

Supercomputer Education and Research Centre (SERC)

presents

Workshop on High Performance Computing in the Agriculture Domain

July 14 to July 16, 2021



under the scheme

**National Supercomputing Mission (NSM)
Govt. of India**

co-hosted by:



It gives us immense pleasure to inform you that the Workshop on High Performance Computing (HPC) in the Agriculture Domain under the National Supercomputing Mission (NSM) from Supercomputer Education and Research Centre (SERC) will be hosted by IIT Indore, ICAR-IISR Indore, and Mahindra University Hyderabad in collaboration with C-DAC Pune, IISC Bangalore, IIT Kharagpur from 14 July 2021 to 16 July 2021 in virtual mode.

This workshop aims to bring together researchers, engineers, industry experts, students, and practitioners to make them aware of the latest HPC technologies for easing practical/research work in the area of agriculture domain. Recent developments in computational techniques in various domains of science and engineering have been strongly linked with the efficient utilization of HPC resources. Therefore, it is essential to impart HPC training to the application domain researchers.
Objectives of the Workshop

- 1) *To introduce various parallel programming models, such as CUDA, cuML, a parallel computing platform and application programming interface (API) model created by Nvidia for GPU technology.*
- 2) *To introduce parallelisation in Python, which is the most popular programming language used in industry.*
- 3) *Currently to conduct hands-on practice on these programming models.*
- 4) *To introduce parallel programming clusters and heterogeneous architectures.*
- 5) *Using HPC in the field of Agriculture research.*
- 6) *Demonstration of Big Data algorithms for Genomics.*
- 7) *Layout the foundation of the Agriculture Grid ecosystem.*

No Registration Fee

Fill the Registration details: <https://forms.gle/fBRzkjpoLFKqOfcU9>

Bar code:



The last date of Registration: July 12, 2021 till 12:00 AM

The meeting link will be intimated on registered e-mail: July 13, 2021

Contact:

Dr. Aruna Tiwari, Associate Professor, Computer Science and Engineering, IIT Indore

Mail your queries at: atworkshop.nsm@gmail.com

Organizers:



Dr. Aruna Tiwari
IIT Indore



Dr. Milind Ratnaparkhe
ICAR-IISR Indore



Dr. Neha Bharill
Mahindra University
Hyderabad



Dr. Om Prakash Patel
Mahindra University
Hyderabad

Patron



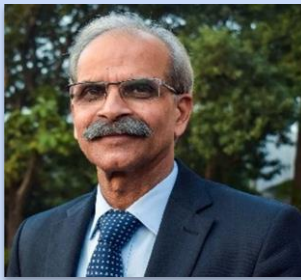
Prof. N.K Jain
Director, IIT Indore

Chief Guest



Prof. D.B. Phatak
BOG Chairman, IIT
Indore

Guest Of Honours



Prof. V.K. Tewari
Director, IIT Kharagpur



Prof. Srikanth Sastry
Jawaharlal Nehru
Centre for
Advanced Scientific
Research, Bangalore



Prof. Rajat Moona
Director, IIT Bhilai

Special Guests



Dr. Nita Khandekar
Director, ICAR- IISR
Indore



Prof. Narendra S. Chaudhari
IIT Indore



Prof. Yajulu Medury
Vice Chancellor,
Mahindra University
Hyderabad

Panel Discussion

Title: Impact of HPC in sustainable Agriculture Growth in India.



Col. A K Nath (Retd.)
Executive Director
(Corporate Strategy and C-DAC
Pune)



Arundhati Misra,
Group Director,
AMHTDG, EPSA,
SAC – ISRO, Ahmedabad



Dr. Anil Rai
Head (A) & Professor
Bioinformatics, ICAR-Indian
Agricultural Statistics
Research, Pusa, New Delhi.



**Dr. Rajeev K.
Varshney**
Research Program
Director-Genetic Gains,
ICRISAT, Hyderabad



Prof. Pabitra Mitra, Head
Center for Computational and
Data Sciences, Professor
Department of Computer
Science and Engineering,
IIT Kharagpur



Prof. Ashwani Pareek
School of Life Sciences
Jawaharlal Nehru
University, New Delhi



Dr. Kapil Ahuja
Associate Professor,
Computer Science and
Engineering,
IIT Indore

Prof. V.K. Tewari, Director, IIT Kharagpur
Prof. Rajat Moona, Director, IIT Bhilai
Dr. Nita Khandekar, Director, ICAR- IISR
Indore
Prof. Narendra S. Chaudhari, IIT Indore

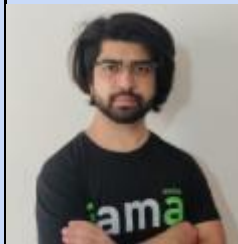
Keynote Speakers



Prof. Sathish Vadhiyar

Professor Department of Computational and Data Sciences (CDS)
Supercomputer Education and Research Centre (SERC), IISc, Bangalore

Title of the talk:



Mr. Megh Makwana

Data Scientist at
NVIDIA, Hyderabad

Organizing Hands on Session:

Title of the talk: Accelerating Data Science for Agriculture Domain



Dr. Dinesh Kumar

Principal Scientist (Biotechnology)
Center for Agricultural Bioinformatics, ICAR-IASRI,
New Delhi

Title of the talk:



Dr. Muthukumarasamy Karthikeyan

Senior Principal Scientist Chemical Engineering and Process Development (CEPD), CSIR
National Chemical Laboratory, Pune

Title of the talk:



Dr. Prashanth N. Suravajhala

Senior Scientist, Systems Biology
Department of Biotechnology and Bioinformatics,
Birla Institute of Scientific Research,
Jaipur

Title of the talk:



Prof. P. Krishan Reddy
Professor, IIIT Hyderabad

Title of the talk: Towards building farm-specific advisory systems to improve the efficiency of every farm



Dr. Somsubhra Chakraborty

Assistant Professor,
Agricultural and Food Engineering,
IIT Kharagpur

Title of the talk: Applications of Advanced Sensors and AIML in Soil Management



Prof. Arya K. Bhattacharya

Dean Research, Professor and Head Department of Computer Science and Engineering,
Mahindra University, Hyderabad

Title of the talk: Design of hybrid CPU-GPU architecture parameters enabling training of CNNs with Evolutionary Optimization



Dr. Poulomi Ganguli

Assistant Professor
Agricultural and Food
Engineering,
IIT Kharagpur

Title of the talk: Big data in
Natural Hazard Modelling:
Challenges and Opportunities for
Machine Learning



Mr. Ashish Kuvelkar
Senior Director, C-DAC
Pune

Title of the talk: Parallel
Computing – The essential
aspect of High-Performance
Computing.



Mr. Navin K. C. Twarakavi

Research Scientist
IBM Research Labs, India.

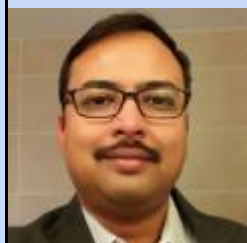
Title of the talk:



Dr. Milind Ratnaparkhe

Senior Scientist, Biotechnology,
ICAR-IISR Indore

Title of the talk: Application of
high-performance computing
in plant genomics and crop
improvement.



Mr. Amit Saxena

Joint Director HPC
Medical and Bioinformatics
Applications Group,
C-DAC Pune

Title of the talk: Quantum
Computing applications in
Agriculture



Dr. Aruna Tiwari

Associate Professor,
Computer Science and
Engineering,
IIT Indore

Title of the talk: Scalable fuzzy
clustering and its applications
to Genomics