23rd International Conference on Distributed Computing and Networking (ICDCN 2022)

January 4-7, 2022
IIIT Delhi (Virtual)

Workshops

The Fifth International Workshop On Networking Women In Distributed Computing And Networks (NWDCN 2022)

Session 2

January 4, 2022

UTC - 5	UTC	UTC + 1	UTC+2	UTC+5.5	UTC+9
New York	**London**	**Paris**	**Israel**	**India**	**Japan**
22:35	3:35	4:35	5:35	9:05	12:35

Uniform Scattering of Robots on Alternate Nodes of a Grid
Moumita Mondal (University of Engineering and Management, Kolkata, India) and Sruti Gan Chaudhuri (Jadavpur University, India)

IoT Based Smart Home-Health Monitoring System Using Dempster-Shafer Evidence Theory For Pandemic Situation
Tanima Bhowmik (IIEST, Shibpur, India), Rohan Mojumder (Calcutta Institute of Engineering & Management, India), Dibyendu Ghosh (Calcutta Institute of Engineering & Management, India) and Indrajit Banerjee (IIEST, Shibpur, India)

Prevention of SQL Injection Attack by Using Black Box Testing
Bhakti M Thombre (Oriental University, Indore, India) and Rashmi Soni (Oriental University, Indore, India)

Understanding the Robustness in Phoneme Production Mechanism in English and Bengali
Suparnakanti Das (JCBCAT, DRDO Kolkata, India), Trishita Dhara (Jadavpur University, India), Sirshapan Mitra (Jadavpur University, India) and Sudip Kumar Naskar (Jadavpur University, India)

The First International Workshop on Machine Learning and Blockchain for Smart Society (MLBSS 2022)

Session

January 4, 2022

UTC - 5	UTC	UTC + 1	UTC+2	UTC+5.5	UTC+9
New York	**London**	**Paris**	**Israel**	**India**	**Japan**

Blockchain-Based Energy Trading
Vinod Pangracious (American University Dubai, UAE)

SIoVChain: Efficient and Secure Blockchain Based Internet of Vehicles (IoV)
Amritesh Kumar (Indian Institute of Technology Jodhpur, India) and Debasis Das (Indian Institute of Technology Jodhpur, India)

The Third International Workshop on Emergency Response Technologies and Services (EmeRTeS 2022)

Session 2

January 4, 2022

UTC - 5	UTC	UTC + 1	UTC+2	UTC+5.5	UTC+9
New York	**London**	**Paris**	**Israel**	**India**	**Japan**
8:20	13:20	14:20	15:20	18:50	22:20

Disaster Management through Integrative AI

Swarna Paul (Jadavpur University, India) and Parama Bhaumik (Jadavpur University, India)

Social Media for Post-Disaster Relief: Mapping Needs and Availabilities to UNOCHA Resource Classes

Amitrajit Bose (Flipkart, Kolkata, India), Sivangi Tandon (Tata Consultancy Services, Kolkata, India), Moumita Basu (University of Engineering and Management Kolkata, West Bengal, India) and Saptarshi Ghosh (Indian Institute of Technology Kharagpur, India)

Technical Sessions

Session 1.1 IoT & Mobile Computing
January 05, 2022
Session Chairs:
Dr. Ayon Chakraborty, Indian Institute of Technology - Madras
Dr. Fukuhito Ooshita, NAIST

UTC - 5	UTC	UTC + 1	UTC+2	UTC+5.5	UTC+9
New York	**London**	**Paris**	**Israel**	**India**	**Japan**
23:00	4:00	5:00	6:00	9:30	13:00

Undervolting on wireless sensor nodes: a critical perspective.
Dominik Widhalm, Karl M. Goeschka (University of Applied Sciences Technikum Wien) and Wolfgang Kastner (Vienna University of Technology)

A scalable causal broadcast that tolerates dynamics of mobile networks.
Daniel Wilhelm, Luciana Arantes and Pierre Sens (Sorbonne University, CNRS, Inria)

DeSVQ: Deep Learning Based Streaming Video QoE Estimation.
Monalisa Ghosh (Indian Institute of Technology, Kharagpur), Chetna Singhal (Indian Institute of Technology, Kharagpur) and Rushikesh Wayal (Indian Institute of Technology, Kharagpur)

Greedy Algorithms for Scheduling Package Delivery with Multiple Drones.
Francesco Betti Sorbelli (University of Perugia, Italy), Federico Corò (Missouri University of Science and Technology, United States), Sajal K. Das (Missouri University of Science and Technology, United States), Lorenzo Palazzetti (University of Florence, Italy) and Cristina M. Pinotti (University of Perugia, Italy)

Robotic Sorting on the Grid.
Jared Coleman (University of Southern California) and Oscar Morales Ponce (California State University Long Beach)

Session 1.2 Security & Cryptography
January 05, 2022
Session Chair:
Dr. Venkatraman Ramakrishna
IBM Research Lab, India
IBM Center for Blockchain Innovation, Singapore

UTC - 5	UTC	UTC + 1	UTC+2	UTC+5.5	UTC+9
New York	**London**	**Paris**	**Israel**	**India**	**Japan**
5:40	10:40	11:40	12:40	16:10	19:40

A Step Towards On-Path Security Function Outsourcing.
Jehyun Lee (Trustwave), Min Suk Kang (Korea Advanced Institute of Science and Technology (KAIST)), Dinil Mon Divakaran (Trustwave), Phyo May Thet (Institute for Infocomm Research - A*STAR), Videet Singhai (Carnegie Mellon University) and Jun Seung You (Seoul National University)

Dragonshield: An Authentication Enhancement for Mitigating Side-Channel Attacks and High Computation Overhead in WPA3-SAE Handshake Protocol.
R. C. Hansdah (Indian Institute of Science Bangalore), Jitender Jamwal (Indian Institute of Science Bangalore) and Ravi Babu Gudivada (Indian Institute of Science Bangalore)

Botnet Mapping Based on Intersections of Traces.
Alfasi Erez (Ben Gurion University of the Negev) and Gil Einziger (Ben Gurion University of the Negev)

AutoSec: Secure Automotive Data Transmission Scheme for In-Vehicle Networks.
Trupil Limbasiya (iTrust, SUTD, Singapore), Amrita Ghosal (University of Limerick) and Mauro Conti (University of Padua)

Session 1.3 Asynchronous Distributed Algorithms

January 05, 2022

UTC - 5	UTC	UTC + 1	UTC+2	UTC+5.5	UTC+9
New York	**London**	**Paris**	**Israel**	**India**	**Japan**
8:40	13:40	14:40	15:40	19:10	22:40

A Fast Wait-Free Multi-Producers Single-Consumer Queue.
Dolev Adas and Roy Friedman (Technion)

Limited Associativity Makes Concurrent Software Caches a Breeze.
Dolev Adas (Technion), Gil Einziger (Ben-Gurion University of the Negev) and Roy Friedman (Technion)

Achieving Causality with Physical Clocks.
Sandeep Kulkarni, Gabe Appleton and Duong Nguyen (Michigan State University)

Session 2.1 Consensus & Blockchain

January 06, 2022

UTC - 5	UTC	UTC + 1	UTC+2	UTC+5.5	UTC+9
New York	**London**	**Paris**	**Israel**	**India**	**Japan**
23:00	4:00	5:00	6:00	9:30	13:00

Antipaxos: Reaching Agreement without Solving ClassicalConsensus in Failure-Free Executions.
Chunyu Mao, Wojciech Golab and Bernard Wong (University of Waterloo)

Crypto-commodity Protocol for Addressing Blockchain Problems and Bottlenecks.
Arnab Chatterjee and R. C. Hansdah (Indian Institute of Science)

A TLA+ Formal Proof of a Cross-Chain Swap.
Zeinab Nehaï, François Bobot, Sara Tucci-Piergiovanni (CEA List), Carole Delporte and Hugues Fauconnier (IRIF)

Message Complexity of Multi-Valued Implicit Agreement with Shared Random Bits.
Kaustav Bose and Anisur Rahaman Molla (Indian Statistical Institute)

Deploying Transactional Smart Contracts using Multisignature Boolean Formulas.
Arnab Chatterjee and R. C. Hansdah (Indian Institute of Science) **(short paper)**

Session 2.2 Distributed Algorithms
January 06, 2022
Session Chair:
Dr. Anissa Lamani, Université de Strasbourg

UTC - 5	UTC	UTC + 1	UTC+2	UTC+5.5	UTC+9
New York	**London**	**Paris**	**Israel**	**India**	**Japan**
5:40	10:40	11:40	12:40	16:10	19:40

Distributed Algorithms for Connectivity and MST in Large Graphs with Efficient Local Computation.
Eric Ajieren, Khalid Hourani, William K. Moses Jr. and Gopal Pandurangan (University of Houston)

A Study on Migration Scheduling in Distributed Stream Processing Engines.
Morten Lindeberg and Thomas Plagemann (University of Oslo)

Distributed Matrix Tiling Using A Hypergraph Labeling Formulation.
Avah Banerjee (Missouri University of Science and Technology), Maxwell Reeser (Louisiana State University) and Guoli Ding (LSU)

A Lattice Linear Predicate Parallel Algorithm for the Dynamic Programming Problems.
Vijay Garg (The University of Texas at Austin) **(short paper)**

Session 2.3 Network Algorithms
Dr. Anisur Rahaman Molla (to be confirmed)
Indian Statistical Institute, Kolkata
January 06, 2022

UTC - 5	UTC	UTC + 1	UTC+2	UTC+5.5	UTC+9
New York	**London**	**Paris**	**Israel**	**India**	**Japan**
8:40	13:40	14:40	15:40	19:10	22:40

Topology Inference of Networks utilizing Rooted Spanning Tree Embeddings.
Martin Byrenheid (TU Dresden), Stefanie Roos (Delft University of Technology) and Thorsten Strufe (Karlsruhe Institute of Technology (KIT) and CeTI, TU Dresden)

Distributed Publish/Subscribe Protocol with Minimum Number of Encryption.
Jean- Philippe Abegg (Université de Strasbourg), Quentin Bramas (ICUBE, Université de Strasbourg), Timothée Brugière (Transchain) and Thomas Noel (LSIIT - Strasbourg University)

IMSF: Improved Minimal Scheduling Function for Link Scheduling in 6TiSCH Networks.
Karnish N. A. Tapadar (Indian Institute of Technology Guwahati), Manas Khatua (Indian Institute of Technology Guwahati) and Venkatesh Tamarapalli (Indian Institute of Technology Guwahati)
(short paper)

Doctoral Symposium

January 05, 2022

UTC - 5	UTC	UTC + 1	UTC+2	UTC+5.5	UTC+9
New York	**London**	**Paris**	**Israel**	**India**	**Japan**
3:30	8:30	9:30	10:30	14:00	17:30

Session Chair: Partha Sarathi Mandal, Indian Institute of Technology Guwahati

Performance-Effective DAG Scheduling for Heterogeneous Distributed Systems, *Debabrata Senapati (Indian Institute of Technology Guwahati), Arnab Sarkar (Indian Institute of Technology Kharagpur) and Chandan Karfa (Indian Institute of Technology Guwahati)*

k-Circle Formation by Oblivious Mobile Robots*, Bibhuti Das (Indian Statistical Institute) and Krishnendu Mukhopadhyaya (Indian Statistical Institute)*

Pattern Formation Problems for Mobile Robots, *Abhinav Chakraborty (Indian Statistical Institute) and Krishnendu Mukhopadhyaya (Indian Statistical Institute)*

Remote Registration and Group based Authentication of IoT over 5G, *Hemangi Goswami (Cotton University) and Hiten Choudhury (Cotton University)*

Distributed Pattern Formation by Autonomous Robot Swarm, *Kaustav Bose (Indian Statistical Institute), Ranendu Adhikary (Jadavpur University), Manash Kumar Kundu (Gayeshpur Government Polytechnic), Archak Das (Jadavpur University) and Buddhadeb Sau (Jadavpur University)*

A Study on the Problems of Dispersion and Exploration on Graph Topology, *Archak Das (Jadavpur University), Kaustav Bose (Indian Statistical Institute) and Buddhadeb Sau (Jadavpur University)*

Fully Dynamic Algorithm for Steiner Tree using Dynamic Distance Oracle, *Hemraj Raikwar (Indian Institute of Technology Guwahati) and Sushanta Karmakar (Indian Institute of Technology Guwahati)*

Popular Matching in a 3-uniform 3-partite Hypergraph, *Yashdeep Singh (Indian Institute of Technology Guwahati) and Sushanta Karmakar (Indian Institute of Technology Guwahati)*

Industry Session

January 06, 2022

UTC - 5	UTC	UTC + 1	UTC+2	UTC+5.5	UTC+9
New York	London	Paris	Israel	India	Japan
20:40	1:40	2:40	3:40	7:10	10:30

January 07, 2022

UTC - 5	UTC	UTC + 1	UTC+2	UTC+5.5	UTC+9
New York	London	Paris	Israel	India	Japan
20:40	1:40	2:40	3:40	7:10	10:30

Mobile App Challenge

January 04, 2022

UTC - 5	UTC	UTC + 1	UTC+2	UTC+5.5	UTC+9
New York	London	Paris	Israel	India	Japan
0:30	5:30	6:30	7:30	11:00	14:30

Session Chair: Hari Prabhat Gupta, IIT(BHU) Varanasi, Yogesh Simhan, IISc

QR-AR based Smart Indoor Navigation with Crowd Management
Shivam Sood, Dharmendra Prasad Mahato (National Institute of Technology Hamirpur, India)

Navigation Mesh for Missing Persons Search
Joseph Briones (Arizona State University, United States), Tishya Chhabra (Corona Del Sol High School, United States)

Demo

January 04, 2022

UTC - 5	UTC	UTC + 1	UTC+2	UTC+5.5	UTC+9
New York	**London**	**Paris**	**Israel**	**India**	**Japan**
5:30	10:30	11:30	12:30	16:00	19:30

Session Chair: Sougata Sen, BITS PIlani Goa Campus

"Memory Allocation for Neural Networks using Graph Coloring"

- Leonid Barenboim (The Open University of Israel, Ra'anana, Israel; leonidb@openu.ac.il)
- Oleg Zatulovsky (The Open University of Israel, Ra'anana, Israel; oleg.zat@gmail.com)
- Rami Drucker (CEVA DSP Ltd. Herzliya, Israel Rami.Drucker@ceva-dsp.com)
- Eli Levi (CEVA DSP Ltd. Herzliya, Israel Eli.Levi@ceva-dsp.com)

Panel #1

January 04, 2022

UTC - 5	UTC	UTC + 1	UTC+2	UTC+5.5	UTC+9
New York	**London**	**Paris**	**Israel**	**India**	**Japan**
6:00	11:00	12:00	13:00	16:30	20:00

Panel Title: "Networking for Distributed AI and Distributed AI for Networking"

Session Chair: Paolo Bellavista, University of Bologna, Italy

Panelists (in alphabetical order):

Christian Becker, University of Mannheim, Germany
Schahram Dustdar, Technical University Wien, Austria

Francesco Restuccia, Northeastern University Boston, USA
Osvaldo Simeone (tbc), King's College London, UK

Panel#2

January 6, 2022

India Time; 2pm - 3.30pm

Panel Title: **Decentralized financial (DeFi) systems - promise, challenges and opportunities for innovation**
Organizer: Niloy Ganguly

Panel Moderator: Koustuv Dasgupta, Goldman Sachs Research India

Panelists:

1. **Krishna Gummadi, MPI-SWS**
2. **Biswatosh Saha, IIM Kolkata**
3. **Venkatraman Ramakrishna, IBM IRL**
4. **Nitin Goyal, Lysto.**