ACM SIGMETRICS / IFIP PERFORMANCE 2022
Mumbai, India
June 6-10, 2022

Victor Menezes Convention Centre (VMCC)
IIT Bombay

Sponsors

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Daily Schedule

Day 1: June 6, 2022 (Monday) – Workshops

Time (IST)	Event		
9:00 am – 9:30 am	Performance of host-based Network Applications (PerfNA) (Seminar Room 2 – VMCC)		Learning-Based Control of Queues and Networks (LCQN) - IST (Seminar Room 4 – VMCC)
9:30 am – 12:00 am			
12:00 pm – 1:30 pm	Lunch break for PerfNA participants (Padma Vihar Guest House)		
1:30 pm – 2:30 pm	Performance of host-based Network Applications (PerfNA) (Seminar Room 2 – VMCC)		Lunch break for LCQN participants (Padma Vihar Guest House)
2:30 pm – 5:00 pm			
5:00 pm – 5:15 pm			
5:15 pm – 6:00 pm			
6:00 pm – 7:00 pm			Mathematical Performance Modeling and Analysis (MAMA) (online)
7:00 pm – 10:00 pm	Learning-Based Control of Queues and Networks (LCQN) - EDT (online)	Blockchains and Networking (online)	
10:00 pm – 10:30 pm			
10:30 pm – 11:30 pm			

Day 2: June 7, 2022 (Tuesday) – Main Conference

Time (IST)	Event	
9:45 am onwards	Registration (VMCC)	
10:15 am – 10:30 am	Welcome address by General Chairs (Prof. B. Nag Auditorium - VMCC)	
10:30 am – 12:10 pm	Session 1A: Optimization (Seminar Room 2 – VMCC)	Session 1B: Networking (Seminar Room 4 – VMCC)
12:15 pm – 1:15 pm	Poster Session	
1:15 pm – 2:30 pm	Lunch (Padma Vihar Guest House)	
2:30 pm – 4:10 pm	Session 2A: Topology Design and Load Balancing (Seminar Room 2 – VMCC)	Session 2B: Streaming, Gaming, and the Decentralized Web (Seminar Room 4 – VMCC)
4:10 pm – 4:30 pm	Break	
4:30 pm – 6:10 pm		Session 3B: Systems (Seminar Room 4 – VMCC)
6:30 pm – 7:00 pm	Welcome address by General & TPC Chairs (Prof. B. Nag Auditorium - VMCC)	
7:00 pm – 8:00 pm	**Keynote Talk – Prof. Milind Tambe** (Prof. B. Nag Auditorium - VMCC)	
9:00 pm onwards	Conference Dinner at *Mirch and Mime (Powai)*	

Day 3: June 8, 2022 (Wednesday) – Main Conference

Time (IST)	Event	
11:30 am – 1:10 pm	Session 3A: Learning meets Systems (Seminar Room 2 – VMCC)	Session 4B: Measurements and Security (Seminar Room 4 – VMCC)
1:10 pm – 2:30 pm	Lunch (Padma Vihar Guest House)	
2:30 pm – 4:10 pm	Session 4A: Online Optimization (Seminar Room 2 – VMCC)	Session 5B: Wireless and Mobile Networks (Seminar Room 4 – VMCC)
4:10 pm – 4:30 pm	Break	
4:30 pm – 6:10 pm		Session 5A: Resource Allocation (Seminar Room 4 – VMCC)
6:30 pm – 7:30 pm	**Keynote Talk – Prof. Nick Duffield** (Prof. B. Nag Auditorium - VMCC)	
7:45 pm – 8:45 pm	**Achievement Award Talk - Prof. Balaji Prabhakar** (Prof. B. Nag Auditorium - VMCC)	

Day 4: June 9, 2022 (Thursday) – Main Conference

Time (IST)	Event	
11:30 am – 1:10 pm	Session 6A: Optimization II (Seminar Room 2 – VMCC)	Session 6B: Memory and GPUs (Seminar Room 4 – VMCC)
1:10 pm – 2:30 pm	Lunch (Padma Vihar Guest House)	
2:30 pm – 4:10 pm	Session 7A: Miscellaneous (Seminar Room 2 – VMCC)	Session 7B: Pricing and Speed (Seminar Room 4 – VMCC)
4:10 pm – 4:30 pm	Break	
4:30 pm – 6:10 pm		Session 8B: System Performance (Seminar Room 4 – VMCC)
6:30 pm – 7:30 pm	**Rising Star Award Talk - Prof. Giulia Fanti** (Prof. B. Nag Auditorium - VMCC)	
7:45 pm onwards	Conference Dinner at *Chetana (Kala Ghoda)*	

Day 5: June 10, 2022 (Friday) – Tutorials

Time (IST)	Event	
8:30 am – 10:00 am	**Machine learning for solving optimal power flow problems** by Minghua Chen and Steven Low (online)	**Mean field interacting particle systems: Limit laws and large deviations** by Rajesh Sundaresan and Sarath Yasodharan (Seminar Room 2 – VMCC)
10:00 am – 11:30 am		
11:30 am – 1:00 pm		
1:00 pm – 2:00 pm	Lunch (Padma Vihar Guest House)	
2:00 pm – 5:00 pm	**Optimization and learning with Markovian data** by Dheeraj Nagaraj and Praneeth Netrapalli (Seminar Room 2 – VMCC)	
5:00 pm – 8:00 pm		
8:00 pm – 11:00 pm	**Data plane algorithms in programmable networks** by Alan (Zaoxing) Liu, Ran Ben Basat, and Vladimir Braverman (online)	
11:00 pm – 2:30 am	**Internet Data Streaming and Sketches** by Shigang Chen (online)	

Keynotes

Prof. Milind Tambe
Harvard University

Title: AI for Social Impact: Results from Deployments for Public Health and Conservation

June 7, 2022
(7:00 pm - 8:00 pm IST / 9:30 am - 10:30 am EDT)

Abstract: With the maturing of AI and multiagent systems research, we have a tremendous opportunity to direct these advances towards addressing complex societal problems. I will focus on domains of public health and conservation, and address one key cross-cutting challenge: how to effectively deploy our limited intervention resources in these problem domains. I will present results from work around the globe in using AI for challenges in public health such as Maternal and Child care interventions, HIV prevention, and in conservation such as endangered wildlife protection. Achieving social impact in these domains often requires methodological advances. To that end, I will highlight key research advances in multiagent reasoning and learning, in particular in, restless multiarmed bandits, influence maximization in social networks, computational game theory and decision-focused learning. In pushing this research agenda, our ultimate goal is to facilitate local communities and non-profits to directly benefit from advances in AI tools and techniques.

Biography: Milind Tambe is Gordon McKay Professor of Computer Science and Director of Center for Research in Computation and Society at Harvard University; concurrently, he is also Principal Scientist and Director of "AI for Social Good" at Google Research. He is recipient of the IJCAI John McCarthy Award, AAMAS ACM Autonomous Agents Research Award, AAAI Robert S. Engelmore Memorial Lecture Award, and he is a fellow of AAAI and ACM. He is also a recipient of the INFORMS Wagner prize for excellence in Operations Research practice and Rist Prize from MORS (Military Operations Research Society). For his work on AI and public safety, he has received Columbus Fellowship Foundation Homeland security award and commendations and certificates of appreciation from the US Coast Guard, the Federal Air Marshals Service and airport police at the city of Los Angeles.

Prof. Nick Duffield
Texas A&M University

Title: Inspiring Data Science Research through Collaboration with University Operations

June 8, 2022
(6:30 pm - 7:30 pm IST / 9:00 am - 10:00 am EDT)

Abstract: Universities are large and complex organizations. Many functions of universities (including research and education administration) and their infrastructure (including transportation, facilities, utilities) depend on data supplied by participants or collected through instrumentation during their operation. The resulting data are used to manage these functions across a range of timescales, ranging from planning, through daily operations, to troubleshooting and event response. Due to the constraints and demands of daily operations management, the potential for such data to improve operations has often not been fully realized. This provides an opportunity for university researchers to develop partnerships with operational organizations that capitalize on their institutional data investments to improve campus operations. This talk describes data-driven operational collaborations in the Texas A&M Operational Data Science Lab that support several of the areas listed above. We argue that faculty and students engaged in these activities benefit from exposure to real-world problems, not only through the broader impact that results, but in informing future use-inspired research in these and cognate areas. This can improve positioning for emerging funding opportunities that not only use to Data Science to combine across disciplines, but also integrate vertically from theory, through systems, to practice. Achieving these goals has the potential to transform universities into living laboratories for Data Science, accelerating the pace and effectiveness of research, teaching, and outreach.

Biography: Nick Duffield is a Professor in the Department of Electrical and Computer Engineering at Texas A&M University, holder of the Royce E. Wisenbaker Professorship I, and Director of the Texas A&M Institute of Data Science (TAMIDS). His research combines foundations and applications of Data Science and computer networking, currently graph sampling and learning, network measurement and resilience, and applications of Data Science to transportation, agriculture, infrastructure, and operations. In his TAMIDS role, he has led the development of new education programs, courses, and training in Data Science, and created the Thematic Labs program that supports development of ecosystems in emerging areas in Data Science and AI, encompassing research, education, and community building. He is an ACM Fellow, IEEE Fellow, and IET Fellow, and was a co-recipient of the ACM Sigmetrics Test of Time Award in both 2012 and 2013 for work in Network Tomography. From 1995 to 2013 Duffield worked at AT&T Labs, Florham Park, NJ, where he was a Distinguished Member of Technical Staff and an AT&T Fellow, and prior to that held faculty and postdoctoral positions in Germany and Ireland. He received his PhD in Physics from the University of London, UK in 1987 and the MMath and BA in Natural Sciences from the University of Cambridge, UK, in 1983 and 1982 respectively.

Award Talks

2022 ACM SIGMETRICS Achievement Award

Prof. Balaji Prabhakar
Stanford University

Title: The Unreasonable Effectiveness of Mathematical Methods in the Analysis of Networked Systems

June 8, 2022
(7:45 pm - 8:45 pm IST / 10:15 am - 11:15 am EDT)

Abstract: From the 1970s, packet-switched networking has grown alongside areas such as distributed computing, databases, operating systems, computer architecture, fault-tolerant systems and consensus protocols. Together with these fields, it has ushered the cloud computing revolution which drives most of today's retail, banking, finance, healthcare, manufacturing, entertainment and gaming activities. Whereas mathematical methods and models have had little to no impact in the analysis of distributed systems or in computer architecture, they have been unusually − *unreasonably*, one might argue − effective in the performance analysis of packet-switched networks. Furthermore, in contrast to the highly successful LQG (Linear, Quadratic, Gaussian) theory in stochastic control, models of networks have proven to be robust to cost-function and distributional assumptions, evolving well with time and application context. In this talk, I will speculate on the reasons for this success and survey a few of my favorite models and methods of network performance. I will describe some recent work we are doing on "timeliness and time-sensitive systems." Specifically, I will describe a high-precision, software-based network clock synchronization system and show how it can be used to build: (1) a "fair" financial exchange on top of jittery public clouds, and (2) a new congestion control system which can convert commodity packet-switched interconnects into "zero-drop networks;" in the latter case, mathematical modeling continues to enjoy success.

Biography: Balaji Prabhakar is VMWare Founders Professor of Computer Science and a faculty member in the Departments of Electrical Engineering and Computer Science, and, by courtesy, in the Graduate School of Business at Stanford University. His research interests are in computer networks; notably, in Data Center Networks and Cloud Computing Platforms. His work spans network algorithms, congestion control protocols, and stochastic network theory. He has also worked on Societal Networks, where he has developed "nudge engines" to incentivize commuters to travel in off-peak times so that congestion, fuel and pollution costs are reduced.

Balaji has been a Terman Fellow at Stanford University, and a Fellow of the Alfred P. Sloan Foundation, IEEE and ACM. He has received the CAREER award from the U.S. National Science Foundation, the Erlang Prize, the Rollo Davidson Prize, and delivered the Lunteren Lectures. He is the recipient of the inaugural IEEE Innovation in Societal Infrastructure Award which recognizes "significant technological achievements and contributions to the establishment, development and proliferation of innovative societal infrastructure systems." He has received the IEEE Koji Kobayashi Award for his work on Computer Communications. He is a co-recipient of several best paper and test of time awards. During 2005−07 he was switch architect at Nuova Systems (acquired by Cisco Systems) where he developed the fabric scheduling and line card algorithms of Cisco's Nexus 5000 family of data center Ethernet switches. In 2011 he co-founded Urban Engines (acquired by Google in 2016) and is currently on leave at Clockwork.io where he is co-founder and CEO.

2022 ACM SIGMETRICS Rising Star Research Award

Prof. Giulia Fanti
Carnegie Mellon University

Title: From Epidemics to Blockchains: The Delicate Interplay between Networks and Distributed Systems

June 9, 2022
(6:30 pm - 7:30 pm IST / 9:00 am - 10:00 am EDT)

Abstract: For many years, the research community separated the study of distributed systems (and corresponding applications) from the study of communication networks. This paradigm is starting to change; researchers have found that communication networks can significantly impact application-level properties of distributed systems, including performance, security, privacy, and fairness. For example, such interactions arise in the analysis of epidemics and the design of blockchain systems. In this talk, we highlight how careful modeling, analysis, and design of communication networks can impact the properties of distributed systems. We illustrate this point through a detailed case study focusing on privacy in blockchain systems, while alluding to other properties like performance, security, and fairness. We conclude with open questions for the community regarding how to design distributed systems that inherently account for the role of networks.

Biography: Giulia Fanti is an Assistant Professor of Electrical and Computer Engineering at Carnegie Mellon University. Her research interests span the security, privacy, and efficiency of distributed systems. She is a two-time fellow of the World Economic Forum's Global Future Council on Cybersecurity and a member of NIST's Information Security and Privacy Advisory Board. Her work has been recognized with best paper awards, a Sloan Fellowship, an Intel Rising Star Faculty Research Award, and a U.S. Air Force Research Laboratory Young Investigator Grant. She obtained her Ph.D. in EECS from U.C. Berkeley and her B.S. in ECE from Olin College of Engineering.

Detailed Program

June 7, 2022 (Tuesday) – Main Conference

- **Registration**
  Time: 9:45 am onwards (June 7, 2022)
  Venue: Victor Menezes Convention Centre (VMCC)

- **Welcome address by General Chairs**
  Time: 10:15 am - 10:30 am IST (June 7, 2022)
  Venue: Prof. B. Nag Auditorium (VMCC)

- **Session 1A: Optimization I**
  Time: 10:30 am - 12:10 pm IST (June 7, 2022)
  Venue: Seminar Room 2 (VMCC)
  Chair: Mohammad Hajiesmaili

  - **Tensor Completion with Nearly Linear Samples Given Weak Side Information** by Christina Lee Yu (Cornell University) and Xumei Xi (Cornell University)

  - **Dynamic Regret Minimization for Control of Non-stationary Linear Dynamical Systems** by Varun Gupta (University of Chicago), Yuwei Luo (Stanford University), and Mladen Kolar (University of Chicago)

  - **Differentially Private Reinforcement Learning with Linear Function Approximation** by Xingyu Zhou (Wayne State University)

  - **On Multivariate Singular Spectrum Analysis and its Variants** by Anish Agarwal (MIT), Abdullah Alomar (MIT), and Devavrat Shah (MIT)

- **Session 1B: Networking**
  Time: 10:30 am - 12:10 pm IST (June 7, 2022)
  Venue: Seminar Room 4 (VMCC)
  Chair: Shaileshh Bojja Venkatakrishnan

  - **Curvature-based Analysis of Network Connectivity in Private Backbone Infrastructures** by Loqman Salamatian (Columbia University), Scott Anderson (University of Wisconsin - Madison), Joshua Matthews (University of Wisconsin - Madison), Paul Barford (University of Wisconsin - Madison), Walter Willinger (NIKSUN, Inc.), and Mark Crovella (Boston University)

- **Automatic Inference of BGP Location** Communities by Brivaldo A. Silva Jr (UFMS), Paulo Mol (Universidade Federal de Minas Gerais), Osvaldo Fonseca (Universidade Federal de Minas Gerais), Italo Cunha (Universidade Federal de Minas Gerais), Ronaldo A. Ferreira (UFMS), and Ethan Katz-Bassett (Columbia University)

- **Understanding I/O Direct Cache Access Performance for End Host Networking** by Minhu Wang (Tsinghua University), Mingwei Xu (Tsinghua University), and Jianping Wu (Tsinghua University)

- **Traffic Refinery: Cost-Aware Data Representation for Machine Learning on Network Traffic** by Francesco Bronzino (Université Savoie Mont Blanc), Paul Schmitt (Information Sciences Institute), Sara Ayoubi (Nokia Bell Labs), Hyojoon Kim (Princeton University), Renata Teixeira (INRIA), and Nick Feamster (University of Chicago)

- **Poster Session**
  Time: 12:15 pm - 1:15 pm IST (June 7, 2022)
  Venue: Online

- **Lunch**
  Time: 1:15 pm - 2:30 pm IST (June 7, 2022)
  Venue: Padma Vihar Guest House

- **Session 2A: Topology Design and Load Balancing**
  Time: 2:30 pm - 4:10 pm IST (June 07, 2022)
  Venue: Seminar Room 2 (VMCC)
  Chair: Miklos Telek

  - **Understanding the Performance Guarantee of Physical Topology Design for Optical Circuit Switched Data Centers** by Shizhen Zhao (Shanghai Jiao Tong University), Peirui Cao (Shanghai Jiao Tong University), and Xinbing Wang (Shanghai Jiao Tong University)

  - **Cerberus: The Power of Choices in Datacenter Topology Design - A Throughput** Perspective by Chen Griner (Ben Gurion University, Israel), Johannes Zerwas (Technische Universität München), Andreas Blenk (Technische Universität München), Stefan Schmid (University of Vienna), Manya Ghobadi (MIT), and Chen Avin (Ben-Gurion University of the Negev, Israel)

- **Large-System Insensitivity of Zero-Waiting Load Balancing** Algorithms by Xin Liu (ShanghaiTech University), Kang Gong (University of Michigan, Ann Arbor), and Lei Ying (University of Michigan. Ann Arbor)

- **Mean Field and Refined Mean Field Approximations for Heterogeneous Systems: It Works!** by Sebastian Allmeier (INRIA) and Nicolas Gast (INRIA)

Session 2B: Streaming, Gaming, and the Decentralized Web
Time: 2:30 pm - 4:10 pm IST (June 07, 2022)
Venue: Seminar Room 4 (VMCC)
Chair: Vinay Ribeiro

- **Xatu: Richer Neural Network Based Prediction for Video Streaming** by Yun Seong Nam (Purdue University/Google), Jianfei Gao (Purdue University), Chandan Bothra (Purdue University) Ehab Mohammad Ghabashneh (Purdue University), Sanjay Rao (Purdue University), Bruno Ribeiro (Purdue University), Jibin Zhan (Conviva), and Hui Zhang (Conviva)

- **End-to-End Characterization of Game Streaming Applications on Mobile Platforms** by Sandeepa Bhuyan (Pennsylvania State University), Shulin Zhao (Pennsylvania State University), Ziyu Ying (Pennsylvania State University), Mahmut Taylan Kandemir (Pennsylvania State University), and Chita Das (Pennsylvania State University)

- **Dissecting Cloud Gaming Performance with DECAF** by Hassan Iqbal (North Carolina State University), Ayesha Khalid (University of California Santa Cruz), and Muhammad Shahzad (North Carolina State University)

- **Toxicity in the Decentralized Web and the Potential for Model** Sharing by Haris Bin Zia (Queen Mary University of London), Aravindh Raman (Telefonica Research), Ignacio Castro (Queen Mary University of London), Ishaku Anaobi (Queen Mary University of London) Emiliano De Cristofaro (University College London), Nishanth Sastry (University of Surrey, UK), and Gareth Tyson (Queen Mary University of London)

Session 3B: Systems
Time: 4:30 pm - 6:10 pm IST (June 7, 2022)
Venue: Seminar Room 4 (VMCC)
Chair: Giuliano Casale

- **WISEFUSE: Workload Characterization and DAG Transformation for Serverless Workflows** by Ashraf Mahgoub (Purdue University), Edgardo

Barsallo Yi (Purdue University), Karthick Shankar (Carnegie Mellon University), Eshaan Minocha (Purdue University), Somali Chaterji (Purdue University), Sameh Elnikety (Microsoft Research), and Saurabh Bagchi (Purdue University)

- **An Enterprise-Grade Open-Source Data Reduction Architecture for All-Flash Storage Systems** by Mohammadamin Ajdari (HPDS Research & Sharif University of Technology), Patrick Raaf (Johannes Gutenberg University Mainz), Mostafa Kishani (Sharif University of Technology), Reza Salkhordeh (Johannes Gutenberg University Mainz), Hossein Asadi (Sharif University of Technology & Johannes Gutenberg University Mainz), and André Brinkmann (Johannes Gutenberg University Mainz)

- **Dremel: Adaptive Configuration Tuning of RocksDB KV-Store** by Chenxingyu Zhao (University of Washington), Tapan Chugh (University of Washington), Jaehong Min (University of Washington), Ming Liu (University of Wisconsin-Madison), and Arvind Krishnamurthy (University of Washington)

- **Tuxedo: Maximizing Smart Contract computation in PoW Blockchains** by Sourav Das (UIUC), Nitin Awathare (Indian Institute of Technology Bombay), Ling Ren (UIUC), Vinay J. Ribeiro (Indian Institute of Technology Bombay), and Umesh Bellur (Indian Institute of Technology Bombay)

- ## Welcome address by General & TPC Chairs
  Time: 6:30 pm - 7:00 pm IST (June 7, 2022)
  Venue: Prof. B. Nag Auditorium (VMCC)

- ## Keynote Talk – Prof. Milind Tambe
  Time: 7:00 pm - 8:00 pm IST (June 7, 2022)
  Venue: Prof. B. Nag Auditorium (VMCC)
  Chair: S. Sudarshan
  Title: **AI for Social Impact: Results from Deployments for Public Health and Conservation**

- ## Conference Dinner at *Mirchi and Mime (Powai)*
  Time: 9:00 pm IST onwards (June 7, 2022)
  Logistics: Bus leaves from Jalvihar Guest House at 9:00 pm

June 8, 2022 (Wednesday) - Main Conference

- ## Session 3A: Learning meets Systems
  Time: 11:30 am - 1:10 pm IST (June 8, 2022)
  Venue: Seminar Room 2 (VMCC)
  Chair: Shaolei Ren

  - **Metamorphic Testing of Deep Learning Compilers** by Dongwei Xiao (Hong Kong University of Science and Technology), Zhibo LIU (Hong Kong University of Science and Technology), Yuanyuan Yuan (The Hong Kong University of Science and Technology), Qi Pang (The Hong Kong University of Science and Technology), and Shuai Wang (HKUST)

  - **SimNet: Accurate and High-Performance Computer Architecture Simulation using Deep Learning** by Lingda Li (Brookhaven National Laboratory), Santosh Pandey (Stevens Institute of Technology), Thomas Flynn (Brookhaven National Laboratory), Hang Liu (Stevens Institute of Technology), Noel Wheeler (Laboratory for Physical Sciences), and Adolfy Hoisie (Brookhaven National Laboratory)

  - **Prediction of the Resource Consumption of Distributed Deep Learning Systems** by Gyeongsik Yang (Korea University), Changyong Shin (Korea University), Jeunghwan Lee (Korea University), Yeonho Yoo (Korea University), and Chuck Yoo (Korea University)

  - **Hierarchical Learning Algorithms for Multi-scale Expert Problems** by Lin Yang (University of Massachusetts Amherst), Yu-Zhen Chen (University of Massachusetts Amherst), Mohammad Hajiesmaili (University of Massachusetts Amherst), Mark Herbster (University College London), and Don Towsley (University of Massachusetts Amherst)

- ## Session 4B: Measurements and Security
  Time: 11:30 am - 1:10 pm IST (June 8, 2022)
  Venue: Seminar Room 4 (VMCC)
  Chair: Giulia Fanti

  - **Understanding the Practices of Global Censorship through Accurate, End-to-End Measurements** by Lin Jin (University of Delaware), Shuai Hao (Old Dominion University), Haining Wang (Virginia Tech), and Chase Cotton (University of Delaware)

- **Monetizing Spare Bandwidth: the Case of Distributed VPNs** by Yunming Xiao (Northwestern University), Matteo Varvello (Nokia Bell Labs), and Aleksandar Kuzmanovic (Northwestern University)

- **MalRadar: Demystifying Android Malware in the New Era** by Liu Wang (Beijing University of Posts and Telecommunications), Haoyu Wang (Huazhong University of Science and Technology), Ren He (Beijing University of Posts and Telecommunications), Ran Tao (Beijing University of Posts and Telecommunications), Guozhu Meng (SKLOIS, Institute of Information Engineering, Chinese Academy of Sciences, China), Xiapu Luo (The Hong Kong Polytechnic University), and Xuanzhe Liu (Peking University)

- **Trade or Trick? Detecting and Characterizing Scam Tokens on Uniswap Decentralized Exchange** by Pengcheng Xia (Beijing University of Posts and Telecommunications), Haoyu Wang (Beijing University of Posts and Telecommunications), Bingyu Gao (Beijing University of Posts and Telecommunications), Weihang Su (Beijing University of Posts and Telecommunications), Zhou Yu (Beijing University of Posts and Telecommunications), Xiapu Luo (The Hong Kong Polytechnic University), Chao Zhang (Tsinghua University), Xusheng Xiao (Case Western Reserve University), and Guoai Xu (Beijing University of Posts and Telecommunications)

- ## Lunch
  Time: 1:10 pm - 2:30 pm IST (June 8, 2022)
  Venue: Padma Vihar Guest House

- ## Session 4A: Online Optimization
  Time: 2:30 pm - 4:10 pm IST (June 8, 2022)
  Venue: Seminar Room 2 (VMCC)
  Chair: Siddhartha Banerjee

  - **Online Optimization with Feedback Delay and Nonlinear Switching Cost** by Weici Pan (Stony Brook University), Guanya Shi (California Institute of Technology), Yiheng Lin (California Institute of Technology), and Adam Wierman (California Institute of Technology)

  - **Competitive Online Optimization with Multiple Inventories: A Divide-and-Conquer Approach** by Qiulin Lin (City University of Hong Kong), Yanfang Mo (City University of Hong Kong), Junyan Su (City University of Hong Kong), and Minghua Chen (City University of Hong Kong)

- **Expert-Calibrated Learning for Online Optimization with Switching Costs** by Pengfei Li (University of California, Riverside), Jianyi Yang (University of California, Riverside), and Shaolei Ren (University of California, Riverside)

- **Competitive Algorithms for Online Multidimensional Knapsack Problems** by Lin Yang (University of Massachusetts Amherst), Ali Zeynali (University of Massachusetts Amherst), Mohammad Hajiesmaili (University of Massachusetts Amherst), Ramesh Sitaraman (University of Massachusetts Amherst & Akamai Tech), and Don Towsley (University of Massachusetts Amherst)

- ▪ **Session 5B: Wireless and Mobile Networks**
  Time: 2:30 pm - 4:10 pm IST (June 8, 2022)
  Venue: Seminar Room 4 (VMCC)
  Chair: Francesco Bronzino

  - **A Detailed Look at MIMO Performance in 60 GHz WLANs** by Shivang Aggarwal (Northeastern University), Srisai Karthik Neelamraju (University at Buffalo), Ajit Bhat (University at Buffalo), and Dimitrios Koutsonikolas (Northeastern University)

  - **NG-Scope: Fine-Grained Telemetry for NextG Cellular Networks** by Yaxiong Xie (Princeton University) and Kyle Jamieson (Princeton University)

  - **Argus: Predictable Millimeter-Wave Picocells with Vision and Learning Augmentation** by Hem Regmi (University of South Carolina) and Sanjib Sur (University of South Carolina)

  - **The First 5G-LTE Comparative Study in Extreme Mobility** by Yueyang Pan (Peking University), Ruihan Li (Peking University), and Chenren Xu (Peking University)

- ▪ **Session 5A: Resource Allocation**
  Time: 4:30 pm - 6:10 pm IST (June 8, 2022)
  Venue: Seminar Room 2 (VMCC)
  Chair: Siva Theja Maguluri

  - **Offline and Online Algorithms for SSD Management** by Tomer Lange (Technion - Israel Institute of Technology), Joseph (Seffi) Naor (Technion - Israel Institute of Technology), and Gala Yadgar (Technion - Israel Institute of Technology)

- **Online Caching Networks with Adversarial Guarantees** by Yuanyuan Li (Northeastern University) Tareq SI SALEM (Université Côte d'Azur, INRIA) Stratis Ioannidis (Northeastern University), and Giovanni Neglia (INRIA)

- **Real-time Bidding for Time Constrained Impression Contracts in First and Second Price Auctions - Theory and Algorithms** by Ryan Kinnear (University of Waterloo, Canada), Ravi R. Mazumdar (University of Waterloo, Canada), and Peter Marbach (University of Toronto, Canada)

- **Sequential Fair Allocation: Achieving the Optimal Envy-Efficiency Tradeoff Curve** by Sean R. Sinclair (Cornell University), Siddhartha Banerjee (Cornell University), and Christina Lee Yu (Cornell University)

- ### Keynote Talk - Prof. Nick Duffield
  Time: 6:30 pm - 7:30 pm IST (June 8, 2022)
  Venue: Prof. B. Nag Auditorium (VMCC)
  Chair: Mark Squillante
  Title: **Inspiring Data Science Research through Collaboration with University Operations**

- ### Achievement Award Talk - Prof. Balaji Prabhakar
  Time: 7:45 pm - 8:45 pm IST (June 8, 2022)
  Venue: Prof. B. Nag Auditorium (VMCC)
  Chair: Giuliano Casale
  Title: **The Unreasonable Effectiveness of Mathematical Methods in the Analysis of Networked Systems**

June 9, 2022 (Thursday) - Main Conference

- ## Session 6A: Optimization II
  Time: 11:30 am - 1:10 pm IST (June 9, 2022)
  Venue: Seminar Room 2 (VMCC)
  Chair: Konstantin Avrachenkov

  - **Asymptotic Convergence Rate of Dropout on Shallow Linear Neural Networks** by Albert Senen-Cerda (Eindhoven University of Technology) and Jaron Sanders (Eindhoven University of Technology)

  - **Robustness and Consistency in Linear Quadratic Control with Untrusted Predictions** by Tongxin Li (California Institute of Technology), Ruixiao Yang (Tsinghua University), Guannan Qu (Carnegie Mellon University), Guanya Shi (California Institute of Technology), Chenkai Yu (Columbia University), Adam Wierman (California Institute of Technology), and Steven Low (California Institute of Technology)

  - **Stationary Behavior of Constant Stepsize SGD Type Algorithms: An Asymptotic Characterization** by Zaiwei Chen (Georgia Institute of Technology), Shancong Mou (Georgia Institute of Technology), and Siva Theja Maguluri (Georgia Institute of Technology)

  - **Learning To Maximize Welfare with a Reusable Resource** by Matthew Faw (University of Texas at Austin), Orestis Papadigenopoulos (University of Texas at Austin), Constantine Caramanis (University of Texas at Austin), and Sanjay Shakkottai (University of Texas, Austin)

- ## Session 6B: Memory and GPUs
  Time: 11:30 am - 1:10 pm IST (June 9, 2022)
  Venue: Seminar Room 4 (VMCC)
  Chair: Y. C. Tay

  - **Towards Efficient Sparse Matrix Vector Multiplication on Real Processing-in-Memory Architectures** by Christina Giannoula (National Technical University of Athens), Ivan Fernandez (University of Malaga, Spain), Juan G√≥mez Luna (ETH Zurich), Nectarios Koziris (National Technical University of Athens, Greece), Georgios Goumas (National Technical University of Athens, Greece), and Onur Mutlu (ETH Zurich)

- **Memory Space Recycling** by Jihyun Ryoo (Penn State University), Mahmut Taylan Kandemir (Penn State University), and Mustafa Karakoy (TUBITAK-BILGEM)

- **Data Convection: A GPU-Driven Case Study for Thermal-Aware Data Placement in 3D DRAMs** by Soheil Khadirsharbiyani (Penn State, USA), Jagadish Kotra (AMD Research, USA), Karthik Rao (AMD Research, USA), and Mahmut Taylan Kandemir (Penn State, USA)

- **NURA: A Framework for Supporting Non-Uniform Resource Accesses in GPUs** by Sina Darabi (Sharif University of Technology, Tehran, Iran), Negin Mahani (Sharif University of Technology, Tehran, Iran), Hazhir Baxishi (Sharif University of Technology, Tehran, Iran), Ehsan Yousefzadeh (Sharif University of Technology, Tehran, Iran), Mohammad Sadrosadati (Sharif University of Technology, Tehran, Iran), and Hamid Sarbazi-Azad (Sharif University of Technology, Tehran, Iran)

- **Lunch**
  Time: 1:10 pm - 2:30 pm IST (June 9, 2022)
  Venue: Padma Vihar Guest House

- **Session 7A: Miscellaneous**
  Time: 2:30 pm - 4:10 pm IST (June 9, 2022)
  Venue: Seminar Room 2 (VMCC)
  Chair: Sara Alouf

  - **Free2Shard: Adversary-resistant Distributed Resource Allocation for Blockchains** by Ranvir Rana (UIUC), Sreeram Kannan (University of Washington Seattle), David Tse (Stanford), and Pramod Viswanath (UIUC)

  - **Age-Dependent Differential Privacy** by Meng Zhang (Zhejiang University), Ermin Wei (Northwestern University), Randall Berry (Northwestern University), and Jianwei Huang (The Chinese University of Hong Kong, Shenzhen)

  - **Unleashing the Power of Paying Multiplexing Only Once in Stochastic Network Calculus** by Anne Bouillard (Huawei Technologies France), Paul Nikolaus (Distributed Computer Systems (DISCO) Lab, TU Kaiserslautern, Germany), and Jens Schmitt (Distributed Computer Systems (DISCO) Lab, TU Kaiserslautern, Germany)

- ## Session 7B: Pricing and Speed
  Time: 2:30 pm - 4:10 pm IST (June 9, 2022)
  Venue: Seminar Room 4 (VMCC)
  Chair: Christina Yu

  - **YourAdvalue: Measuring Advertising Price Dynamics without Bankrupting User Privacy** by Michalis Pachilakis (University of Crete / FORTH-ICS, Greece), Panagiotis Papadopoulos (Telefonica Research, Spain), Nikolaos Laoutaris (IMDEA Networks Institute, Spain), Evangelos P. Markatos (University of Crete / FORTH-ICS, Greece), and Nicolas Kourtellis (Telefonica Research, Spain)

  - **Power of Bonus in Pricing for Crowdsourcings** by Suho Shin (Line Plus), Hoyong Choi (KAIST), Yung Yi (KAIST), and Jungseul Ok (POSTECH)

  - **Fusing Speed Index during Web Page Loading** by Wei Liu (Tsinghua University), Xinlei Yang (Tsinghua University), Hao Lin (Tsinghua University), Zhenhua Li (Tsinghua University), and Feng Qian (University of Minnesota - Twin Cities)

  - **Data-Driven Network Path Simulation with iBox** by Sachin Ashok (Microsoft Research India & University of Illinois at Urbana-Champaign), Shubham Tiwari (Microsoft Research India), Nagarajan Natarajan (Microsoft Research India), Venkata N. Padmanabhan (Microsoft Research India), and Sundararajan Sellamanickam (Microsoft Research India)

- ## Session 8B: System Performance
  Time: 4:30 pm - 6:10 pm IST (June 9, 2022)
  Venue: Seminar Room 4 (VMCC)
  Chair: Mahmut Kandemir

  - **CachePerf: A Unified Cache Miss Classifier via Hybrid Hardware Sampling** by Jin Zhou (University of Massachusetts Amherst), Steven (Jiaxun) Tang (University of Massachusetts Amherst), Hanmei Yang (University of Massachusetts Amherst), and Tongping Liu (University of Massachusetts Amherst)

  - **A Comprehensive Empirical Study of Query Performance Across GPU DBMSes** by Young-Kyoon Suh (Kyungpook National University), Junyoung An (Kyungpook National University), Byungchul Tak (Kyungpook National University), and Gap-Joo Na (ETRI)

- **A Formalism of DNN Accelerator Flexibility** by Sheng-Chun Kao (Georgia Institute of Technology), Hyoukjun Kwon (Georgia Institute of Technology), Michael Pellauer (NVIDIA), Angshuman Parashar (NVIDIA), and Tushar Krishna (Georgia Institute of Technology)

- **One Proxy Device Is Enough for Hardware-Aware Neural Architecture Search** by Bingqian Lu (University of California, Riverside), Jianyi Yang (University of California, Riverside), Weiwen Jiang (George Mason University), Yiyu Shi (University of Notre Dame), and Shaolei Ren (University of California, Riverside)

▪ **Rising Star Award Talk - Prof. Giulia Fanti**
Time: 6:30 pm - 7:30 pm IST (June 9, 2022)
Venue: Prof. B. Nag Auditorium (VMCC)
Chair: Cathy Xia
Title: **From Epidemics to Blockchains: The Delicate Interplay between Networks and Distributed Systems**

▪ **Conference Dinner at *Chetana (Kala Ghoda)***
Time: 7:45 pm – 11:00 pm IST (June 9, 2022)
Logistics: Bus leaves from VMCC at 7:45 pm

Dinner Venues

Mirchi & Mime

Mirchi & Mime is a trendy dining restaurant serving modern-Indian cuisine, first of its kind in India, served exclusively by speech & hearing-impaired service staff. The restaurant offers seasonal and select classical dishes from select locations across India with contemporary expression presented by a highly experienced kitchen team. Good food served quietly.

Two first generation entrepreneur-investors who believe in promoting entrepreneurship conceived the idea and took upon themselves the plan to provide gainful, sustainable and respectful employment to 500 speech and hearing impaired, through a chain of restaurants across India and beyond. Mirchi & Mime, with an 88 seating capacity indoors, 18 seating patio area, and a private dining area, serving cocktails, wines and celebrating festivities is the first in this endeavor.

Chetana

Chetana Veg. Restaurant, a division of Chetana Pvt. Ltd., has been expanded, renovated and modernised in 2001 with new décor and floor-to-ceiling windows overlooking the cheerful boulevard.

Vegetarianism as a life-style choice, as well as a commitment to offer the freshest ingredients in a healthful, imaginative, wholesome food had a strong influence on the development of the restaurant's repertoire. The continued growth in our client base – which consists of Industrialists, Media Persons, Professionals, and a collection of Mumbai's Artists – and a steady stream of young people and tourists dropping into the restaurant demonstrates that the eating public loves and wants this kind and quality of food.

Started in 1946 as a sandwich/coffee corner serving the intellectuals and elite of Bombay (now known as Mumbai) engaged in philosophical discussions, poetry readings or playing chess in Chetana premises, the restaurant soon grew into an eatery specializing in cuisine from the Indian princely states of Gujarat and Rajasthan. The choice of cuisine was further enlarged in 2001 by introducing a Multi-cuisine to supplement the ongoing Gujarati and Rajasthani food. Moreover, a buffet service was added to the sit-down Thali service. Both these concepts provided a wider variety of food and catered for busy lifestyles of the present times, and soon become very popular.

Chetana's traditional and inspired creations comprise of a seasonal array of totally vegetarian ingredients that come fresh from farms to your table. With respect for all life and to promote a lifestyle in harmony with the balance of nature through the wonders of vegetarian food, we proudly serve all dishes free of meat, poultry, fish and egg.

Sponsors

Photo Credit: *Powai Lake and its Birds* **by IITB Birders**