Technology Innovation Institute

6G SUMMIT ABU DHABI 2024

14 - 15 November 2024

Saadiyat Rotana Resorts, Abu Dhabi

UNITING GLOBAL EXPERTS TO ADVANCE INTELLIGENT NETWORKS, CONNECTING PEOPLE, PLACES, AND TECHNOLOGIES LIKE NEVER BEFORE

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6G SUMMIT
ABU DHABI 2024

14 – 15 November 2024

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AGENDA

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Thursday – 14 November 2024

08:00 – 09:00	**Registration**
Main Ballroom	
09:00 – 09:15	**Summit Opening** *By* MEROUANE DEBBAH, KHALIFA UNIVERSITY
09:15 – 09:30	**Opening Speech** *By* BAYAN SHARIF, KHALIFA UNIVERSITY
09:30 – 10:10	**Keynote: Artificially Sage Spectrum-Information Assignment** *By* JOHN M. CIOFFI, STANFORD UNIVERSITY
10:10 – 10:40	**Fireside Chat: Insights and Innovations from UAE's Journey to 6G** *By* KHALID MURSHED (ETISALAT BY E&) & MEROUANE DEBBAH (KHALIFA UNIVERSITY)
10:40 – 11:20	**Keynote: Learned Task-Aware Compression for Wireless Networks** *By* ELZA ERKIP, NYU
11:20 – 11:50	**Coffee Break**

	Session 1.1 *Integrated AI & Communication*	Session 1.2 *Integrated Sensing & Communication*
11:50 – 12:15	**Talk: Efficient and Trustworthy AI and its Applications to 5G networks** *By* TOM Z.Q. LUO, CHINESE UNIVERSITY OF HONG KONG	**Talk: Dual Function Radar Communication Systems using OTFS waveforms** *By* ATHINA PETROPULU, RUTGERS UNIVERSITY
12:15 – 12:40	**Talk: Network Modelling and Optimization for the 6G Era: Human Expertise Meets AI** *By* NICOLA PIOVESAN, HUAWEI TECHNOLOGIES	**Talk: ISAC for Radar Imaging: A Signal Processing Perspective** *By* JUNIL CHOI, KAIST
12:40 – 13:05	**Talk: Hardware acceleration for 6G network augmented data centers** *By* MANU PERUMKUNNIL, IMEC	**Talk: OFDM Achieves the Lowest Ranging Sidelobe Under Random ISAC Signaling** *By* FAN LIU, SOUTHERN UNIVERSITY OF SCIENCE AND TECHNOLOGY
13:05 – 13:30	**Talk: TBA** *By* RUCHIT AGRAWAL, UNIVERSITY OF BIRMINGHAM DUBAI	**Talk: Radio Localization and Sensing towards 6G: the Carrier Pendulum Swing** *By* HENK WYMEERSCH, CHALMERS UNIVERSITY OF TECHNOLOGY
13:30 – 15:00	**Lunch**	
15:00 – 15:40	**Keynote: Agentic-AI and Core Network Architecture** *By* WEN TONG, HUAWEI TECHNOLOGIES	
15:40 – 16:20	**Keynote: URLLC^3: Ultra-Reliable and Low-Latency Communication, Computing, and Control for Connected Intelligence in 6G** *By* ZHISHENG NIU, TSINGHUA UNIVERSITY	
16:20 – 16:45	**Coffee Break**	
16:45 – 17:45	**Panel: From 5G to 6G: Regulatory Milestones and Future Pathways towards 6G Standardization** *By* SALEH AL MASABI, TDRA *(Moderator)* **Panelists**: ALI CHEEMA (ERICSSON) HARETH ALSHEHHI (ETISALAT BY E&) ABDULHADI ABOUALMAL (MEA-COM) SUDHIR DIXIT (WWRF)	Exhibition/ Demos/ Posters/ Sponsors
17:45 – 18:45	Panel: **Future Networks: Leveraging AI, LLMs, and Semantic Communications for Tomorrow's Connectivity** *By* ABBES AMIRA, UNIVERSITY OF SHARJAH *(Moderator)* **Panelists:** ALEXEY MYAKOV (INTEL) KENAN JARAH (MYCOM-OSI) DEEPAK RAGHUNATHAN (VERYX TECHNOLOGIES) BAGHDAD GHERRAS (MEDAD HOLDING) ALEXANDER KHANIN (POLYNOME.AI)	
18:45	**Closing Day 1**	
20:00	**Gala Dinner & Awards Ceremony**	

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08:00 – 09:00	**Registration**	
Main Ballroom		
09:00 – 09:10	**Second Day Opening**	
09:10 – 09:50	**Keynote: New Results on the Performance of Free Space Optical Communication Systems** *By* MOHAMED-SLIM ALOUINI, KAUST	
09:50 – 10:35	**Industry Dialogue: 6G, AI, and Sustainability** *By* SAMSON LASAULCE, KHALIFA UNIVERSITY *(Moderator)* **Featured Guests:** DANIEL VALLE, WORLD WIDE TECHNOLOGY (WWT) *BRAHIM GHRIBI, NOKIA*	
10:35 – 11:15	**Keynote: Reconfigurable Holographic Surfaces: A New Paradigm to Holographic Communications for 6G** *By* LINGYANG SONG, PEKING UNIVERSITY	
11:15 – 11:45	**Coffee Break**	
	Session 2.1 *Immersive Communications*	Session 2.2 *Ubiquitous Connectivity*
11:45 – 12:10	**Talk: Haptic Communication: Enabling Remote Sense Of Touch** *By* YU XIAO, AALTO UNIVERSITY	**Talk: Stacked Intelligent Metasurfaces: Communication, Computing and Sensing in the Wave Domain** *By* MARCO DI RENZO, CENTRALESUPÉLEC
12:10 – 12:35	**Talk: Intelligent Digital Twin Systems and Networks at 6G Era** *By* BERK CANBERK, EDINBURGH NAPIER UNIVERSITY	**Talk: The Promise of Near-Space towards Ubiquitous Connectivity** *By* HALIM YANIKOMEROGLU, CARLETON UNIVERSITY
12:35 – 13:00	**Talk: 6G-Enabled Digital Twins: Revolutionizing Wireless Network Emulation, Testing, & Experimentation** *By* GEORGES KADDOUM, ÉCOLE DE TECHNOLOGIE SUPÉRIEURE	**Talk: LiFi Transceiver Design for 6G Wireless Networks** *By* ALI GHRAYEB, HAMAD BIN KHALIFA UNIVERSITY
13:00 – 13:25	**Talk: Towards the Internet of Senses: Integrating Human Mind, Body and 6G** *By* SUDHIR DIXIT, BASIC INTERNET FOUNDATION	**Talk: From Near Field Communications to Near-Field Sensing (NISE)** *By* YUANWEI LIU, UNIVERSITY OF HONG KONG
13:25 – 15:00	**Lunch**	
15:00 – 15:40	**Keynote: The Dawn of Surreality: Navigating the Metaverse Revolution and the Future of Immersive Experiences** *By* PAN HUI, HKUST (GZ)	
15:40 – 16:20	**Keynote: 3D Intelligent Metasurfaces and Their Applications** By CHAU YUEN, NANYANG TECHNOLOGICAL UNIVERSITY	
16:20 – 16:45	**Coffee Break**	
16:45 – 17:45	**Panel: Multi-Functional 6G Networks: Key Technological Trends and Challenges** *By* QURRAT-UL-AIN NADEEM, NYU-AD *(Moderator)* **Panelists**: NAWAF ALMOOSA (KHALIFA UNIVERSITY) MARCO DI RENZO (CENTRALESUPÉLEC) NAJLA ALKAABI (DU) HENK WYMEERSCH (CHALMERS UNIVERSITY OF TECHNOLOGY)	Exhibition/ Demos/ Posters/ Sponsors
17:45 – 18:45	**Panel: Securing the Future: From 5G and IoT Cybersecurity to Designing Robust Security for 6G Networks** *By* LUIGI MARTINO, KHALIFA UNIVERSITY *(Moderator)* **Panelists:** ERNESTO DAMIANI (KHALIFA UNIVERSITY) MOHAMMED M. ALANI (RIT DUBAI) MICHAEL BADDELEY (TII) HUSSAM ALHAMMADI (UNIVERSITY OF DUBAI)	
18:45	**Closing the Summit**	

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POSTER SESSION

Thursday – 14 November 2024

1. **Unique Word-Based Frame Design for Bistatic ISAC with Time-Domain Filtering**. By Roberto Bomfin and Marwa Chafii. NYU Tandon School of Engineering, New York-USA, and New York University of Abu Dhabi.- UAE
2. **Large Language Model-Driven Curriculum Design for Mobile Networks.** By Omar Erak, , Omar Alhussein, Shimaa Naser, Nouf Alabbasi, De Mi, Sami Muhaidat. Khalifa University 6G Research Centre, Birmingham City University-UK, and Carleton University, Ottawa, Canada.
3. **Dynamic Caching over Heterogeneous Satellite Mega-Constellations**. By Yongqiang Zhang, Mustafa A. Kishk, and Mohamed-Slim Alouini. Maynooth University, Maynooth-Ireland, and KAUST Saudia Arabia.
4. **Integrating Direct Coherent Localization and Communication by Distributed Antenna Arrays for Enhanced 6G Performance and Capacity.** By Miljko Eric´, Nenad Vukmirovic´, and Petar M. Djuric´. University of Belgrade-Serbia, Innovation Center of the School of Electrical Engineering in Belgrade, Serbia, and Stony Brook University, NY, USA
5. **RIS-Assisted Cellular Communications with Different Service Providers**. By Hyeongtaek Lee, and Junil Choi. Korea Advanced Institute of Science and Technology (KAIST), Korea.
6. **Path Loss Prediction Using Machine Learning for Suburban Environments in the Sub-6 GHz Band**. By Ferdaous Tarhouni, Muneer Al-Zubi, and Mohamed-Slim Alouini. KAUST, Saudia Arabia.
7. **Leveraging Fine-Tuned Retrieval-Augmented Generation with Long-Context Support: For 3GPP Standards**. By Nouf Alabbasi, Omar Erak, Omar Alhussein, Ismail Lotfi, Amr Hussein, Sami Muhaidat, Merouane Debbah. Khalifa University 6G Research Centre-UAE, and Carleton University, Ottawa, Canada,
8. **Goal Oriented State Information Comprehension for Linear Dynamical System Control**. By Li Wang, Chao Zhang, Samson Lasaulce, Lina Bariah, Merouane Debbah. Khalifa University 6G Research Centre, Abu Dhabi-UAE.
9. **Vision Transformer based Semantic Communication for Next Generation Wireless Networks,** Muhammad Ahmed Mohsin, Muhammad Jazib, Zeeshan Alam, Muhmmad Farhan Khan, Muhammad Saad, Muhammad Ali Jamshed, Stanford
10. **A novel Approach of Optimal Base Station Selection & Deployment in 5G Heterogeneous Networks for Smart Factories**. By Muhammad Farhan Khan, Dirk Pesch, School of Computer Science & IT, University College Cork, Ireland
11. **Large Language Models for Power Scheduling.** By T. Mongaillard, S. Lasaulce, O. Hicheur, C. Zhang, L. Bariah, V. S. Varma, H. Zou, Q. Zhao, M. Debbah. Khalifa University, Abu Dhabi, UAE
12. **Performance analysis of OFDM-SIMO system with time-domain interleaving**, Khalifa University, Abu Dhabi,UAE
13. **Designing Finite Alphabet Waveforms for MIMO Radar Covariance Matrices: A Binary Integer Programming Approach**. By Karim Saifullin, Sajid Ahmed, Mohamed-Slim Alouini, King Abdullah University of Science and Technology (KAUST), Saudi Arabia
14. **Satellite Imaging through Synthetic-Aperture Radar (SAR): Deep Learning for Despeckling**. By Shaikha Altamimi, Ainara Kazymova, Kundai Mutuwira, Salmane Naoumi, Ahmad Bazzi and Marwa Chafii, NYU Abu Dhabi.
15. **Generation and Application of Digital Twin Channel for RIS-Enabled Communication and Sensing System.** By Bohao Wang, Zhenyu Yang, Zehua Jiang, Jiayu Shen, Chang Liu Supervisors: Chongwen Huang, Chen Zhu Zhejiang University
16. **Machine Learning-Driven Performance Analysis of Compressed Communication in Aerial-RIS Networks for 6G and Future Wireless Networks in Urban Environments** Muhammad Farhan Khan, Muhammad Ahmed Mohsin, Muhammad Saad, Muhammad Ali Jamshed, Adeel Iqbal, Muhammad Turyalai Khan

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POSTER SESSION

Friday – 15 November 2024

1. **ISAC wih Multi-Vehicle Collaboration.** By Ling He, Yingyang Chen, and Miaowen Wen, South China University of technology-China.

2. **Enabling High-Speed Connectivity in Urban Environments Through Composite Base Stations and Dynamic Spectrum Scheduling**, By Muhammad Farhan Khan, Adnan Rashid, Adeel Iqbal, and Dirk Pesch, College Cork, Cork, Ireland Dep. of Electrical & Information Engineering, Politecnico di Bari, Bari, Italy Dep. of Electrical and Computer Engineering, COMSATS University Islamabad, Pakistan

3. **ISAC Security with Minimum Power**. By Ahmad Bazzi and Marwa Chafii. New York University of Abu Dhabi.- UAE

4. **On the Transmit Power Requirement for RIS-Aided Integrated Sensing, Communication, and Energy Harvesting**. By Vaibhav Kumar, and Marwa Chafii. New York University Abu Dhabi, UAE, and NYU Tandon School of Engineering, New York, USA

5. **Hybrid Radar Fusion for Integrated Sensing and Communication.** By Akhileswar Chowdary, Ahmad Bazzi, and Marwa Chafii. NYU Tandon School of Engineering, NY University-USA, and New York University of Abu Dhabi.- UAE

6. **Beamforming Optimization for Physical Layer Security in ISAC with Semi-Passive RIS**. By Ainara Kazymova, Vaibhav Kumar, and Marwa Chafii. New York University Abu Dhabi (NYUAD)- UAE, and NYU Tandon School of Engineering, New York, USA.

7. **Near-Field Analysis of Extremely Large-Scale MIMO: Power, Correlation, and User Selection**. By Xiangyu Cui, Ki-Hong Park, Mohamed-Slim Alouini. KAUST, Saudia Arabia.

8. **Enhancing Urban Mobility Through Convoy Driving: A Coalition Game Theory Approach**. By Sumbal Malik, Hesham El Sayed, Manzoor Ahmed Khan. University, Al Ain, Abu Dhabi, UAE.

9. **TANAGERS: Emergent Communication for UAVs as Flying Passive Radars. B**y Salmane Naoumi, Roberto Bomfin, Reda Alami, and Marwa Chafii. NYU Tandon School of Engineering, New York-USA, and New York University of Abu Dhabi.- UAE

10. **Connectivity of LEO Satellite Mega Constellations: An Application of Percolation Theory on a Sphere**. By Hao Lin, Mustafa A.Kishk, and Mohamed-Slim Alouini. Maynooth University Maynooth-Ireland, and KAUST Saudia Arabia.

11. **Joint Estimation of Sensing Parameters in Realistic Bistatic ISAC Systems Using Parameterized and Deep Learning Approaches**. By Kundai Mutuwira, , Salmane Naoum, and Marwa Chafii. NYU Tandon School of Engineering, New York-USA, and New York University of Abu Dhabi- UAE

12. **Sensing Distance Analysis for Monostatic Radar in InF-DH Environment in FR3 Band**. By Ali Waqar Azim, Ahmad Bazzi, Marwa Chafii. New York University of Abu Dhabi- UAE

13. **Multi-Symbol Rate NOMA: A Pathway to Enhanced Connectivity in 6G Networks.** By Zainab Khader, Graduate Student Member, IEEE, Arafat Al-Dweik, Senior Member, IEEE. Khalifa University, Abu Dhabi-UAE.

14. **Performance Analysis of SIMO-FSO over Correlated Lognormal Channel with Coupled Pointing Errors.** By Jong-Min Kim, Ki-Hong Park, Young-Chai Ko, Mohamed-Slim Alouini, King Abdullah University of Science and Technology (KAUST), Saudi Arabia, Korea University, South Korea.

15. **Orthogonality Analysis in LoRa Uplink Satellite Communications Affected by Doppler Effect.** By Jikang Deng, Fatma Benkhelifa, Mohamed-Slim Alouini, King Abdullah University of Science and Technology (KAUST), Saudi Arabia, and Queen Mary University of London (QMUL)- United Kingdom.

16. **Optical-RIS for Deep Space Optical Communication: Vision, Architecture, Challenges, and Open Research Directions**. By Hossien B. Eldeeb‡, Diana W. Dawoud, Murat Uysal, Wathiq Mansoor , Harald Haas

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DEMO SESSION

Demo 1

Title: **5G Network Automation Using Local Large Language Models and Retrieval-Augmented Generation**

Institution: Sharif University of Technology, Tehran, Iran

Authors: Ahmadreza Mejlesara, Ali Mejlesi, Ali Mamaghani, Alireza Shokrani, Babak Khalaj

Demo 2

Title: **Leveraging Fine-Tuned Retrieval-Augmented Generation with Long-Context Support: For 3GPP Standards**

Institution: Khalifa University, 6G Research Centre, Department of Computer Science, Khalifa University, Abu Dhabi, UAE

Authors: Nouf Alabbasi , Omar Erak ,Omar Alhussein and Ismail Lotfi, Amr Hussein, Sami Muhaidat, Merouane Debbah

Demo 3

Title: **Intelligent Digital Twin for 6G Networks**

Institutions: BubbleRAN and EURECOM, France

Authors: CHATZISTEFANIDIS Ilias, Andrea Leone, Navid Nikaein, Alireza Mohammadi, Mikel Irazabal.

Demo 4

Title**: Next generation field test system for 6G related KPI's, and innovation in Channel Sounding for 6G.**

Institution: Anritsu EMEA GmBH

Authors: Amish Lad**,** Borrill, Jonathan and Bordin, Marco

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