Talk 6: Harnessing the lignocellulolytic potential of microbial communities: a metagenomic data-driven systems biology approach
Mr. Pritam Kundu, Research Scholar, IIT Kharagpur
8th September 2021 Wednesday 4.00 PM to 4.30 PM, IST.

Talk 7: Protein Interaction Network-based Deep Learning Framework for Identifying Disease-Associated Human Proteins
Ms. Barnali Das, Research Scholar, IIT Kharagpur
8th September 2021 Wednesday 4.30 PM to 5.00 PM, IST.

Talk 8: Deep Learning for Prediction of Protein-Ligand Binding Residues
Mr. Devansh Pandey, , Research Scholar, IIT Kharagpur
8th September 2021 Wednesday 5:00 PM to 5.30 PM, IST.

Talk 9: Prediction of B-cell confirmational epitopes
Mr. Aaksh Yadav, , Research Scholar, IIT Kharagpur
8th September 2021 Wednesday 5.30 AM to 6:00 PM, IST.

Talk 10: Assessing Lobe-wise Burden of COVID-19 Infection in Computed Tomography of Lungs using Knowledge Fusion from Multiple Datasets
Ms. Rachana Sathish, , Research Scholar, IIT Kharagpur
8th September 2021 Wednesday 6.00 PM to 6.30 PM, IST.

Talk 11: Synthesizing Cross-Modality Sequences in Magnetic Resonance Images using Adversarial Learning of Deep Neural Networks
Mr. Vikas Ranjan, , Research Scholar,
Homi Bhaba National Institue, DAE and IIT Kharagpur
8th September 2021 Wednesday 6.30 AM to 7.00 PM, IST.

CONTACT US

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