Keynote Sessions

Keynote Session 1 (11/23 AM1) Chair: TBD

KS1 Agentic AI in 6G: What? Why? and How?

Abstract: As sixth-generation (6G) wireless networks evolve toward pervasive sensing, global coverage, and extreme automation, traditional rule-based mechanisms and passive machine learning models can no longer cope with hyper-low latency demands and highly dynamic environments. This talk explores the paradigm shift at the convergence of wireless communications and artificial intelligence: how Agentic AI—AI systems endowed with autonomous planning, reasoning, and execution capabilities—will reshape the architecture of 6G networks.

Li-Chun Wang (National Yang Ming Chiao Tung University (NYCU))

Biography: Li-Chun Wang (M'96-SM'06-F'11) received his Ph.D. degree from the Georgia Institute of Technology in 1996. From 1996 to 2000, he served as a Senior Researcher at the Wireless Communications Research Institute at AT&T Labs. He is currently the Dean of the College of Electrical Engineering, a Lifetime Chair Professor in the Department of Electrical Engineering at National Yang Ming Chiao Tung University (NYCU), and the Chair of the IEEE Taipei Section. Dr. Wang was elected as a Fellow of the Institute of Electrical and Electronics Engineers (IEEE) in 2011 for his contributions to the design of cellular architectures and wireless resource management in wireless networks.

Dr. Wang has received numerous awards and honors, including the Distinguished Research Awards from National Science and Technology Council twice (2012 and 2018), the Future Tech Award from the National Science and Technology Council (2021), the Chinese Institute of Engineers (CIE) Outstanding Electrical Engineering Professor Award (2022), the Outstanding Engineering Professor Award from the Chinese Institute of Electrical Engineering (2009), the K.T. Li Fellow Award (2021) and the Medal of Honor (2024) from the Institute of Information & Computing Machinery (IICM), the Outstanding ICT Elite Award (2020), the Y. Z. Hsu Scientific Paper Award (2013), the Y. Z. Hsu Scientific Chair Professor (2023), the Chinese Institute of Engineers (CIE) Fellow (2025), Pan Wen Yuan Foundation Outstanding Research Award (2025), the Chinese Institute of Engineers (CIE) Engineering Medal (2025), and the Chinese Institute of Electrical Engineering (CIEE) Medal of Electrical Engineering (2025).

Dr. Wang has made significant contributions to the research fields of wireless communication and information technology. He has served as an IEEE Tutorial Speaker multiple times, promoting international cooperation and talent cultivation. According to Google Scholar, Dr. Wang's research works have been cited over 11,544 times with an h-index of 54. He was listed in the "Annual Global Top 2% Scientists" and "Lifetime Scientific Impact Rankings" by Stanford University for five consecutive years (2020–2024). He is also ranked as a top Taiwanese international scholar in the field of computer science by the Guide2 Research website.

Dr. Wang serves as the Director of the Chunghwa Telecom-NYCU Innovation Research Center and the NYCU-IBM iIoT Research Center. He has collaborated with numerous domestic and international companies and holds 49 domestic and international patents, sixteen of which have been applied in commercial products. He is currently an Associate Editor of the IEEE Transactions on Wireless Communications and the IEEE Internet of Things Journal. His recent research interests lie in data-driven intelligent wireless communications, brain technology, and sustainable development. He has published over 300 journal and conference papers and co-edited the books "Key Technologies for 5G Wireless Communications" (Cambridge University Press, 2017) and "Green Energy Driven Integrated Smart Grid and Wireless Networks" (Springer Nature, 2026). (https://wang.web.nycu.edu.tw)

KS2 Meta-Optimization for Constrained Black-Box Network Management

Abstract: Next-generation networks will operate in complex and unforeseen environments for which system models and datasets are not available in advance, and thus network management tasks must be posed as black-box optimization (BBO) problems. Evolutionary algorithms (EAs) have proven effective for such tasks, whereas their performance critically hinges on the algorithm configuration (AC), which is conventionally tuned offline at a high cost of function evaluations.

This talk introduces a new meta-optimization (MO), which optimizes the AC of a backbone EA at the meta level. In our architecture, a large language model (LLM) serves as a meta-optimizer agent that maintains the context of the ongoing EA procedure. Such context-aware reasoning requires neither task-specific training nor an analytical model of the target task, leading to a training-free and task-agnostic meta-optimizer for black-box network management.

Our framework is further extended to constrained tasks through a Lagrangian minimax reformulation, which collaboratively evolves primal and dual variables under the supervision of the MO. Numerical results on diverse network management applications confirm that the proposed MO outperforms conventional meta-optimization schemes and existing LLM-based methods.

Inkyu Lee (Korea University)

Biography: Inkyu Lee received the B.S. degree (Hons.) in control and instrumentation engineering from Seoul National University, Seoul, South Korea, in 1990, and the M.S. and Ph.D. degrees in electrical engineering from Stanford University, Stanford, CA, USA, in 1992 and 1995, respectively. From 1995 to 2002, he was a Member of the Technical Staff with Bell Laboratories, Lucent Technologies, Murray Hill, NJ, USA, where he studied high-speed wireless system designs.

Since 2002, he has been with Korea University, Seoul, where he is currently a Professor with the School of Electrical Engineering. He was also the Department Head of the School of Electrical Engineering, Korea University, from 2019 to 2021. In 2009, he was a Visiting Professor with the University of Southern California, Los Angeles, CA, USA. He has authored or coauthored more than 250 journal articles in IEEE publications and holds 30 U.S. patents granted or pending.

His research interests include digital communications and signal processing techniques applied for next-generation wireless systems.

He was elected as a member of the National Academy of Engineering of Korea in 2015. He is the Director of “Augmented Cognition Meta-Communication” ERC Research Center awarded from the National Research Foundation of Korea.

He was a recipient of the Best Research Award from Korean Institute of Communications and Information Sciences in 2011, the Best Young Engineer Award from the National Academy of Engineering of Korea in 2013, Korea Engineering Award from the National Research Foundation of Korea in 2017 and the best research award from National Academy of Sciences in 2026.

He served as an Associate Editor for IEEE TRANSACTIONS ON COMMUNICATIONS from 2001 to 2011 and IEEE TRANSACTIONS ON WIRELESS COMMUNICATIONS from 2007 to 2011. He was a Chief Guest Editor of the IEEE JOURNAL ON SELECTED AREAS IN COMMUNICATIONS Special Issue on “4G Wireless Systems” in 2006. He also served as the Editor-in-Chief for the Journal of Communications and Networks from 2019 to 2025. He is currently serving as a senior Editor for IEEE JOURNAL ON SELECTED AREAS IN COMMUNICATIONS.

He is the president of Korean Institute of Communications and Information Sciences (KICS). He is a Fellow and a Distinguished Lecturer of IEEE.

Keynote Session 2 (11/24 AM1) Chair: TBD

KS3 AI-Native 6G: Closing the Loop Across RAN, Core, Cloud, and Space

Abstract: AI-native 6G represents a fundamental architectural transformation in which AI is embedded throughout communication, computing, data processing, sensing, and control to form an adaptive and verifiable closed-loop system. This keynote discusses how O-RAN provides open interfaces and programmable control mechanisms, while AI-RAN integrates radio access network functions with distributed AI workloads and accelerated computing infrastructure.

It also examines how non-terrestrial networks can be coordinated with terrestrial networks to provide resilient, ubiquitous, and context-aware connectivity. The talk further presents learning-based resource optimization in O-RAN, AI-RAN platforms, network digital twins, integrated terrestrial–satellite networking, and LLM-assisted closed-loop control of mobile network infrastructure.

Akihiro Nakao (The University of Tokyo)

Biography: Akihiro Nakao received his B.S. (1991) in Physics and M.E. (1994) in Information Engineering from the University of Tokyo. After working at IBM in the United States and IBM Tokyo Research Laboratory, he received his M.S. and Ph.D. in Computer Science from Princeton University.

In 2005, he was appointed Associate Professor, and in February 2014, Professor of Applied Computer Science at the Interfaculty Initiative in Information Studies, Graduate School of Interdisciplinary Information Studies, the University of Tokyo. In 2016, he was appointed Chair of the Department of Interdisciplinary Information Studies, Interfaculty Initiative in Information Studies, Graduate School of Interdisciplinary Information Studies, the University of Tokyo.

In 2019, he served as Vice Dean of Interfaculty Initiative in Information Studies and Adviser to the President, the University of Tokyo. Since 2020, he has served as Special Adviser to the President of the University of Tokyo (–present). In April 2021, he moved to the School of Engineering, the University of Tokyo as a Professor, where he has since served as Director of the Collaborative Research Institute for Next Generation Cyber Infrastructure (NGCI) (–present).

In 2024, he was appointed President of The Institute of Electronics, Information and Communication Engineers (IEICE). In the same year, he was also appointed Co-Chair of the XG Mobile Promotion Forum (XGMF). Since 2026, he has held the position of Vice Dean of the School of Engineering, Director of Institute for Innovation in International Engineering Education, and Director of Corporate & External Relations Planning Office (CERPO), the University of Tokyo (–present).

His research interests include information science and information communications.

KS4 Research and Development Trends in Non-Terrestrial Networks toward 6G

Abstract: This presentation provides an overview of recent advances in Non-Terrestrial Networks (NTN), including satellite communications, High Altitude Platform Stations (HAPS), and emerging Direct-to-Cell (D2C) services. The rapid expansion of low Earth orbit satellite constellations and direct satellite-to-smartphone connectivity is transforming future communication infrastructures.

The presentation discusses the role of NTN in realizing the 6G vision of ubiquitous connectivity and resilient communications, with a focus on the integration of Terrestrial Networks (TN) and Non-Terrestrial Networks (NTN). Key technical challenges, including network orchestration, mobility management, disaster resilience, and multi-layer network control, are introduced.

The presentation also highlights NICT's research activities in satellite communications, HAPS, optical wireless communications, and TN/NTN convergence, together with the latest developments in international standardization within 3GPP and ITU-R. Finally, future prospects for 6G-enabled integrated networks supporting connectivity across land, sea, air, and space are discussed.

Keywords: 6G, Non-Terrestrial Networks (NTN), Satellite Communications, Direct-to-Cell (D2C), HAPS, Optical Wireless Communications, TN/NTN Convergence

Hiroyuki Tsuji (National Institute of Information and Communications Technology (NICT))

Biography: Hiroyuki Tsuji received D.E. degrees in Electrical Engineering from Keio University, Tokyo, Japan in 1992. In 1992, he joined the Communications Research Laboratory (CRL, now part of the National Institute of Information and Communications Technology, or NICT). From 1999 to 2000, he was a visiting research fellow of the University of Minnesota.

From 2002 to 2021, he was working at The University of Electro-Communications and Tokyo University of Agriculture and Technology as a visiting professor, which was an additional post. His research interests are array antennas for wireless communications, unmanned aircraft communication systems, and non-terrestrial network including satellite communication systems. He is now the Director General of the Wireless Networks Research Center in NICT, since April 2026.

Keynote Session 3 (11/25 AM1) Chair: TBD

KS5 Quantum network – from quantum key distribution network to the quantum internet –

Abstract: Quantum information technologies have attracted attention. It includes quantum computing, quantum sensing, and quantum communication as the three main pillars. Quantum communication, especially quantum key distribution (QKD), is recognized as one of the advanced quantum technologies in the sense that it has been already deployed in the field networks and ready to use in real world.

Another growing field in quantum communication is the quantum network, also called the quantum internet, which intends to connect various quantum devices (computing, sensing, time/frequency synchronization, etc.), quantum mechanically. Such a network is expected to leverage the quantum advantage of the three pillars over the network whereas there are still some technical challenges to realize.

In this talk, we will see an overview of quantum communication from the practical QKD network to the fully quantum network, the current activities in these fields, and discuss their future perspectives.

Masahiro Takeoka (Keio University)

Biography: Masahiro Takeoka received a doctoral degree in electrical engineering from Keio University, Kanagawa, Japan. He then joined Quantum Information Technology Group at National Institute of Information and Communications Technology (NICT). He was working in Ministry of Internal Affairs and Communications of Japan in 2011-2012 and was a visiting scientist of Raytheon BBN Technologies in 2012-2013. From 2016 to 2020, he was a director of Quantum ICT Advanced Development Center in NICT. From 2021, he is a professor at the department of Electronics and Electrical Engineering in Keio University and an Otto Monsted guest professor in Technical University of Denmark. His current research area includes quantum cryptography, quantum network, distributed quantum computing, optical quantum information processing, and fundamental quantum information theory.

Invited Special Sessions

Invited Special Session 1 (11/23 PM1) Wireless Systems, Signal Processing and EMC Chair: TBD

IS1-01 R&D Activities on Highly Reliable and Low-Latency Vehicular Communications for CAVs Using Commercial 5G Network Environment

Abstract: Highly reliable and low-latency communications are required to commercial mobile networks for connected and automated vehicles (CAVs). However, handover-induced latency spikes and transport-network delays remain key challenges. This presentation introduces an integrated approach combining multi-band redundant radio access with Segment Routing IPv6 for Mobile User Plane (SRv6 MUP), targeting vehicle-to-network-to-vehicle (V2N2V) communication for automated driving and platooning in bus rapid transit systems. Field trials over a live commercial 5G standalone network demonstrate that the approach mitigates latency spikes during inter-cell handovers and reduces transport-network delays. These results highlight the feasibility of highly reliable and consistently low-latency V2N2V communications within a single mobile network operator’s infrastructure for future intelligent transportation systems.

Manabu Mikami (SoftBank Corp.); Jin Nakazato (Tokyo University of Science)

IS1-02 Computation-Free Phase Rotation by Shifted Circular Repetition for DFT-Precoding Scheme to Peak Power Reduction of OFDM Signals

Abstract: In peak power reduction of orthogonal frequency-division multiplexing (OFDM) signals, discrete Fourier transform spread OFDM (DFT-s-OFDM) has the advantages of data independence, no side information, and no error degradation. A redundant version of DFT-s-OFDM with frequency-domain pulse shaping and phase rotation can further reduce the peak power. The optimal phase rotation, however, needs many complex multiplications in DFT-s-OFDM systems, limiting its practicality in resource-constrained devices like mobile terminals. This work proposes a novel DFT-s-OFDM scheme to achieve close-optimal peak power reduction with minimal computational complexity, comparable to practical DFT-s-OFDM using plain BPSK or QPSK without phase rotation. The proposed scheme outperforms conventional phase-rotated methods, such as π/2-BPSK or π/4-QPSK adopted in current systems, in both peak power reduction and implementation efficiency.

Hikaru Kawasaki, Fumihide Kojima and Takeshi Matsumura (NICT, Japan)

IS1-03 Impulsive Magnetic Noise Source Localization by Using Repositional Loop Antennas

Abstract: Assuming electromagnetic radiation noise generated by digital circuits, switching power supplies, and electrostatic discharge, our research group has investigated a series of methods to estimate the position and direction of impulsive magnetic noise source by using a simple device. They were inspired from the sound source localization by human hearing. Method I consists of two probe loop antennas fixed in a horizontal plane and an EUT on a rotating table. The vertical component of the magnetic dipole moment of a noise source is localized two-dimensionally within a horizontal plane. It was experimentally shown that three noise source loops can simultaneously be located using the maximum likelihood method. Method II utilizes a six-degree-of-freedom robot arm to reposition a pair of probe loops, instead of by rotating the EUT. It also aims for extending the possible location and direction of noise sources from two-dimensional space to five-dimensional space consisting of three Cartesian coordinates and two orientation angles. Method III still under consideration adopts tri-axis loop set as a probe unit on a tip of robot arm instead of a pair of loops. It has three `ears' that already exceeds the number of human ears. It aims for obtaining more information from a single noise pulse. These three methods will be introduced with new investigation, including the relationship between measurement data size and estimation accuracy, the choice of robot arm postures, as well as the utilization of temporal information in addition to amplitude information of impulsive noise signal.

Atsuhiro Nishikata (Gakukyusha; formerly Institute of Science Tokyo)

Invited Special Session 2 (11/24 PM2) Antenna Technologies and 6G Radio Networks Chair: TBD

IS2-01 Design Method of Lossless Beam-Forming Network with Desired Excitation Coefficient — Toru Fukasawa (Kanazawa Institute of Technology)
Abstract: A novel design method for a lossless beamforming network for array antennas is proposed, which achieves the desired excitation amplitudes and phases even in the presence of element reflections and mutual coupling.

IS2-02 A Design of 28 GHz Multi-Sector Antenna for Indoor Base Station Using Yagi-Uda Antenna and Propagation Experiment — Yasuko Kimura and Yuki Inoue (NTT DOCOMO, Inc.); Hiroyuki Arai (Yokohama National University)
Abstract: In mobile communications such as 5G and 6G, traffic volume is expected to continue to increase. To provide a comfortable mobile communication environment, high-speed, low-latency, high-capacity communication is achieved using high-frequency bands such as the quasi-millimeter wave band. To address the high transmission loss and limited communication area in the high-frequency band, Massive MIMO (Multiple Input Multiple Output) using high-gain array antennas has been introduced. However, this configuration increases the antenna size and signal processing circuits, leading to increased base station footprint and power consumption. We propose a 28GHz multi-sector antenna to create an efficient indoor coverage area using a small number of antenna elements. A Yagi–Uda antenna element with a dipole configuration employing balun-integrated feeding on a dielectric substrate was used. In addition, by introducing a planar reflector, sidelobe levels and mutual coupling between elements were reduced, thereby achieving an antenna gain of 15 dBi. By alternately arranging 12 antenna elements for vertical and horizontal polarizations in a circular configuration, a 12-sector multi-sector antenna with a diameter of 150 mm was realized. Furthermore, propagation tests conducted in a shielded room simulating an indoor office environment demonstrated that the proposed antenna can be used to construct areas utilizing each branch.

IS2-03 DOCOMO's Activities for 6G Network Digital Twin — Satoshi Suyama (NTT DOCOMO, INC.)
Abstract: Cyber-Physical Systems (CPS), which create a real-world digital twin (DT) in cyberspace and perform future prediction and optimization using AI, are attracting significant attention. Consequently, 6G is expected to play a major role in upgrading CPS. Concurrently, R&D is underway on the 6G Network Digital Twin (NDT). By utilizing a DT of the 6G system itself, NDT aims to maximize 6G performance, maintain communication quality, and achieve efficient operation and management. NTT DOCOMO is conducting R&D on (i) 5G/6G DT simulators for outdoor, indoor (including manufacturing factories), and high-speed train environments, and (ii) high-speed radio propagation simulation technology as well as the resulting evaluation of 6G transmission performance. These initiatives aim to both performance visualization and dynamic radio resource control by simulating or emulating transmission/reception processing and radio propagation phenomena in NDT, which designs and optimizes 6G radio. This presentation introduces the latest status of each of DOCOMO's R&D activities.

Invited Special Session 3 (11/25 PM1) Electromagnetic Modeling and Radar/SAR Analysis Chair: TBD

IS3-01 Equation-Set Reduction and Projection-Residual Formulation for 2-D Beam-Switching Matrices with a Triangular Beam Grid — Jiro Hirokawa (Institute of Science Tokyo)
Abstract: This work investigates numerical synthesis methods for a one-body two-dimensional (2-D) beam-switching matrix generating a triangular grid of beams. For the 3 × 3-beam example, the circuit contains 36 coupling and phase-delay variables, whereas the original formulation imposes 108 complex nearest-neighbor output-ratio equations, resulting in an overdetermined nonlinear problem. Three approaches are examined. First, the full edge-ratio equations are reduced to a spanning-tree subset that preserves connectivity of the 3 × 3 output graph, while the omitted edges are retained for independent loop-closure verification. Second, a progressive equation-enlargement method is combined with numerical-Jacobian-based selection of complex equations, allowing the residual set to be increased gradually while using each solution as the initial point for the next stage. Third, an output-vector projection residual is introduced to directly constrain the calculated nine-component output vector to be parallel to the desired beam vector. Numerical examples show that simple small equation subsets may satisfy only the selected conditions, whereas the spanning-tree and projection-residual formulations reproduce the complete adjacent-edge condition to numerical precision. These results provide practical guidelines for reliable synthesis of passive 2-D beam-forming networks.

IS3-02 Developments in Model-Based Scattering Power Decomposition of Polarimetric SAR Data for Oriented Urban Areas — Chino Kobayashi (Japan Aerospace Exploration Agency (JAXA))
Abstract: Spaceborne synthetic aperture radar (SAR) enables all-weather, day-and-night wide-area observations and is increasingly used in disaster monitoring, environmental monitoring, and infrastructure management. Although single- and dual-polarization observations are commonly employed in operational applications because of their observation efficiency, full-polarimetric SAR (PolSAR) can fully describe target scattering behavior and has the potential to further advance land-cover mapping and other remote sensing applications. To fully exploit PolSAR data and interpret them in terms of physically meaningful scattering mechanisms, model-based scattering power decomposition has been extensively developed. However, distinguishing urban areas oriented with respect to the azimuth direction remains challenging because their scattering behavior is not adequately represented by existing models. To address this issue, various approaches have been proposed, including polarimetric orientation compensation, the introduction of additional scattering components, and preprocessing based on unitary transformations. However, their physical interpretability is often limited because the additional scattering components and transformed representations cannot always be clearly related to physical scattering mechanisms. To overcome these limitations, we introduced a rotated dihedral scattering model that explicitly incorporates urban orientation. The proposed method improves the discrimination of oriented urban areas without requiring polarization basis rotation or unitary-transformation preprocessing, thereby preserving intrinsic target scattering properties. Furthermore, the method was extended to a five-component framework by introducing a random dihedral scattering model for highly oriented urban areas. This presentation reviews these developments and demonstrates their performance using L-band ALOS-2 PolSAR data.

Invited Sessions

Invited Session 1 (11/23 AM2) Emerging Wireless Technologies: ISAC, Beamforming, and Power Transfer Chair: TBD

I1-01 Overview of Integrated Sensing and Communications (ISAC) and Related Initiatives in Japan — Hideya So (Kogakuin University)
Abstract: Integrated Sensing and Communications (ISAC) is an emerging technology that combines wireless communication and sensing by sharing spectrum and hardware. It is expected to support 6th-generation networks while improving spectrum efficiency, reducing equipment size, and lowering energy consumption. This presentation reviews ISAC standardization activities in the 3rd Generation Partnership Project (3GPP), representative applications, channel modeling frameworks, and recent technological developments. Key use cases include unmanned aerial vehicle detection, elderly health monitoring, parking space identification, collision avoidance in smart factories, intersection safety, and flood detection. We explain a common channel modeling framework with target and background channels, with attention to radar cross-section, environmental objects, scattering characteristics, and spatial consistency. It also discusses sensing configurations and the technical challenges of achieving accurate sensing alongside reliable communications. Technology trends cover radar-based and communication-based sensing, waveform design, device-free localization, and applications using Wi-Fi and millimeter-wave signals. A survey publication highlights the rapid growth of ISAC research. Finally, we introduce Japanese research activities, including deep-learning-based sensing, image reconstruction from channel state information, indoor localization, and direction estimation. Overall, it provides an overview of ISAC development and identifies considerations for future research, standardization, and practical network implementation.

I1-02 An Integrated Millimeter-Wave and Terahertz Beamforming Architecture with Seamless Automatic Band Switching — Hirokazu Sawada (National Institute of Information and Communications Technology (NICT))
Abstract: This paper proposes a novel dual-band beamforming wireless architecture that integrates 60-GHz millimeter-wave (mmWave) communications and 300- GHz terahertz (THz) communications. The proposed architecture enhances wireless link connectivity by coordinating automatic band switching with beamforming operations. Specifically, when the received power of the THz link falls below a predefined threshold, the communication band is seamlessly switched to the mmWave band, thereby preventing link interruptions. Experimental results demonstrate the integrated operation of dual-band switching and coordinated beam management between the mmWave and THz bands. Furthermore, the proposed approach mitigates key limitations of THz communications, including short transmission range and limited beam coverage, through the utilization of the mmWave band. This work represents an important step toward the realization of future THz mobile communication systems and is expected to serve as a fundamental enabling technology for their practical deployment.

I1-03 Microwave devices for wireless power transfer systems - Past and Future - — Koji Yamanaka (Kanazawa Institute of Technology)
Abstract: This presentation discusses microwave devices used in wireless power transfer (WPT) systems. Historically, 2.45 GHz has been widely utilized for WPT because it belongs to the ISM band, offering readily available microwave devices alongside relatively high transmitter and receiver efficiencies. However, 2.45 GHz WPT systems face challenges regarding the large physical size of transmitting and receiving antennas. Recently, highly efficient transmitting and receiving devices have become available even at higher frequencies, such as 5.7 GHz and 24 GHz. In the future, even higher frequency bands, including 60 GHz and 94 GHz, are expected to be adopted for WPT applications. This lecture provides an overview of the microwave devices designed for these high-frequency wireless power transfer systems.

Invited Session 2 (11/23 PM1) Advanced Wireless and Non-Terrestrial Networks Chair:TBD

I2-01 Toward Resilient mmWave UAV Networks: Beamforming, Connectivity, and Intelligent Aerial Communications — Gia Khanh Tran (Institute of Science Tokyo)
Abstract: Unmanned aerial vehicles (UAVs) are expected to play an important role in future wireless networks by providing flexible and rapidly deployable communication, sensing, and relay capabilities. Millimeter-wave (mmWave) communications can offer the high data rates required for such aerial applications, but their practical use is challenged by severe propagation loss, blockage, UAV mobility, positioning errors, and the need for highly directional beamforming. This talk presents our recent research toward resilient mmWave-based UAV networks, with a particular emphasis on autonomous beam management, aerial link establishment, and network-level connectivity. We first discuss the characteristics and challenges of mmWave air-to-air links and their implications for UAV network design. We then introduce sensor-assisted beamforming approaches that combine positioning information with camera and LiDAR sensing to improve beam alignment under UAV mobility and localization uncertainty. Additionally, we discuss the design and optimization of mmWave backhaul UAV networks, considering UAV placement and link connectivity. Simulation and system-level evaluation results demonstrate the potential of combining mmWave communications, onboard sensing, and intelligent control to realize robust and autonomous aerial networks. Finally, remaining challenges and research directions toward 6G UAV communications are discussed.

I2-02 Development of Low-Latency, Information-Centric, and Millimeter-Wave Wireless Network Systems for Smart Agriculture — Shintaro Mori (Fukuoka University)
Abstract: In this research and development project, we develop a wireless sensor network system to support various smart agriculture applications. We will conduct field trials to demonstrate a new platform utilizing millimeter-wave communications and information-centric networking technologies. This paper provides an overview of this study and presents the current project progress.

I2-03 Research Efforts on Cloud Attenuation Estimation and Prediction for FSO-Based Non-Terrestrial Networks — Takahiro Ohno (Access Network Service Systems Laboratories, NTT, Inc.)
Abstract: Free-space optical (FSO) communications are attracting increasing attention for non-terrestrial networks (NTNs) in 6G to address growing traffic demands and increasingly congested spectrum resources. Among the technical challenges of FSO-based NTNs, cloud attenuation caused by absorption and scattering by cloud particles is a key issue. Reliable communications therefore require link and communication-control designs based on accurate estimation and prediction of cloud attenuation. Conventional cloud attenuation models have generally assumed that attenuation is dominated by water droplets, neglecting ice crystals or treating their contribution as a small constant. However, actual clouds contain substantial amounts of ice crystals over a wide temperature range, potentially causing cloud attenuation to be underestimated, particularly at high frequencies. To address this issue, we proposed a new cloud attenuation estimation method based on in situ cloud-particle observations, revealing limitations of conventional models and showing that FSO communication can be feasible under certain cloud conditions. In parallel, we are developing a cloud attenuation prediction method using numerical weather prediction models widely used in meteorology. This paper presents our research and development efforts toward accurate cloud attenuation estimation and prediction for FSO-based NTNs.

Invited Session 3 (11/23 PM2) Network Traffic Measurement and Efficient AI Computing Chair: TBD

I3-01 Towards Sustainable and Efficient GPU Sharing for AI Computing — Yuichi Ohsita (The University of Osaka)
Abstract: The rapid growth of AI workloads has intensified the demand for GPU resources, making resource sharing an attractive approach to improving computing accessibility. However, sustainable GPU sharing requires addressing both efficient resource utilization and the incentives of resource providers. This talk presents our vision of a collaborative GPU-sharing infrastructure and introduces recent research on two key challenges. First, we discuss resource allocation techniques that consider heterogeneous GPU capabilities and limited availability through the concept of Residual Computational Capacity (RCC). Second, we present mechanisms that protect GPU owners' rights through owner-priority preemption, encouraging continued participation in voluntary sharing environments. These studies highlight the importance of jointly optimizing system efficiency and participant incentives in future AI computing infrastructures.

I3-02 Building a High-Speed Traffic Measurement Platform for a Campus Network: Design and Early Observations — Yasuhiro Sato, Takeharu Ishizuka (Osaka Electro-Communication University)
Abstract: Understanding the characteristics of real network traffic is essential for network operation, performance analysis, and security. Flow-based telemetry such as NetFlow/IPFIX and packet sampling such as sFlow provide scalable visibility, but do not preserve complete packet-level timing information. As most network traffic is now encrypted, traffic analysis must rely more on metadata and traffic dynamics than on payload information. In this talk, we present our ongoing work on building a high-speed passive traffic measurement platform for a campus network using commodity hardware and the Data Plane Development Kit (DPDK). The platform computes per-time-window and per-flow statistics from every packet in real time, or alternatively records nanosecond-precision packet traces, and we discuss practical challenges in packet processing, hardware timestamping, and storage based on our operational experience. We then present early measurement results from our campus network, including continuous observations on 1 Gbps and 10 Gbps links. The data reveal current campus traffic characteristics in terms of protocol composition, packet and flow size distributions, temporal variation, and short-term bursts. Finally, we discuss how such packet-level measurements can support future anomaly and attack detection, including low-rate attacks, focusing on temporal features such as burstiness, periodicity, and flow-level dynamics.

Invited Session 4 (11/24 PM1) Underwater Wireless Communications and Networking Chair:TBD

I4-01 Asymmetric Beam and Transmission-Capacity Design for Bidirectional Underwater Optical Wireless Communications — Takahiro Kodama (Kagawa University, Faculty of Engineering and Design)
Abstract: Underwater wireless optical communication (UWOC) is a promising technology for high-speed and low-latency connectivity in future underwater networks. However, its strong directionality introduces an inherent trade-off between wide-area coverage and high transmission efficiency, particularly for bidirectional links involving mobile nodes. This invited talk presents a new design concept for bidirectional UWOC based on asymmetric beam characteristics and asymmetric transmission capacities between downlink and uplink. Rather than imposing identical requirements in both directions, the proposed approach assigns complementary functions based on their communication roles. In the downlink, a wide diffusive beam provides robust cell coverage and link acquisition with a relatively low transmission capacity, while simultaneously providing positional information on mobile nodes. In the uplink, this information assists the steering of a narrow, high-power-density beam, enabling stable alignment and higher-capacity transmission. Experimental demonstrations using an underwater optical attocell show that the diffusive downlink maintains broad communication coverage under turbulence, while the steered uplink provides stable transmission through position-dependent beam alignment. These results demonstrate that intentional asymmetry between the two transmission directions offers a promising framework for overcoming the conventional coverage–capacity trade-off and enabling robust, efficient bidirectional UWOC networks.

I4-02 Radio Communication for Underwater Robots Considering Intra-System EMC — Daisuke NAKAYAMA(Kyushu Institute of Technology)

Abstract: Underwater radio communication is a promising technology for short-range, low-latency, and high-speed wireless links for underwater robots. Our research group has developed an underwater radio communication system using loop antennas and a wideband Wavelet OFDM scheme operating below 1 MHz. Multi-megabit-per-second communication has been demonstrated in water-tank experiments and field trials. The developed communication system was subsequently integrated into an autonomous underwater vehicle (AUV). However, integrating a sensitive radio communication system into an AUV requires careful consideration of intra-system electromagnetic compatibility (EMC) within the vehicle. In particular, onboard electrical systems, including thruster motor drive systems, can generate electromagnetic noise that degrades underwater radio communication performance. To address this issue, we have investigated intra-system EMC in the AUV, including noise propagation mechanisms and mitigation techniques for the communication system. This talk presents the development and experimental demonstration of underwater radio communication, its integration into an AUV, and the practical EMC challenges encountered during system integration. The importance of considering communication performance and intra-system EMC together in the design of underwater robots is discussed based on our experimental results.

I4-03 Preliminary Experimental Evaluation of Delay-Tolerant Networking over Underwater Radio Links in a Harbor Environment — Daiki Nobayashi [Presenter], Kazuya Tsukamoto [Co-author], Takeshi Ikenaga [Co-author] (Kyushu Institute of Technology)

Abstract: Underwater wireless networks are expected to support marine science, environmental monitoring, and unmanned underwater vehicle (UUV) operations. Acoustic communication provides kilometer-scale transmission ranges but is limited to data rates of tens of kb/s, while optical communication suffers from absorption and scattering in turbid water. Although radio waves are severely attenuated underwater, low-frequency radio communication is robust against ambient noise and can achieve Mb/s-class data rates over short distances. These characteristics make it a promising option for communication among UUVs and divers in shallow water. However, maintaining continuous connectivity between mobile nodes remains challenging due to the limited communication range. This study applies delay-tolerant networking(DTN) to underwater radio communication and evaluates its performance in a real marine environment. We deployed two nodes representing a UUV and a shore station on land and submerged their radio antennas in a harbor. By varying the distance between the antennas, we created intermittent underwater radio connectivity and transmitted actual status data generated by a UUV. The results demonstrate that DTN can preserve data during link disruptions and deliver the buffered data after connectivity is restored. We also identify practical challenges arising in the real environment and discuss the feasibility of future multi-hop underwater networks.

Invited Session 5 (11/25 PM2) Optical Fiber Sensing and High-Capacity Transmission Chair:TBD

I5-01 Nonlinear Fourier transform and its application for optical fiber sensing — Takumi Motomura (National Institute of Information and Communications Technology (NICT)), Hideaki Shimpo, Kaito Geshi, Kojiro Nakagawa, Akihiro Maruta, Hideaki Furukawa, and Ken Mishina

Abstract: Recently, the nonlinear Fourier transform (NFT), also known as inverse scattering transform (IST), has attracted attention as a promising approach for overcoming the Kerr nonlinearity limit in optical fiber communication systems. NFT is expected to find applications not only in information transmission but also in optical fiber sensing. Since NFT-based sensing enables anomaly detection using only a coherent receiver and Rx digital signal processing, it has the potential to reduce both capital expenditure (CAPEX) and operating expenditure (OPEX). In this presentation, we introduce an NFT-based optical fiber sensing technique for in-service localization of abnormal erbium-doped fiber amplifiers (EDFAs). An abnormal EDFA is localized by sweeping the scattering coefficient b and monitoring changes in the eigenvalue variance. The localization performance is evaluated through numerical simulations and experiments. We also introduce other applications of NFT-based sensing, including carrier frequency offset (CFO) estimation, fiber parameter estimation, and localization of filters with shifted center frequencies.

I5-02 Recent advances in high-capacity coupled-core fiber transmission — Akira Kawai (Network Innovation Labs, NTT, Inc.)

Abstract: Transmission using coupled-core multicore fiber has attracted significant attention as a promising approach to realizing petabit-class transmission capacity. By exploiting strong optical coupling among multiple cores, coupled-core fibers support more than ten spatial channels within a standard cladding diameter, while advanced multiple-input multiple-output (MIMO) digital signal processing is required to compensate for inter-core coupling and spatial-mode dispersion. In this talk, I will review recent advances in coupled-core fiber transmission technologies, with a particular focus on high-capacity transmission and MIMO signal processing. Recent experimental results will be presented, including the world's highest-capacity field transmission at 1.17 Pb/s and the world's first 1000-km-class transmission over a field-installed 12-core coupled-core fiber. I will also discuss state-of-the-art MIMO digital signal processing techniques that enable robust transmission over strongly coupled spatial channels at symbol rates beyond 100 Gbaud, as well as key challenges and future directions toward scalable, ultra-high-capacity optical transmission systems.

KICS Special Session (11/23 PM2) Chair: Heejung Yu (Korea Univ.)

K1-01 MLLM-Enabled Multi-Robot Networks: Sensing, Communication, and Computin — Hyun Jong Yang (Seoul National University)

Multimodal large language models (MLLMs) are creating new possibilities for coordinating teams of robots, but effective collaboration depends on more than connectivity. This talk explores how sensing, communication, and computing can be jointly orchestrated to support task-oriented multi-robot networks. It introduces the robot-to-everything (R2X) perspective, in which mission intent guides sensor selection, bandwidth allocation, and computation placement. The talk also highlights representative end-to-end demonstrations and open challenges for real-time, large-scale robotic operations.

K1-02 Prime-Number-Based Equivalent Representations for Core Functions: Efficiency Maximization of Basic Operations in Wireless Communications — Woong-Hee Lee (Dongguk University)

As wireless communication networks continue to grow in scale and complexity toward 6G, improving computational efficiency and sustainability becomes increasingly important. This talk takes a fresh look at the various sets of numbers underlying communication signal processing and explores whether alternative mathematical representations can provide new perspectives on basic operations. In particular, we focus on prime numbers and briefly review several classical topics in number theory, including the prime number theorem, the Riemann hypothesis, and the Basel problem. Based on these mathematical foundations, we introduce representative examples of prime-number-based equivalent representations for core functions (e.g., sinc function) and discuss their potential implications for efficient signal processing and wireless communications.

K1-03 An O-RAN- and IAB-Enabled NTN Architecture: Joint Power, Compression, and Bandwidth Optimization — Heejung Yu (Korea University)

In this talk, an integrated access and backhaul (IAB)-based regenerative low earth orbit (LEO) satellite communication architecture is proposed by extending the IAB and open radio access network (O-RAN) concepts to non-terrestrial networks (NTNs). In the proposed architecture, radio units (RUs) and/or distributed units (DUs) are deployed on LEO satellites, while a central unit (CU) is located at a ground station. In the uplink, a ground user transmits packets to an RU-LEO, which compresses and forwards the received pilot and data to a DU-LEO through an inter-satellite link (ISL). Accordingly, the service and ISLs operate as access and backhaul links, respectively. To maximize user throughput under bandwidth and packet energy constraints, we jointly optimize bandwidth allocation and separate power allocation and compression rates for pilot and data. Since the resulting problem is a mixed-integer optimization problem, we first derive closed-form optimal compression rates for fixed power and bandwidth allocation and then optimize the power allocation. Based on these sub-problems, an iterative algorithm is developed to obtain a converged solution. Numerical results verify the effectiveness of the proposed approach.

Oral Sessions

Oral Session 1 (11/23 PM1) HAPS and Aerial Wireless Networks Chair: TBA

O1-01	Azimuth Arrival Angle Characteristics at Mobile Station in Mountainous Environments for HAPS	Akihiro Sato, Sho Kimura and Hideki Omote (Softbank Corp., Japan)
O1-02	Azimuth Arrival Angle Characteristics at Base Station in Mountainous Environments for HAPS	Sho Kimura, Akihiro Sato and Hideki Omote (Softbank Corp., Japan)
O1-03	Service-aware Communication Priority Control Based on Feeder Link Capacity for HAPS Systems	Munehiro Matsui, Kiyohiko Itokawa and Fumihiro Yamashita (Access network service systems laboratories, NTT, Inc.); Hisayoshi Kanou (6G Tech Department NTT DOCOMO, INC.); Yuki Hokazono (NTT DOCOMO, Japan)
O1-04	Evaluation of RIS Orientation and Altitude Characteristics in RIS-Equipped UAV Relay System	Yudai Ishikawa and Tetsuro Imai (Tokyo Denki University, Japan)

Oral Session 2 (11/23 PM2) Optical Fibers and Photonic Transmission Technologies Chair: TBA

O2-01	Loss Sensitivity of Four- and Five-Tube DNANFs to Manufacturing Tolerances	Sota Mihara and Takanori Sato (Hokkaido University, Japan); Teppei Osawa, Yuto Yamaguchi, Takahiro Nomura, Yuki Kawaguchi and Elaine Chou (Sumitomo Electric Industries, Ltd., Japan); Toshiki Taru (Sumitomo Electric Industries, LTD., Japan); Tetsuya Hayashi (Sumitomo Electric Industries, Ltd., Japan); Kunimasa Saitoh (Hokkaido University, Japan)
O2-02	Numerical Investigation of Fabrication Tolerance in Tubular Anti-Resonant Hollow-Core Fibers	Takanori Sato (Hokkaido University, Japan); Teppei Osawa, Yuto Yamaguchi, Takahiro Nomura, Yuki Kawaguchi and Elaine Chou (Sumitomo Electric Industries, Ltd., Japan); Toshiki Taru (Sumitomo Electric Industries, LTD., Japan); Tetsuya Hayashi (Sumitomo Electric Industries, Ltd., Japan); Kunimasa Saitoh (Hokkaido University, Japan)
O2-03	Mixture Reservoir Computing Based Equalizer for Fiber-Optic Nonlinearity Compensation	Zhang Huangcheng, Shunya Uchide, Soya Shimomura, Kensuke Sato and Moriya Nakamura (Meiji University, Japan)
O2-04	Phase-Preserving Power Boosting and Star-8QAM-Like Generation Using an Injection-Locked Laser	Yasuhiro Okamura and Masanori Hanawa (University of Yamanashi, Japan)

Oral Session 3 (11/24 AM2) Physical-Layer Modulation and Signal Processing Chair: TBA

O3-01	Spatial Pulse Position Modulation Permutation for Optical Camera Communication	Yuto Yoshida, Koji Kamakura and Kinoshita Masayuki (Chiba Institute of Technology, Japan); Takaya Yamazato (Nagoya University, Japan)
O3-02	Semantic Forward Error Correction Coding for Optical Camera Communication	Ryunosuke Fukuda, Koji Kamakura and Kinoshita Masayuki (Chiba Institute of Technology, Japan); Takaya Yamazato (Nagoya University, Japan)
O3-03	Set Partitioning Coded Modulation and LLR Design for 4-PAM Systems with 1-bit ADC Receivers	Kenshin Tagaya and Masato Saito (University of the Ryukyus, Japan); Takaya Yamazato (Nagoya University, Japan)
O3-04	Hardware-Efficient Streaming Detection of Zadoff-Chu Sequences Using Multi-FFT Correlation	Javier Matanza, Alejandra Malia and Eduardo Alonso (Universidad Pontificia Comillas, Spain)

Oral Session 4 (11/24 PM1) QoS-Aware Wireless Networking and Link Prediction Chair: TBA

O4-01	Transmission Success Probability of Grant-Based Access with Distance-Dependent Zero-Cell Areas	Yusuke Miyamori, Guanzhou Chen and Shigeo Shioda (Chiba University, Japan); Takeshi Hirai (The University of Osaka, Japan)
O4-02	Predictive Traffic Steering with QoS-Dependent Risk Constraints for 5G Sub-6/mmWave Networks	Shuntaro Niimi (University of Electro-Communications, Japan); Takeo Fujii (The University of Electro-Communications, Japan)
O4-03	Effect of Sampling Rate on LSTM-Based Prediction of Received Signal Level Fluctuations	Kosuke Ishii and Tetsuro Imai (Tokyo Denki University, Japan); Toshiki Hozen and Kazuma Tomimoto (Softbank Corp., Japan); Ryo Yamaguchi (SOFTBANK Corp., Japan); Shumpei Tabuchi (Softbank Corp., Japan)

Oral Session 5 (11/24 PM2) Electromagnetic Systems and Wireless Power Transfer Chair: TBA

O5-01	Evaluation of Receiver Sensitivity Suppression Impact on Wireless Sensor Networks with WPT Systems	Rei Hirata and Takeo Fujii (The University of Electro-Communications, Japan); Yuki Oshiro, Jumpei Doi and Kentaro Sakamoto (Tokyo Gas Co. Ltd., Japan)
O5-02	Modeling of Common-mode Current and Radiated Emission from Thruster Cables in Seawater	Toshiyuki Wakisaka (Kyushu Instiute of Technology, Japan); Tohlu Matsushima, Kazuhiro Eguchi, Daisuke Nakayama, Kenichi Uemura and Yuki Fukumoto (Kyushu Institute of Technology, Japan)
O5-03	A Numerical Study on Loop Antenna Orientation and Water-to-Air Ratio in Wavelet-OFDM Communication	Kiyotaka Miyauchi (Hosiden Corporation, Japan & Kyushu Institute of Technology, Japan); Eiji Sato and Hayato Kondo (Hosiden Corporation, Japan); Yuki Fukumoto and Tohlu Matsushima (Kyushu Institute of Technology, Japan)
O5-04	Impact of Temperature Coefficients on ML-Based Estimation of PV Single-Diode Model Parameters	Mohammad Saidul Arefin Taibin and Eisuke Hanada (Saga University, Japan)

Oral Session 6 (11/25 AM2) Optical Interconnects and Secure Network Computing Chair: TBA

O6-01	Reconfigurable Torus Interconnects Using 1 × 2 Optical Selectors for Distributed AI Training	Koki Sukegawa (Yamanashi University, Japan); Takeru Inoue (University of Yamanashi, Japan); Nana Matsuda (NTT Corporation, Japan); Toru Mano and Yoshiaki Sone (NTT Network Innovation Labs, Japan)
O6-02	A Scalable, Reconfigurable, and Redundant 2D Torus Network Using Low-Radix OCSs	Nana Matsuda (NTT Corporation, Japan); Toru Mano (NTT Network Innovation Labs, Japan); Koki Sukegawa (Yamanashi University, Japan); Takeru Inoue (University of Yamanashi, Japan); Yoshiaki Sone (NTT Network Innovation Labs, Japan)
O6-03	High-Speed Encryption on RDMA Accelerator	Yoshiki Kobayashi, Takuro Yamaguchi, Naohiro Kimura and Yasuhiro Mochida (NTT, Japan); Junki Ichikawa (NTT Corporation, Japan); Daisuke Shirai (NTT, Japan)
O6-04	Gateway Clustering Using Traffic Feature Distribution for Hierarchical Federated Intrusion Detection	Takeshi Kawamata, Nobuhiko Itoh, Taku Yamazaki and Takumi Miyoshi (Shibaura Institute of Technology, Japan); Masataka Nakahara (KDDI Research, Inc., Japan); Ayumu Kubota (KDDI Research Inc., Japan)

Oral Session 7 (11/25 PM1) Localization, Imaging, and Mobility Optimization Chair: TBA

O7-01	Hybrid indoor localization using BLE channel-sounding ranging and Wi-Fi RSSI direction estimation	Keita Takimoto, Satoru Aikawa and Shinichiro Yamamoto (University of Hyogo, Japan)
O7-02	TDOA Geolocation Applied by Drones with GPS Positioning	Itaru Yoshida and Takatoshi Sugiyama (Kogakuin University, Japan)
O7-03	Terahertz Reflection Edge Imaging Using Conditional DoA Filtering and FISTA	Hikaru Ishizuka and Keizo Cho (Chiba Institute of Technology, Japan)
O7-04	Multimodal Tourist Route Optimization Using ACO and the Tourist Discomfort Index	Nozomi Kainuma (University of Electro-Communications, Japan); Kayoko Yamamoto (The University of Electro-Communications, Japan)

Oral Session 8 (11/25 PM2) Wireless Propagation, MIMO, and Coverage Enhancement Chair: TBA

O8-01	A LoS Probability Model Considering the First Fresnel Zone in Human Body Shadowing Environments	Minori Kuno, Kashiwazaki Kota and Naoki Kita (Tokyo Denki University, Japan); Wataru Yamada (NTT Corporation, Japan)
O8-02	Impact of Human-Body Shadowing on the Capacity of Terminal-Collaborative MIMO Systems	Ryuki Morofuji and Hidekazu Murata (Yamaguchi University, Japan)
O8-03	Null-Space Expanded Frequency-Domain MIMO Signal Separation with Adaptive Parameter Setting	Yuki Otsuji and Hidekazu Murata (Yamaguchi University, Japan)

O8-04	mmW Coverage Enhancement Using Particle-Attached Dielectric Waveguide Repeater in High-Speed Trains	Tsukasa Ohira (NTT DOCOMO, INC, Japan); Atsushi Kaji (NTT DOCOMO, Japan); Atsushi Fukuda (NTT DOCOMO, INC,, Japan); Yasuhiro Kido (NTT DOCOMO, Japan); Satoshi Suyama (NTT DOCOMO, INC, Japan); Tomoyuki Tange (Central Japan Railway Company, Japan); Masaki Hamamoto (Japan Mobile Communications Infrastructure Association, Japan)

Poster Sessions

Poster Session 1 (11/23 AM2) Network Protocols, Cybersecurity, and Intelligent Computing

P1-01	Performance Evaluation for BBR Congestion Control with Backward CUBIC Traffic	Shotaro Ishikura and Miki Yamamoto (Kansai University, Japan)
P1-02	Enhancing Throughput Fairness between TCP BBR v3 and CUBIC TCP by Adjusting RTT Management	Saneyasu Yamaguchi, Kenshin Suzuki and Masaharu Ozaki (Kogakuin University, Japan)
P1-03	An Improved AP Queue Management Method for Efficient and Fair QUIC Communication in Wireless LANs	Yuki Iguchi and Ken'ichi Kawanishi (Gunma University, Japan); Junichi Funasaka (Hiroshima City University, Japan)
P1-04	A Preliminary Study on TCP Performance in Time-Sensitive Networking	Yuki Kuramo and Saneyasu Yamaguchi (Kogakuin University, Japan); Takahiro Hirofuchi (National Institute of Advanced Industrial Science and Technology, Japan)
P1-05	Flow-Count-Based Packet Scheduling with FQ-VHT in PDP for Heterogeneous CCA Fairness	Yuya Kotoku, Daiki Nobayashi and Takeshi Ikenaga (Kyushu Institute of Technology, Japan)
P1-06	Allowable-Delay-Aware Threshold Control for DRR-MTQ/QTL Using a Programmable Data Plane	Sosuke Makito, Daiki Nobayashi and Takeshi Ikenaga (Kyushu Institute of Technology, Japan)
P1-07	Characterizing Flow Burstiness and Temporal Scaling in a Campus Backbone Network	Genki Kaneko and Yasuhiro Sato (Osaka Electro-Communication University, Japan)
P1-08	Multi-Constrained Path Exploration via Restart PSO for Bottleneck Bandwidth Maximization	Haruki Watase and Takuya Asaka (Tokyo Metropolitan University, Japan)
P1-09	Performance Analysis of Multipath TCP-based Multi-hop Split Inference	So Tamaki, Takanori Hara and Shoji Kasahara (Nara Institute of Science and Technology, Japan)
P1-10	Performance Evaluation of MQTT over QUIC in LEO Satellite Networks	Kento Tsurumi and Takuya Asaka (Tokyo Metropolitan University, Japan)
P1-11	A Study on Age-of-Information-based Priority-Control Scheme for ICWSANs	Shintaro Mori (Fukuoka University, Japan)
P1-12	Redundant Periodic Transmission Suppression Method Based on Coordination Between STD-RS and ICN	Tomoki Suda, Daiki Nobayashi, Kazuya Tsukamoto and Takeshi Ikenaga (Kyushu Institute of Technology, Japan); Makoto Misumi and Ryo Nakamura (Fukuoka University, Japan)
P1-13	Toward a Formal Framework for Evaluating Anonymity in Recursive-to-Authoritative DNS	Satoru Sunahara (Hokkaido University, Japan); Niko Kuroda and Shigeki Hagihara (Chitose Institute of Science and Technology, Japan)
P1-14	Detection possibility of DDoS attacks based on DNS and QUIC traffic analysis in Darknet	Yuma Doi, Hikaru Ichise, Minoru Ikebe and Koichi Yoshizaki (Oita University, Japan)
P1-15	A Network Intrusion Detection System Using a Deep Equilibrium Model	Masamichi Kobayashi and Kohei Watabe (Saitama University, Japan)
P1-16	Evaluation of a Machine Learning-Based IDS for Smart Home IoT Traffic at an ISP Edge Router	Shuji Murase, Nobuhiko Itoh, Taku Yamazaki and Takumi Miyoshi (Shibaura Institute of Technology, Japan); Masataka Nakahara (KDDI Research, Inc., Japan); Ayumu Kubota (KDDI Research Inc., Japan)
P1-17	Asynchronous Federated Intrusion Detection Using Shared Decision Trees for IoT Gateways	Mao Kawaguchi, Nobuhiko Itoh, Takumi Miyoshi and Taku Yamazaki (Shibaura Institute of Technology, Japan); Masataka Nakahara (KDDI Research, Inc., Japan); Ayumu Kubota (KDDI Research Inc., Japan)
P1-18	A Storage-Efficient Dual-Ledger Blockchain Architecture for IT/OT Operational Logs	Ryota Sugano, Shun Fuse, Masaki Yoshii and Osamu Mizuno (Kogakuin University, Japan)
P1-19	A Candidate URL Generation Method for Fake News Sites and an Empirical Investigation	Masaki Yoshii, Shingo Yasuda and Daisuke Inoue (National Institute of Information and Communications Technology, Japan)
P1-20	Embedding digital watermarks into 3D point cloud data using the graph Fourier transform (GFT)	Ryoi Tagami and Hiroaki Morino (Shibaura Institute of Technology, Japan)
P1-21	Characterizing the GPU-Execution Footprint of Overthinking Attacks on Reasoning LLMs	Qian Hang, Takanori Hara and Shoji Kasahara (Nara Institute of Science and Technology, Japan)
P1-22	Performance Evaluation for A CPA Prevention Method on Real Devices in Wireless Multi-hop NDN	Ukyo Hasegawa (Osaka Institute of Technology, Japan); Naoto Yanai (Panasonic Holdings Corporation, Japan); Hideharu Kojima (Osaka Institute of Technology, Japan)
P1-23	Distributed Cycle Enumeration and Load Balancing for Disaster Notification Wireless Mesh Networks	Yuta Furuya (Hitotsubashi University, Japan); Masaaki Ohnishi (Nohmi Bosai, Japan); Tomoki Okuda (Kogakuin University, Japan); Ryohei Banno (Hitotsubashi University, Japan)
P1-24	Freshness-Aware Crowd Density Estimation in Delay-Tolerant Networks	Sho Yanagisawa and Takuya Asaka (Tokyo Metropolitan University, Japan)
P1-25	Analysis of DTN Data Transmission under Congestion Situations in Urban Disaster	Haruka Ushikubo, Hiroto Kondo and Osamu Mizuno (Kogakuin University, Japan)
P1-26	FPGA-Based Jitter Compensation for Motor Control over Delayed Software-Based Industrial Ethernet	Kimiya Ishikubo (Chitose Institute of Science and Technology, Japan); Takashi Yamada (Silicon Research Center, Chitose Institute of Science and Technology, Japan)
P1-27	Personalized Program Replacement for Internet Linear Streaming Using CDN Edge Computing	Shohei Mori, Daiki Fukudome and Satoshi Nishimura (Japan Broadcasting Corporation, Japan)
P1-28	In-Network Broadcasting Architecture Integrating Live Production and Program Playout	Daiki Fukudome (Japan Broadcasting Corporation, Japan); Hiroyuki Kitada, Kento Noguchi and Takafumi Okuyama (NTT, Inc., Japan); Satoshi Nishimura (Japan Broadcasting Corporation, Japan)
P1-29	Gain-scheduled Control for Temperature-aware Distribution of GPU Workload in Data Centers	Naruto Arai, Naoki Hanaoka and Toshihiro Hayashi (NTT Corporation, Japan)
P1-30	Edge-Cloud Hybrid LLM Inference System for Face-to-Face Communication Support	Ryuta Akashi (Tokyo Metropolitan University Graduate School, Japan); Takuya Asaka (Tokyo Metropolitan University, Japan)
P1-31	Development of Prototype AI Device for Image Selection Based on Value Score	Tatsuya Mizumachi and Shintaro Mori (Fukuoka University, Japan)
P1-32	A Graph Generative Model with Arbitrarily Specifiable Structural Features Using Latent Diffusion	Rikuta Tsutsumi (Saitama University, Japan); Sho Tsugawa (University of Tsukuba, Japan); Kohei Watabe (Saitama University, Japan)

Poster Session 2 (11/24 AM2) Wireless Communications, IoT, and Intelligent Sensing

P2-01	Machine Learning-Based Secret Key Generation for Frequency-Division Duplex Backscatter Communication	Takuya Yasuda (Yokohama National University, Japan); Kazuki Komatsu (Toyohashi University of Technology, Japan & National Institute of Communications Technology, Japan); Shun Kojima (Chiba University, Japan)
P2-02	Performance Evaluation of Covert Communications using Stacked Intelligent Metasurfaces	Nakajima Shunto (Yokohama National University, Japan); Kazuki Maruta (Tokyo University of Science, Japan); Naoki Ishikawa (Yokohama National University, Japan); Shun Kojima (Chiba University, Japan)
P2-03	Adaptive Power Allocation per Subcarrier for Superimposed Pilots in OFDM Systems	Koichi Wakata and Yukitoshi Sanada (Keio University, Japan)
P2-04	Iterative Noise Cancellation for Low Complexity Overloaded MIMO-OFDM Systems	Riku Mishima, Satoshi Denno and Yafei Hou (Okayama University, Japan)
P2-05	Blind Compensation for Frequency-Dependent IQ Imbalance under Phase Noise in Single-Carrier Systems	Hikaru Oono, Naoto Sasaoka and Tadao Nakagawa (Tottori University, Japan)
P2-06	Low-Computation Blind Compensation for Frequency-Dependent IQ Imbalance in Single-Carrier systems	Daisuke Kobayashi, Naoto Sasaoka and Tadao Nakagawa (Tottori University, Japan)
P2-07	Blind Compensation for Frequency-Dependent IQ Imbalance in Various Wide-Band Modulation Schemes	Letebele Bright Sosome, Naoto Sasaoka and Tadao Nakagawa (Tottori University, Japan)
P2-08	Performance of Uplink Terminal Cooperation with Terminal Selection	Hiroto Sukenaka and Yukitoshi Sanada (Keio University, Japan)
P2-09	Grouping Based on Energy Consumption with Channel Conditions in Terminal Cooperative MIMO Reception	Kyogo Okada and Yukitoshi Sanada (Keio University, Japan)
P2-10	Resource Utilization Analysis of Reservation-Round-Based Grant-Free Access for mMTC	Yuki Ikezawa and Shigeo Shioda (Chiba University, Japan)
P2-11	Interference-Controlled Resource Allocation Using Markov-Chain-Based Mobility Prediction in Local 5G	Takeru Nanjo and Osamu Takyu (Shinshu University, Japan); Kohei Akimoto (Akita Prefectural University, Japan)
P2-12	Priority Access Control for LoRa Under Coexistence with Wi-Fi HaLow in 920 MHz Band	Keita Aoki and Osamu Takyu (Shinshu University, Japan); Koichi Adachi (Keio University, Japan); Mai Ohta (Kogakuin University, Japan); Takeo Fujii (The University of Electro-Communications, Japan)
P2-13	Patch-Based Transformer Approach for Wireless Link Quality Estimation	Tomoya Takagi and Kohei Watabe (Saitama University, Japan)
P2-14	Efficient Base Station Placement Search for Coverage Maximization	Takuro Mamiya, Takayuki Nakanishi, Tai Tanaka and Satoshi Yamaguchi (Mitsubishi Electric Corporation, Japan)
P2-15	QoS-Oriented Probabilistic Route Choice Method in Mobile Networks	Lewiss Quarm, Takanori Hara and Shoji Kasahara (Nara Institute of Science and Technology, Japan)
P2-16	Link-Level Evaluation of Ground-to-Train Wireless Links in Straight Tunnels for High-Speed Trains	Yuyuan Chang, Satoshi Suyama, Nobuaki Kuno and Koshiro Kitao (NTT DOCOMO, INC, Japan); Huiling Jiang (NTT DOCOMO, INC., Japan)
P2-17	Simulator to Design Mobile Communication Areas in High-Speed Trains	Koshiro Kitao, Satoshi Suyama, Nobuaki Kuno and Yuyuan Chang (NTT DOCOMO, INC, Japan); Tomoyuki Tange (Central Japan Railway Company, Japan); Chikara Hirai (Railway Technical Research Institute, Japan); Koji Yotsumoto (KOKUSAI DENKI Electric Inc., Japan); Masaki Hamamoto (Japan Mobile Communications Infrastructure Association, Japan)
P2-18	Optimal UAV Placement Using DRL for UAV Relay Systems in Mobile Communications	Yuta Tamura and Tetsuro Imai (Tokyo Denki University, Japan)
P2-19	A Preliminary Verification of Emergency Text-Based Communication via a Bridge Between LPWA and Wi-Fi	Takechiyo Sogabe (International Professional University of Technology in Tokyo, Japan); Hikaru Watanabe (The International Professional University of Technology in Tokyo, Japan); Satoshi Kodama (International Professional University of Technology in TOKYO, Japan)
P2-20	Performance Comparison of Digital Twin Sub-6 GHz 5G Simulation and Experiment in Indoor Factory	Mikito Ito (NTT DOCOMO, INC., Japan); Satoshi Suyama (NTT DOCOMO, INC, Japan); Huiling Jiang (NTT DOCOMO, INC., Japan); Yuyuan Chang (NTT DOCOMO, INC, Japan); Shinji Kobayashi and Hiroaki Yamada (OMRON Corp., Japan); Goro Ikeda (Nokia Solutions and Networks Japan, Japan)
P2-21	RSSI Variance-Based Sample Size Optimization for Wi-Fi Fingerprint Localization	Aoi Ohno, Satoru Aikawa and Shinichiro Yamamoto (University of Hyogo, Japan)
P2-22	Adaptive Kalman Filter-Based Indoor Positioning and Its Application to Corner-Including Trajectories	Kodai Yada (Toyohashi University of Technology, Japan); Kazuki Komatsu (Toyohashi University of Technology, Japan & National Institute of Communications Technology, Japan); Hideyuki Uehara (Toyohashi University of Technology, Japan)
P2-23	Comparative Evaluation of Federated Learning Methods for Wi-Fi Fingerprint-Based Indoor Positioning	Shuya Ishikawa and Takuya Asaka (Tokyo Metropolitan University, Japan)
P2-24	ZigBee Device Identification Using RF Circuit Imperfections Adapting to Temperature Variations	Shota Nakano (Toyohashi University of Technology, Japan); Kazuki Komatsu (Toyohashi University of Technology, Japan & National Institute of Communications Technology, Japan); Yuichi Miyaji (Aichi Institute of Technology, Japan); Hideyuki Uehara (Toyohashi University of Technology, Japan)
P2-25	A Study of Non-Contact Heart Rate Estimation Using ResNet-LSTM with a 60-GHz Pulse Sensor	Taiyo Takahashi and Takeshi Toda (Nihon University, Japan)
P2-26	A Preliminary Study on Non-Contact Heart Rate Estimation Using Wi-Fi CSI with Deep Fusion and ResNet	Shoei Satou and Takeshi Toda (Nihon University, Japan)
P2-27	A Study of MAE-Based Transformer Heart Rate Estimation Using a 60 GHz FMCW Sensor	Yuto Imada and Takeshi Toda (Nihon University, Japan)
P2-28	A Study of Contactless Continuous Blood Pressure Estimation Using mm-wave Sensor and ICEEMDAN	Takahiro Ishimoto and Takeshi Toda (Nihon University, Japan)
P2-29	A study of Upper-Body Skeleton-Based Heart Rate Estimation with a Compact mm-Wave Radar	Sora Nagayama and Takeshi Toda (Nihon University, Japan)
P2-30	Performance Evaluation of an Open-Source Digital Twin Middleware for IoT Device Accommodation	Fuma Yamaguchi and Shuya Abe (Fukui University of Technology, Japan)
P2-31	IoT-Based Multi-Point Sensing and AI Prediction for Room-Scale Air-Conditioning Control	Kai Awata and Shuya Abe (Fukui University of Technology, Japan)
P2-32	Personalized Web-GIS for Reducing Spatiotemporal Bias in Community Child Watch	Ichiu Inoue (The University of Electro-Communications, Japan); Shinya Abe (Tokyo Metropolitan Industrial Technology Research Institute, Japan); Kayoko Yamamoto (The University of Electro-Communications, Japan)

Poster Session 3 (11/25 AM2) Optical Communications, Antennas, and Electromagnetic Technologies

P3-01	Overlapped Decision Feedback Equalizer for 1.3 μm 100 Gb/s 100 km IM-DD Transmission	Manato Murakami, Yuki Mabuchi and Tomoaki Yoshida (Tokyo City University, Japan); Yasunari Tanaka, Kazutaka Hara and Jun-ichi Kani (NTT Inc., Japan)
P3-02	Dispersion Compensation Combined Precoding and FFE on 1.3μm 100 Gb/s IM-DD Metro Area Transmission	Yuki Mabuchi, Manato Murakami and Tomoaki Yoshida (Tokyo City University, Japan)
P3-03	Nonlinear tolerance of long-haul optical filter bank multicarrier signal transmission	Shun Muneyuki and Akihide Sano (Ritsumeikan University, Japan)
P3-04	Frequency Offset Range Extension for Time-Domain Index-Modulated Optical Signal Receivers	Tsubasa Umetsu and Wataru Imajuku (Meijo University, Japan)
P3-05	Optical filtering tolerance in SSB-MDB transmission using direct detection with ANN equalizer	Kana Murase and Akihide Sano (Ritsumeikan University, Japan)
P3-06	Nonlinear distortion compensation in Kramers-Kronig receiver using phase-conjugated twin-SSB signals	Kodai Watanabe (Meiji University, Japan); Jun Kawauchi (Meiji university, Japan); Moriya Nakamura (Meiji University, Japan)
P3-07	L2-regularized reservoir-computing-based nonlinear equalizers for fiber nonlinearity mitigation	Kensuke Sato, Zhang Huangcheng and Moriya Nakamura (Meiji University, Japan)
P3-08	CNN-based optimization of pump conditions in ultra-wideband distributed Raman amplifiers	Takumi Nanri and Akihide Sano (Ritsumeikan University, Japan)
P3-09	Manufacturing-Tolerance Sensitivity of Higher-Order-Mode Extinction in 5-Tube Nested HC-ARFs	Kazusa Shinno and Naoto Yoshimoto (Chitose Institute of Science and Technology, Japan); Yusuke Fujii and Toshihiro Suda (Research, Japan); Soichi Kobayashi (Photoinc Science Technology Inc., Japan)
P3-10	Preliminary examination to design optimal Wavefront Multiplexing Multibeam in FSOC	Haruto Hirose and Yoshihisa Takayama (Tokai University, Japan)
P3-11	Investigation of Disturbance Effects on Free-Space Optical Communications	Taishi Sugiyama (Tokai University,Japan); Yoshihisa Takayama (Tokai University, Japan)
P3-12	Spatially Resolved Full-Stokes Polarimetry Using a Polarization Camera for Optical Component Charact	Taiga Manabe and Yoshihisa Takayama (Tokai University, Japan)
P3-13	Blooming Effects on Dynamic Range Extension in Camera-Based Multi-Fiber Optical Power Estimation	Ryo Murata, Tomokazu Oda, Takayuki Hosome, Masami Miyazaki and Hiromu Hashimoto (NTT EAST, Inc., Japan)
P3-14	Active Marker-Based Transmitter Tracking for Event-Camera Vehicular Visible Light Communication	Ryota Soga (Nagoya University, Japan); Tsukasa Shimizu (Toyota Motor Corporation, Japan); Quan Kong (Woven by Toyota, Inc., Japan); Shintaro Shiba (The University of Tokyo, Japan); Shan Lu and Takaya Yamazato (Nagoya University, Japan)
P3-15	A Study on Mutual Coupling Reduction in a UWB MIMO Antenna with Short Stub Structures	Nobuyasu Takemura (Chukyo University, Japan)

P3-16	Evaluation method for an antenna set inside infinite parallel plate	Akada Shingo and Toru Fukasawa (Kanazawa Institute of Technology, Japan); Tsuchiya Kazuhiko (YAZAKI corporation, Japan); Nishizaki Ryohei (YAZAKI Corporation, Japan)
P3-17	Asymmetric Power Divisions in a Multilayered Corporate-Feed Array for a Satellite Earth Station	Kazuyoshi Yasuda and Keizo Cho (Chiba Institute of Technology, Japan)
P3-18	Antenna Pattern Multiplexing with a Seven-Element Hexagonal ESPAR for Single-RF Receive Diversity	Anand Mohan Gupta and Masato Saito (University of the Ryukyus, Japan)
P3-19	Zipper-Integrated Wearable Antenna for Wearing State Detection	Miyu Kodama and Dairoku Muramatsu (The University of Electro-Communications, Japan)
P3-20	Reflection Characteristics of a Two-Layer Millimeter-Wave Absorber Without Metal Backing	Shuto Tahara and Shinichiro Yamamoto (University of Hyogo, Japan); Shinnosuke Kagekawa and Morimichi Itoh (Osaka Research Institute of Industrial Science and Technology, Japan); Hiroshi Igarashi (Keeper Corporation Co. Ltd., Japan)
P3-21	Evaluation of EM Shielding and Absorbing Materials Using Metal Pattern Array Sheets	Kohki Okuno, Shinichiro Yamamoto and Satoru Aikawa (University of Hyogo, Japan); Teruhiro Kasagi (Sanyo-Onoda City University, Japan)
P3-22	Avoiding EMC Problems through Power Supply Management in Smart Hospitals	Eisuke Hanada (Saga University, Japan); Hidenao Atarashi (University of Tokyo Hospital, Japan)
P3-23	Simple estimation of electromagnetic radiation from step-shaped transmission line using S parameters	Kimitoshi Murano (Tokai University, Japan)
P3-24	Two-Stage Training Analog Self-Interference Cancellation Based on Operating Point Matching of LNA	Shuji Yamasaki (Toyohashi University of Technology, Japan); Kazuki Komatsu (Toyohashi University of Technology, Japan & National Institute of Communications Technology, Japan); Yuichi Miyaji (Aichi Institute of Technology, Japan); Hideyuki Uehara (Toyohashi University of Technology, Japan)
P3-25	Fourier-Laguerre Series Expansion of the Rapp Model with a Smoothness Factor of 1	Yusuke Kaiya and Yuichi Miyaji (Aichi Institute of Technology, Japan)
P3-26	Simulation Study of Spurious Peaks Suppression Using Two Tilted MRA Radars	Hodaka Tsuchiya and Hiroyoshi Yamada (Niigata University, Japan); Hiroyuki Kamo (TAIYO YUDEN CO., LTD., Japan)
P3-27	Development of FDTD Analysis Model for Marine Radar Including Realistic Sea Wave	Takuji Arima (Tokyo University of Agriculture and Technology, Japan)
P3-28	Generation of a Controllable Heating Region in a Microwave Catheter for Renal Denervation	Yuki Ito, Tohgo Hosoda, Tsuqumi Nishidate and Kazuyuki Saito (Chiba University, Japan)
P3-29	Power-Robust Sensor-Count Identification via CFO-Induced Phase Variance in PhyC-SN	Toshi Ito and Osamu Takyu (Shinshu University, Japan); Mai Ohta (Kogakuin University, Japan); Takeo Fujii (The University of Electro-Communications, Japan); Koichi Adachi (Keio University, Japan)
P3-30	Performance Evaluation of Wireless LAN Communication in Metal Pipes of Different Diameters	Matsumoto Shotaro, Daiki Nobayashi and Takeshi Ikenaga (Kyushu Institute of Technology, Japan)
P3-31	Monthly PLIM Mapping Optimization Based on Two-Model ML Distribution Prediction with Meteorological	Atsuhiro Tokita and Osamu Takyu (Shinshu University, Japan); Takeo Fujii (The University of Electro-Communications, Japan); Koichi Adachi (Keio University, Japan); Mai Ohta (Kogakuin University, Japan)