IWCIT 2025

13th Iran Workshop on Communication and Information Theory

May 6th-8th 2025 | iwcit@sharif.ir | @iwcit

Sharif University of Technology, Tehran, Iran

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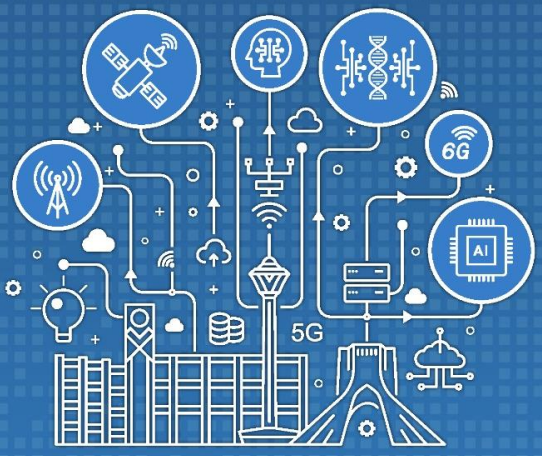

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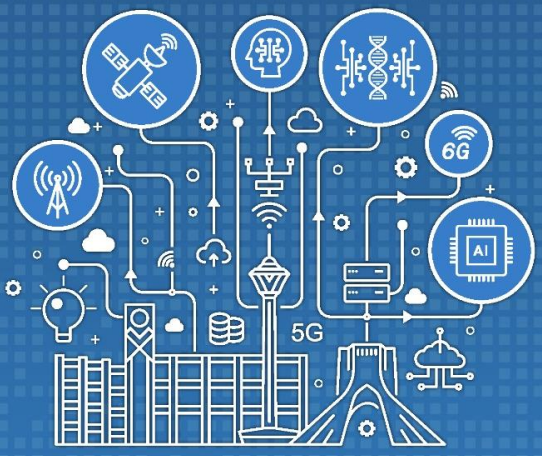

Technical Program | **May 6th 2025**

Tuesday, May 6th 2025		
10:00 – 12:00	Ashkan Panahi (Tutorial, Part 1)	Distributed Machine Learning: from Optimization to Generalization
14:00 – 15:00	Ashkan Panahi (Tutorial, Part 2)	Distributed Machine Learning: from Optimization to Generalization

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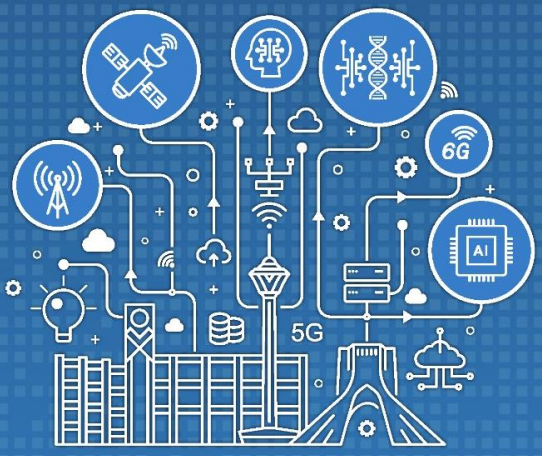

Technical Program

May 7th 2025

Wednesday, May 7th 2025		
08:30 – 09:00	Opening Talk	
09:00 – 10:00	Stefano Buzzi (Keynote Speech)	Cell-Free Massive MIMO: Foundations and Frontiers for 6G Wireless
10:00 – 10:30	Break	
10:30 – 11:15	Syed Ali Hassan (Invited Talk)	Reconfigurable Intelligent Surfaces: Towards Intelligent Wireless Networks
11:30 – 12:30	Paper Presentation (Session I)	
12:30 – 14:00	Lunch	
14:00 – 15:00	Paper Presentation (Session II)	
15:00 – 16:00	Paper Presentation (Session III)	
16:00 – 16:15	Break	
16:15 – 17:00	Hesam Mahdavifar (Invited Talk)	New Faces of Channel Coding in Wireless Systems
19:30 – 22:00	Banquet	

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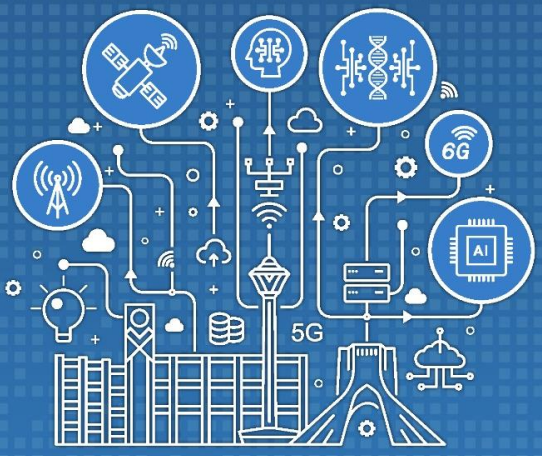

Technical Program

May 8th 2025

Thursday, May 8th 2025		
08:00 – 09:00	Dusit Niyato (Keynote Speech)	Toward Scalable Generative AI via Mixture of Experts in Mobile Edge Networks
09:00 – 09:15	Break	
09:15 – 10:00	Abdellatif Zaidi (Invited Talk)	Distributed Statistical Learning: Architectures, Algorithms and Information and Communication Views
10:00 – 12:00	Golamali Aminian (Tutorial, Part 1)	Characterizing the Generalization Error of Machine Learning Algorithms via Information Measures
12:00 – 14:00	Lunch	
14:00 – 15:00	Golamali Aminian (Tutorial, Part 2)	Characterizing the Generalization Error of Machine Learning Algorithms via Information Measures
15:00 – 16:00	Masoud Naderpour (Seminar)	Optimizing the Future: The Role of AI/ML in New Generations of Cellular Communication Through Real-World Applications
16:00 – 16:15	Break	
16:15 – 17:00	Mohammad Hajiesmaili (Invited Talk)	Video Streaming Algorithms with Predictions: From Theory to Practice

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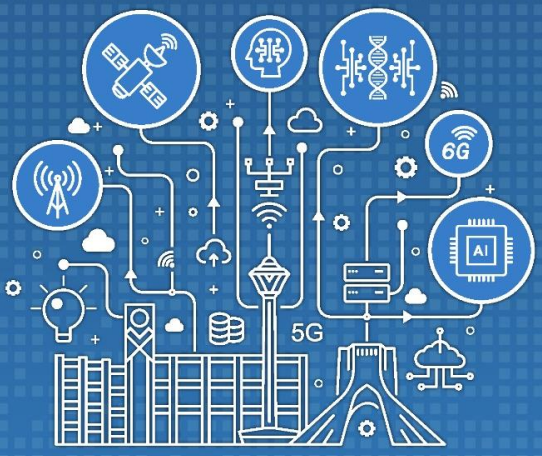

Technical Program

May 6th 2025

Tuesday, May 6th 2025

Tutorial

Ashkan Panahi

Distributed Machine Learning: From Optimization to Generalization

10:00 – 12:00, 14:00 – 15:00

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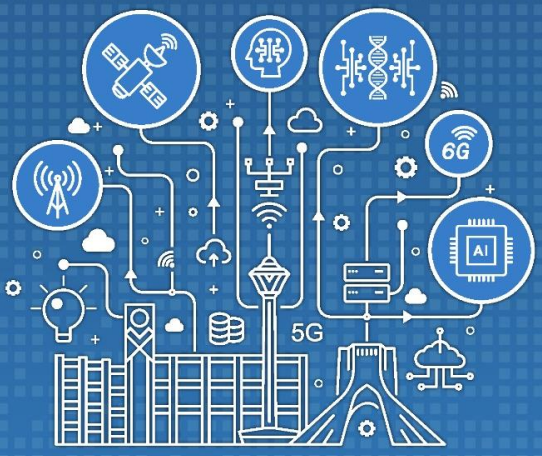

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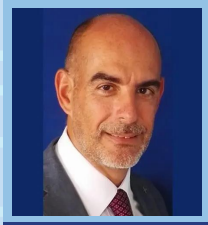
Wednesday, May 7th 2025

Keynote Speech



Stefano Buzzi

Cell-Free Massive MIMO: Foundations and Frontiers for 6G Wireless

09:00 – 10:00

Invited Talks

Syed Ali Hassan

Reconfigurable Intelligent Surfaces: Towards Intelligent Wireless Networks

10:30 – 11:15

Hessam Mahdavifar

New Faces of Channel Coding in Wireless Systems

16:15 – 17:00

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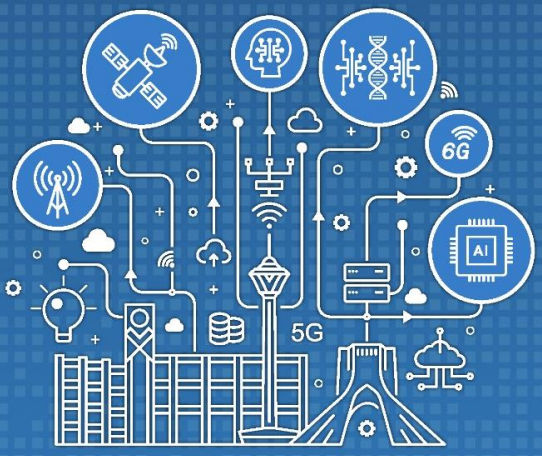

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May 8th 2025

Thursday, May 8th 2025

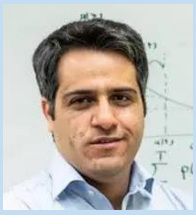
Keynote Speech

Dusit (Tao) Niyato

Toward Scalable Generative AI via Mixture of Experts in Mobile Edge Networks
08:00 – 09:00

Invited Talks

Abdellatif Zaidi
Distributed Statistical Learning: Architectures, Algorithms and Information and Communication Views
09:15 – 10:00



Mohammad Hajiesmaili

Video Streaming Algorithms with Predictions: From Theory to Practice
16:15 – 17:00

Tutorial & Seminar

Gholamali Aminian
Characterizing the Generalization Error of Machine Learning Algorithms via Information Measures
10:00 – 12:00, 14:00 – 15:00

Masoud Naderpour
Optimizing the Future: The Role of AI/ML in New Generations of Cellular Communication Through Real-World Applications
15:00 – 16:00

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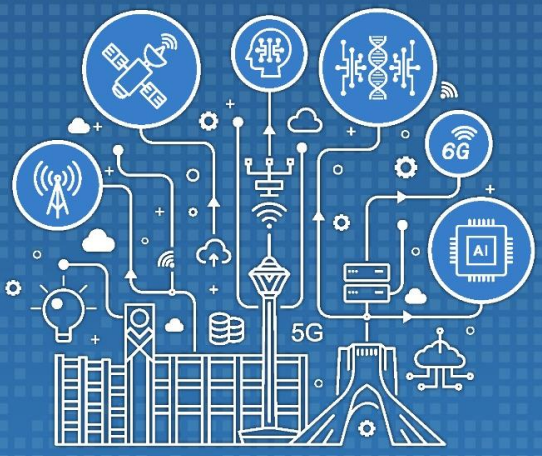

Paper Presentations (Session I)

Wednesday, May 7th 2025, 11:30 – 12:30

Paper Presentation, Session I

11:30 – 11:50	Reza HajiMohammadi Tabriz, Sajjad Amini and Reza Kazemi (Sharif University of Technology, Iran)	**Enhancing Adversarial Robustness with Energy-Based Models: A Novel Training Approach for Input Purification**
11:50 – 12:10	Sima Sobhi-Givi (University of Mohaghegh Ardabili, Iran); Masoud Rahimi, Mahdi Nouri and Hamid Behroozi (Sharif University of Technology, Iran); Murat Uysal (NYU Abu Dhabi, United Arab Emirates)	**A Deep Reinforcement Learning Framework for Joint BS and Beyond Diagonal RIS Beamforming Design in ISAC Systems**
12:10 – 12:30	Seyed Ali Bateni and Mohammad Mahdi Naghsh (Isfahan University of Technology, Iran)	**Design and Implementation of a Radar Based Integrated Sensing and Communication System**

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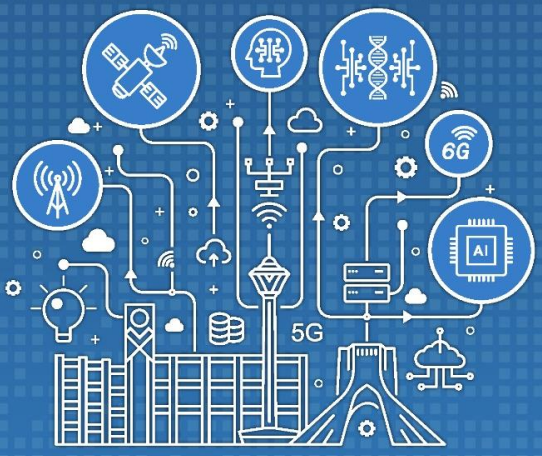

Paper Presentations (Session II)

Wednesday, May 7th 2025, 14:00 – 15:00

Paper Presentation, Session II

14:00 – 14:20	Jawad Salehi and Amir Mohammad Yaghoobianzadeh (Sharif University of Technology, Iran)	**Performance Evaluation of TDMA-Based Quantum Passive Optical Networks**
14:20 – 14:40	Amir Oshtoudan (Shahid Beheshti University Tehran, Iran); Seyed Mohammad Sajad Sadough (Shahid Beheshti University, Iran)	**Performance Improvement of Hybrid RF/VLC Systems Through Cooperative RSMA and mCAP Modulation**
14:40 – 15:00	Elahe Shahsavan (Yazdf University, Iran); Aliakbar Tadaion and Zolfa Zeinalpour-Yazdi (Yazd University, Iran)	**Adaptive Back-off and Retransmission Strategies for Efficient and Scalable Preamble Allocation in 5G NR Critical mMTC**

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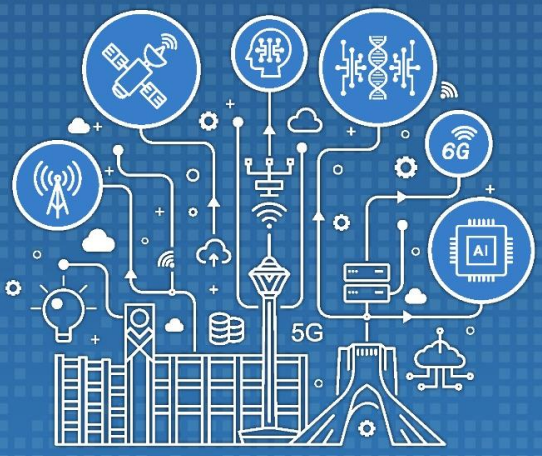

Paper Presentations (Session III)

Wednesday, May 7th 2025, 15:00 – 16:00

Paper Presentation, Session III

15:00 – 15:20	MohammadAmin Sarzaeem, Seyed Reza Hoseini Najarkolaei, Mohammad Hossein Yassaee and Mohammadreza Aref (Sharif University of Technology, Iran)	**Limited-Sharing Multi-Party Computation with Reduced Recovery Threshold**
15:20 – 15:40	Sepehr Asvadi and Farid Ashtiani (Sharif University of Technology, Iran)	**Peak Age of Information in Multi-Path Networks**
15:40 – 16:00	Jalil Etminan (Ferdowsi University of Mashhad, Iran); Ghosheh Abed Hodtani (Ferdowsi University of Mashhad, Mashhad, Iran)	**On the Ergodic Capacity and Ergodic Secrecy Rate of Rate Splitting Aided Wireless Multiple Access Channel with Correlated Channel Coefficients**

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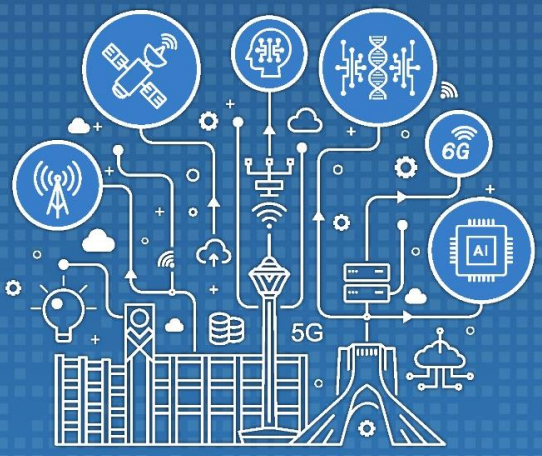
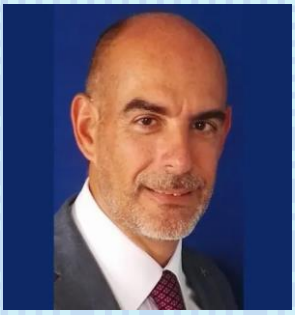


Keynote Speeches



Stefano Buzzi

Dusit Niyato

Invited Talks

Abdellatif Zaidi

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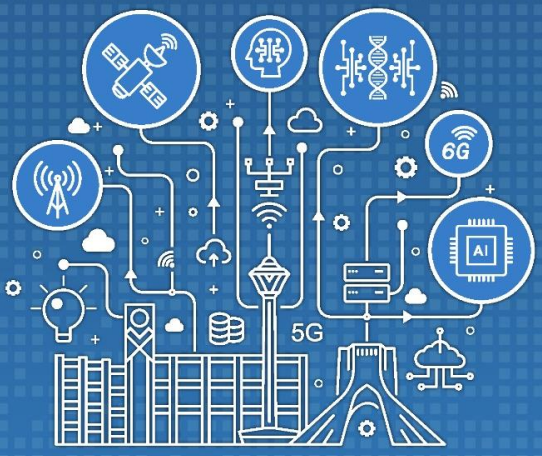

Tutorials and Seminars

Ashkan Panahi

Gholamali Aminian

The Alan Turing Institute

Masoud Naderpour

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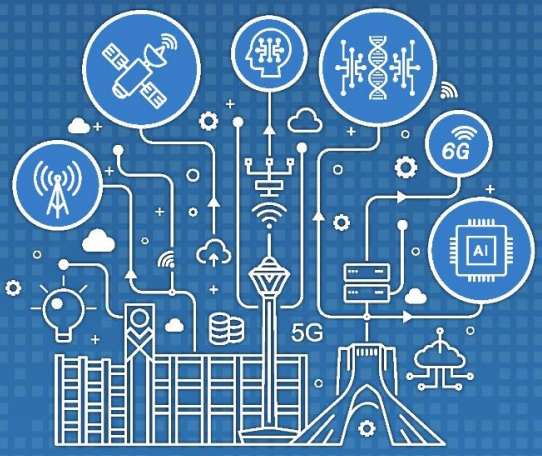

Tutorial

Tuesday, May 6th 2025, 10:00 – 12:00, 14:00 – 15:00

Ashkan Panahi

Distributed Machine Learning: From Optimization to Generalization

Abstract:
Many modern applications of machine learning (ML) require multiple learning agents to collaborate. This so-called distributed machine learning (DML) paradigm has recently received a lot of attention, especially within the federated learning framework. The purpose of this tutorial is to provide a general insight into the subject of distributed machine learning, and it is organized into three parts. First, we explore the main goals, possible applications and challenges involved in DML. We discuss the taxonomy of DML methods and how issues such as heterogeneity, domain shift and communication emerge in various applications. We also briefly review privacy, security and fairness in DML. Next, we take a closer look at distributed optimization algorithms as the main drive behind the success of ML. We explore the two main methodologies of distributed algorithm design, namely primal-dual methods and Gossip-based algorithms and review some of the state-of-the-art solutions. Finally, we discuss theoretical aspects of DML. We discuss the convergence of distributed algorithms and introduce a unified framework for further addressing statistical generalization of ML methods.

Biography:
Ashkan Panahi is an associate professor at the department of computer science and engineering, Chalmers University, Sweden. He received his PhD degree in signal processing from the Electrical Engineering department at Chalmers University in 2015. From 2016-2019 he has been a postdoctoral researcher at the Vision, Information, and Statistical Signal Theories and Applications Group (VISSTA), North Carolina State University, USA and a research associate at the research triangle park, NC, USA. Since 2019, he has been leading a research group that explores statistical aspects of machine learning from a computation perspective. Panahi's research interest spans optimization theory and high-dimensional statistical methods, especially in machine learning and signal processing problems.

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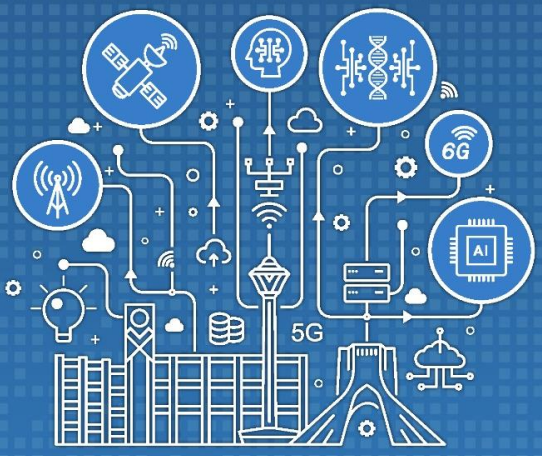

Keynote Speech

Wednesday, May 7th 2025, 09:00 – 10:00

Stefano Buzzi

Cell-Free Massive MIMO: Foundations and Frontiers for 6G Wireless

Abstract:
Cell-free massive MIMO has emerged as a transformative network architecture credited to play a foundational role in 6G wireless networks. By eliminating cell boundaries and leveraging distributed cooperation among access points, it offers uniformly high service quality, improved energy efficiency, and exceptional spectral efficiency. This keynote will first provide an overview of the principles and benefits of cell-free massive MIMO, also touching upon key enabling technologies, such as Open RAN (O-RAN) and AI-RAN, that support its scalable deployment. The talk will then highlight recent advances from our research group, including novel differential transmission techniques designed to mitigate downlink phase misalignment issues among access points, and the exploitation of near-field propagation to enhance localization and beamforming performance in the line-of-sight regime.

Biography:
. Stefano Buzzi joined the University of Cassino and Lazio Meridionale in 2000, where he is now a Full Professor (since 2018). He received his M.Sc. (summa cum laude) in Electronic Engineering in 1994 and Ph.D. in Electrical and Computer Engineering in 1999, both from the University of Naples "Federico II". Since 2022 he is also affiliated with Politecnico di Milano, Italy. He held short-term research positions at Princeton University in 1999, 2000, 2001, and 2006.

Prof. Buzzi has served as Associate Editor for the IEEE Signal Processing Letters, IEEE Communications Letters, and IEEE Transactions on Wireless Communications (2014–2020), and is currently Associate Editor for the IEEE Transactions on Communications. He has been the guest co-editor of five IEEE Journal on Selected Areas in Communications special issues. He is also a frequent TPC member for major international conferences.

His research interests span communications and signal processing, with a focus on wireless systems and 6G technologies. He currently coordinates two EU-funded projects: METAWIRELESS (on metasurfaces for wireless communications) and ISLANDS (on Integrated Sensing and Communications for vehicular environments). He has co-authored around 170 peer-reviewed publications, including the highly cited paper "What will 5G be?" (IEEE JSAC, June 2014).

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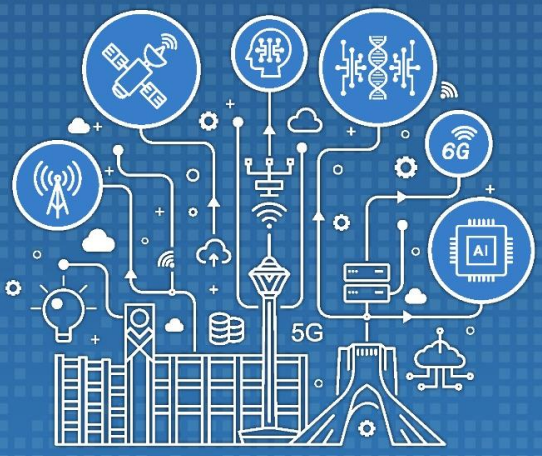

Invited Talk

Wednesday, May 7th 2025, 10:30 – 11:15

Syed Ali Hassan

Reconfigurable Intelligent Surfaces: Towards Intelligent Wireless Networks

Abstract:
The demand for wireless capacity is continuously growing with the advent of the Internet-of-Everything system, connecting millions of people and billions of machines. To date, the fifth generation (5G) wireless networks are being rolled out in the world, providing a new vision to mobile communication. While 5G is still in its commercialization phase, the research on Beyond 5G (B5G) and sixth generation (6G) communication has already started ground work on innovative technologies that support the capacity growth of future networks with lower cost, energy consumption, and hardware complexity. In order to meet the stringent demands on spectral and energy efficiency, B5G and 6G will rely on new and advanced technologies ranging from cell-free massive MIMO, Terahertz communication, pervasive artificial intelligence, ambient backscatter communications, to reconfigurable intelligent surfaces (RIS). In this talk, we discuss the basic concepts and applications of RIS, emphasizing the research going on in the community in general and at IPT in particular, especifically when coupling RIS with other modern technologies.

Biography:
Syed Ali Hassan received the M.S. degree in mathematics and the Ph.D. degree in electrical engineering from Georgia Institute of Technology, Atlanta, USA, and the M.S. degree in electrical engineering from the University of Stuttgart, Germany. His broader area of research is signal processing for communications. He was a Research Associate with Cisco Systems, Inc., San Jose, CA, USA. He is currently a Professor with the School of Electrical Engineering and Computer Science (SEECS), NUST, where he is also the Director of the Information Processing and Transmission Research Group, which focuses on various aspects of theoretical communications. He has (co)authored more than 350 publications in international conferences and journals and has organized several special issues/sessions as editor/chair in leading journals/conferences. He is also the CTO of Adept Tech Solutions, a US-based start up having its R&D office in Pakistan, providing efficient solutions to engineering businesses.

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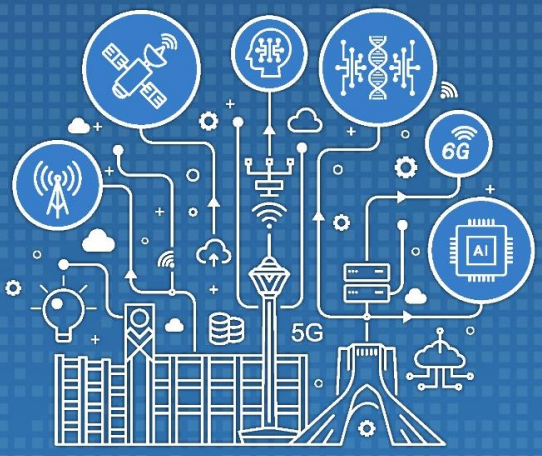

Invited Talk

Wednesday, May 7th 2025, 16:15 – 17:00

Hessam Mahdavifar

New Faces of Channel Coding in Wireless Systems

Abstract:
Error-correcting codes form the backbone of nearly all digital communication systems, enabling reliable data transmission in the presence of noise. In particular, 5G systems marked a major shift in channel coding paradigms, with the successful adoption of low-density parity-check (LDPC) codes and polar codes. However, most state-of-the-art channel codes, including those used in 5G, are primarily designed and optimized for moderate rates, decoding complexity, and latency; parameters that align with the demands of traditional wireless systems. Looking ahead to emerging applications in next-generation wireless connectivity, new challenges arise that demand far more extreme requirements in terms of rate, complexity, and latency. In this talk, I will present our recent advances in developing channel codes tailored to these stringent conditions. In the first part of the talk, I will discuss new families of high-rate sparse codes that support highly parallelized belief propagation (BP) decoding. These codes outperform their 5G-LDPC counterparts by an order of magnitude in error probability, while maintaining efficient decoding architectures. In the second part, I will turn to polarization-adjusted convolutional (PAC) codes that have evolved from polar codes to approach fundamental performance limits at finite lengths. I will introduce new design methods for the rate-profile of PAC codes that enable highly efficient, low-complexity implementations of sequential decoders. These advancements allow PAC codes to outperform all existing state-of-the-art codes within comparable code parameter regimes.

Biography:
Hessam Mahdavifar is an Associate Professor in the Department of Electrical and Computer Engineering at Northeastern University and an Adjunct Associate Professor in the Department of Electrical Engineering and Computer Science at the University of Michigan, Ann Arbor. He received the B.Sc. degree from the Sharif University of Technology, Tehran, Iran, in 2007, and the M.Sc. and the Ph.D. degrees from the University of California San Diego (UCSD), La Jolla, in 2009, and 2012, respectively, all in electrical engineering. He was with the University of Michigan, first as an Assistant Professor and later as an Associate Professor, between 2017 and 2023. Before that, he was with the Samsung US R&D between 2012 and 2016, in San Diego, US, as a staff research engineer. He has received a number of awards including the NSF career award in 2020, the Best Paper Award in 2015 IEEE International Conference on RFID, and the 2013 Samsung Best Paper Award. He also received two Silver Medals at the International Mathematical Olympiad in 2002 and 2003, and two Gold Medals at Iran National Mathematical Olympiad in 2001 and 2002.

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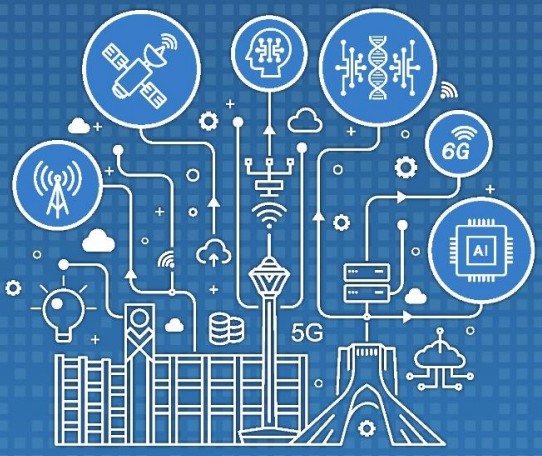

Tutorial

Thursday, May 8th 2025, 08:00 – 09:00

Dusit Niyato

Toward Scalable Generative AI via Mixture of Experts in Mobile Edge Networks

Abstract:
The evolution of generative artificial intelligence (GenAI) has driven revolutionary applications like ChatGPT. The proliferation of these applications is underpinned by the mixture of experts (MoE), which contains multiple experts and selectively engages them for each task to lower operation costs while maintaining performance. Despite MoE's efficiencies, GenAI still faces challenges in resource utilization when deployed on local user devices. Therefore, we first propose mobile edge networks supported MoE-based GenAI. Rigorously, we review the MoE from traditional AI and GenAI perspectives, scrutinizing its structure, principles, and applications. Next, we present a new framework for using MoE for GenAI services in Metaverse. Moreover, we propose a framework that transfers subtasks to devices in mobile edge networks, aiding GenAI model operation on user devices. Moreover, we introduce a novel approach utilizing MoE, augmented with Large Language Models (LLMs), to analyze user objectives and constraints of optimization problems based on deep reinforcement learning (DRL) effectively. This approach selects specialized DRL experts, and weights each decision from the participating experts. In this process, the LLM acts as the gate network to oversee the expert models, facilitating a collective of experts to tackle a wide range of new tasks. Furthermore, it can also leverage LLM's advanced reasoning capabilities to manage the output of experts for joint decisions. Lastly, we insightfully identify research opportunities of MoE and mobile edge networks.

Biography:
Dusit Niyato is currently a President's Chair Professor in the College of Computing & Data Science (CCDS), Nanyang Technological University, Singapore. Dusit's research interests are in the areas of mobile generative AI, edge intelligence, quantum computing and networking, and incentive mechanism design. Currently, Dusit is serving as Editor-in-Chief of IEEE Transactions on Network Science and Engineering (TNSE). He is also an area editor of IEEE Communications Surveys and Tutorials, IEEE Transactions on Vehicular Technology (TVT), topical editor of IEEE Internet of Things Journal (IoTJ), lead series editor of IEEE Communications Magazine, and associate editor of IEEE Transactions on Wireless Communications (TWC), IEEE Transactions on Communications, IEEE Wireless Communications, IEEE Network, IEEE Transactions on Information Forensics and Security (TIFS), IEEE Transactions on Cognitive Communications and Networking (TCCN), IEEE Data Descriptions, IEEE Transactions on Services Computing (TSC), and ACM Computing Surveys. He was also a guest editor of IEEE Journal on Selected Areas on Communications. Dusit is the Members-at-Large to the Board of Governors of IEEE Communications Society for 2024-2026. He was named the 2017-2024 highly cited researcher in computer science. He is a Fellow of IEEE and a Fellow of IET.

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IWCIT 2025

13th Iran Workshop on Communication and Information Theory

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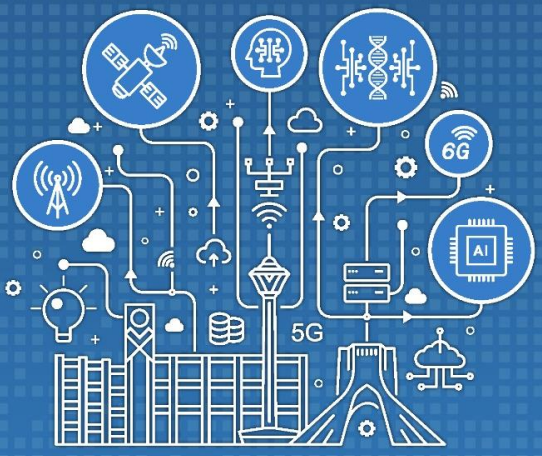
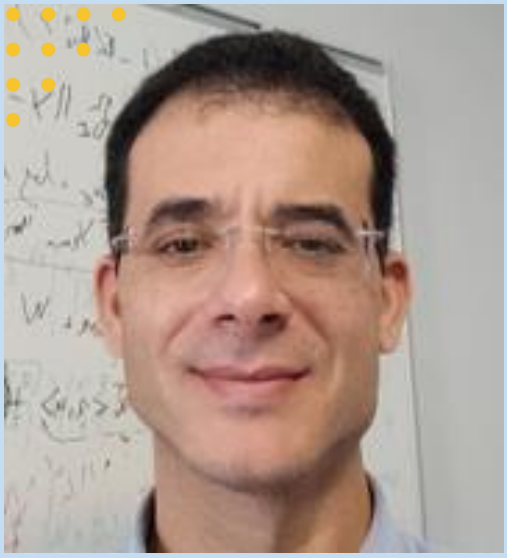


Invited Talk

Thursday, May 8th 2025, 09:15 – 10:00



Abdellatif Zaidi

Distributed Statistical Learning: Architectures, Algorithms and Information and Communication Views

Abstract:
This talk is aimed at providing a survey of the recent progress in the area of distributed statistical learning as well as its applications. First we show that, perhaps in sharp contrast what the intuition suggests, statistical learning can perform better when applied distributively, rather than in a centralized manner. In particular, it will be shown that distributed learning has a smaller generalization error, i.e., is more robust to variations in the input data; and the improvement over centralized processing increases with the number of clients. We also discuss multi-round interactive learning models (such as with the popular FedAvg) and show that, in this case, more interactions with the parameter server does not result in a smaller generalization error. This suggest that local SGD in which learning is on small-sized batchs of data and then models are aggregated suitably is better than the popular SGD. If time permits, in the second part of this talk we also discuss architectures, training algorithms as well as number of relevant connections with seemingly unrelated communication and information-theoretic problems, such as communication over Cloud Radio Access Networks with oblivious relays and multiterminal hypothesis testing under communication constraints.

Biography:
Abdellatif Zaidi is Associate Professor at the department of Electrical Engineering, University of Gustave-Eiffel, France. He is also with the Huawei Paris Research Center, where he holds the position of Expert and Team Leader. Dr. Zaidi is recipient of the Research Excellence price in France ; and co-recipient (jointly with Shlomo Shamai (Shitz)) of the N# Best Paper Award in 2014. He served as Associate Editor for the IEEE Transactions on Wireless Communications and the Eurasip Journal on Wireless Communications and Networking. He held several research visitor positions, including at the University of Notre Dame, Indiana, the Technical University of Munich and the Ecole Polytechnique Federale de Lausanne, EPFL. His research interests lie broadly in information theory and its interactions with statistics and machine learning and applications.

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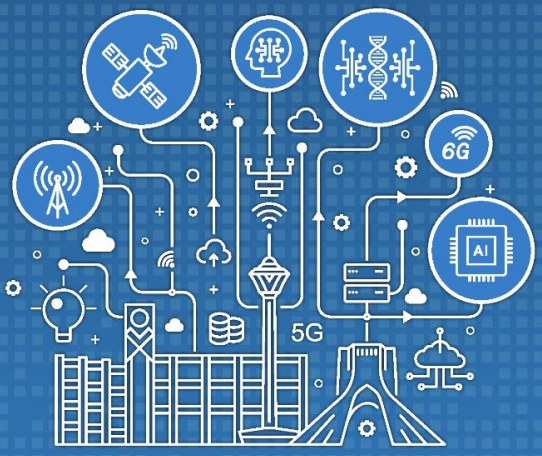

Tutorial

Thursday, May 8th 2025, 10:00 – 12:00, 14:00 – 15:00

Gholamali Aminian

The Alan Turing Institute

Characterizing the Generalization Error of Machine Learning Algorithms via Information Measures

Abstract:
This tutorial explores methodologies originating from information theory to understand the generalization behavior of machine learning algorithms, i.e., how such algorithms perform on unseen data. While a broad set of techniques for the study of generalization are briefly discussed, the focus is on the notion of generalization error. The generalization error consists of the expectation with respect to models and datasets of the difference between the training empirical risk and the population risk. The main highlight of this tutorial is that such a metric, which has been the center of attention in machine learning for several decades, is characterized for all machine learning algorithms via information measures. The Gibbs algorithm is taken as a particular example for introducing the main insights gained from these expressions. We will also discuss some practical insights of such analysis in understanding over-parameterization. Such an information-theoretic approach is versatile, as we can also characterize the generalization error of some transfer learning, semi-supervised learning algorithms. We believe that this analysis can guide the choice of different learning algorithms and advance the understanding of generalization in practice.

Biography:
Gholamali Aminian received a BSc. degree in Electrical Engineering from Amirkabir University, Tehran, Iran, in 2010. Gholamali also received an MSc. and PhD degree in Electrical Engineering from Sharif University of Technology, Tehran, Iran, in 2012 and 2017, respectively. He is awarded the Newton International Fellowship by the Royal Society and he was an Honorary Research Fellow at UCL under the supervision of Professor Miguel Rodrigues. In July 2022, he joined the Alan Turing Institute under the FAIR project, as Research Associate working on RL, graph neural networks and stability analysis. His current research interests are off-policy learning and alignment methods for Large language models.

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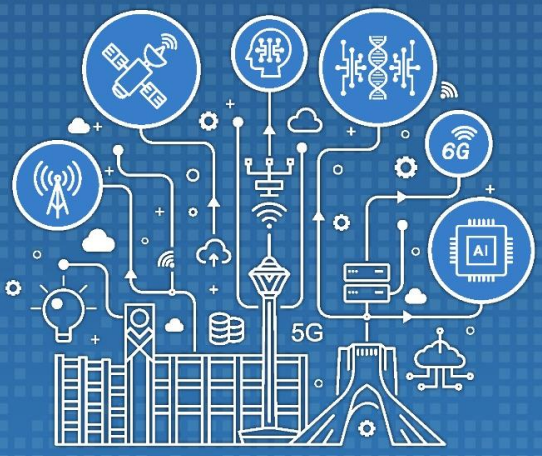

Seminar

Thursday, May 8th 2025, 15:00 – 16:00

Masoud Naderpour

Optimizing the Future: The Role of AI/ML in New Generations of Cellular Communication Through Real-World Applications

Abstract:
As the demand for faster and more efficient cellular communication continues to grow, the integration of Artificial Intelligence (AI) and Machine Learning (ML) has emerged as a transformative force in the development of next-generation cellular networks. This lecture will explore the multifaceted role of AI/ML across various layers of cellular applications, highlighting real-world implementations and trends that are shaping the future of telecommunications. We will delve into the application of AI in dynamic applications (d-APPs) for real-time processing at the physical layer, as well as near-real-time and non-real-time algorithms, such as xApps and rApps, utilized in Layers 2 and 3. The discussion will extend to innovative tools like chatbots that enhance Service Management and Orchestration (SMO), assisting operators in commissioning tasks and conducting root cause analysis (RCA). Additionally, we will introduce the concept of AI-RAN, where traditional physical layer processing is revolutionized through AI-driven methodologies. By consolidating these diverse elements into a cohesive framework, this presentation aims to provide a comprehensive overview of how AI/ML technologies are being leveraged to optimize cellular communication networks. Furthermore, we will highlight specific layers and implementations developed at Farabeen, illustrating practical examples of how these advanced technologies are being integrated into real-world applications. Attendees will gain valuable insights into the current trends and future prospects of AI in cellular communication, equipping them with knowledge to navigate this rapidly evolving landscape.

Biography:
Dr. Masoud Naderpour is a telecommunications engineer with a Ph.D. in Telecommunication Engineering. He specializes in Statistical Signal Processing and Wireless Communication. Masoud started his career at Faraz Ertebat as a developer, where he worked on the implementation of the 4G physical layer. He later took on the role of Technical Project Manager for developing 4G eNodeBs and Customer Premises Equipment (CPEs). He has also lead a project to create a semi-industrial 5G gNodeB. Now, he is the Head of the Wireless Communications Group at Faraabeen, where he focuses on developing commercial eNodeBs for Iranian Mobile Network Operators (MNOs). In his current position, Masoud aims to improve the specifications of Farabeen's eNodeB products and make the gNodeB commercially viable. He is also working on AI-based optimization tools to help MNOs operate more efficiently.

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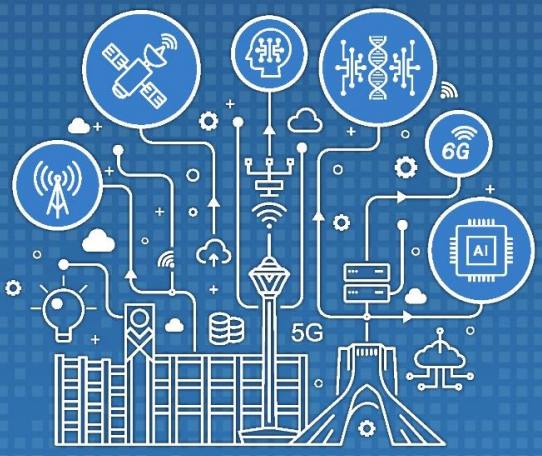

Invited Talk

Thursday, May 8th 2025, 04:15 – 17:00

Mohammad Hajiesmaili

Video Streaming Algorithms with Predictions: From Theory to Practice

Abstract:
It's not often that theory meets practice, and that too at the scale of one of the world's largest video delivery networks! In this talk, we introduce a new adaptive bitrate controller designed to address one of the most fundamental challenges in video streaming: maintaining a continuous stream of high-quality video despite uncertain network conditions. The proposed algorithm exemplifies the power of algorithms with predictions, showcasing a complete technological development lifecycle—from theoretical and algorithmic foundations to an actual production implementation on Amazon Prime Video! This work, presented at ACM SIGCOMM 2024, is joint with Kevin Chen, Mohammad Hajiesmaili, and Ramesh Sitaraman from UMass Amherst, Yiheng Lin, Nicolas Christianson, and Adam Wierman from Caltech, and Zahaib Akhtar and Sharath Dharmaji from Amazon Prime Video..

Biography:
Mohammad Hajiesmaili is an Associate Professor with the Manning College of Information and Computer Sciences at the University of Massachusetts Amherst. Previously, he was a postdoc at Johns Hopkins University and the Chinese University of Hong Kong, and he received his Ph.D. from the University of Tehran. He directs the Sustainability, Optimization, Learning, and Algorithms Research (SOLAR) Lab, where the research focuses on developing optimization and machine learning tools to facilitate the decarbonization of digital and societal infrastructure. He was named to Popular Science's Brilliant 10 in 2022, featuring his work on the decarbonization of the internet. His awards and honors include the lead for theoretical and AI foundations of an NSF Expedition in Computing on Computational Decarbonization, an NSF CAREER Award, and other awards from NSF, Amazon, Google, VMWare, and Adobe.

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