MiFuture News

Industry news, papers and events related to 6G C MIMO

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MiFuture News: Monthly Updates on 6G and MIMO Technologies

MiFuture News is a monthly publication of the MiFuture project, complementing the MiFuture Newsletter, which will be published every six months. While the Newsletter includes internal project updates, MiFuture News features articles and information from external sources freely available on the internet.

This publication aims to gather the most interesting industry news, relevant technical papers, and upcoming events related to 6G and MIMO technologies to share with supervisors and PhD students within the project.

If you come across any interesting news, please share it with us for inclusion in the next issue.

6G Market 2026-2036: Technology, Trends, Forecasts, Players

Oct. 05 - Every 10-years, the telecoms industry enters a new 'Generation' of wireless communications. As of 2025, the industry is roughly half-way through its rollout of 5G, but behind the scenes work is well underway on preparing 6G which IDTechEx expects to enter commercialization around 2030. What is 6G, why is it needed, and what technologies will be required to fully leverage its new capabilities?.

Nokia Secures HPE Technology Assets to Accelerate Transition from 5G to 6G

Oct. 03 - Under the global agreement, Nokia will gain access to HPE's RAN Intelligent Controller (RIC), integrating it with MantaRay AI-Powered SMO and Network Automation assets.

We missed the 4G and 5G bus, not 6G: Telecom Minister Jyotiraditya Scindia

Oct. 06 - Telecom Minister Jyotiraditya Scindia said India has emerged as an early mover in 6G technology and will play a key role in setting global standards through bodies like ITU and 3GPP.

Preparing Europe for a 6G world

Oct. 06 - As Europe works to advance its digital infrastructure, the 6G Flagship – the world's first 6G research programme – is committed to achieving a 6G-enabled digital world by the 2030s.

What could a secure 6G network look like?

Sept. 15 - The official standards for 6G are set to be announced by the end of 2029. While the industry is moving towards consensus around how the 6G network will be built, it also needs to anticipate how it will be compromised and make sure to build it with a secure-by-design approach.

Nokia to Showcase 6G, AI & Defence Tech at IMC 2025

Oct. 06 - Aligning with the India Mobile Congress 2025 theme 'Innovate to Transform', Nokia is poised to unveil a wide array of pioneering technologies and solutions at IMC 2025, scheduled from 8th to 11th October 2025 at Yashobhoomi, New Delhi. The Nokia stand, in Hall 1, booth B4. will feature cutting-edge demonstrations spotlighting advances that drive the evolution towards Battlefield Communications, 6G, Artificial Intelligence (AI)-powered network intelligence, and next-gen connectivity.

Global 6G Technology Market to Reach USD 9.03 Billion by 2032, Report by DataM Intelligence

Oct. 03 - The 6G technology market represents the next frontier in wireless communication, promising unprecedented advancements in speed, connectivity, and intelligence. Building upon the foundation laid by 5G, 6G aims to deliver peak data rates exceeding 1 terabit per second, ultra-low latency, and seamless integration of artificial intelligence (AI) and quantum-resistant encryption. These capabilities are set to revolutionize industries such as healthcare, automotive, manufacturing, and entertainment by enabling real-time immersive experiences, autonomous systems, and intelligent networks. As research and development efforts intensify globally, 6G is poised to redefine the digital landscape in the coming decade.

Verizon CTO ready to tackle 6G 'alone'

Oct. 02 - Verizon wants to be first with "6G" and is willing to press that cause with a handful of partners focused on driving that ambition.

Why 6G Will Be the First Truly Thinking Network

Aug. 05 - The promise of 6G isn't just more bandwidth or lower latency, it's decision-making. Not on the device, but deep inside the network. As the telecom industry looks ahead to the next generation of mobile systems, a new paradigm is emerging: the AI-powered Radio Access Network, or AI.

Qualcomm looks to enlist AI for 5G first, and for 6G sooner than you think

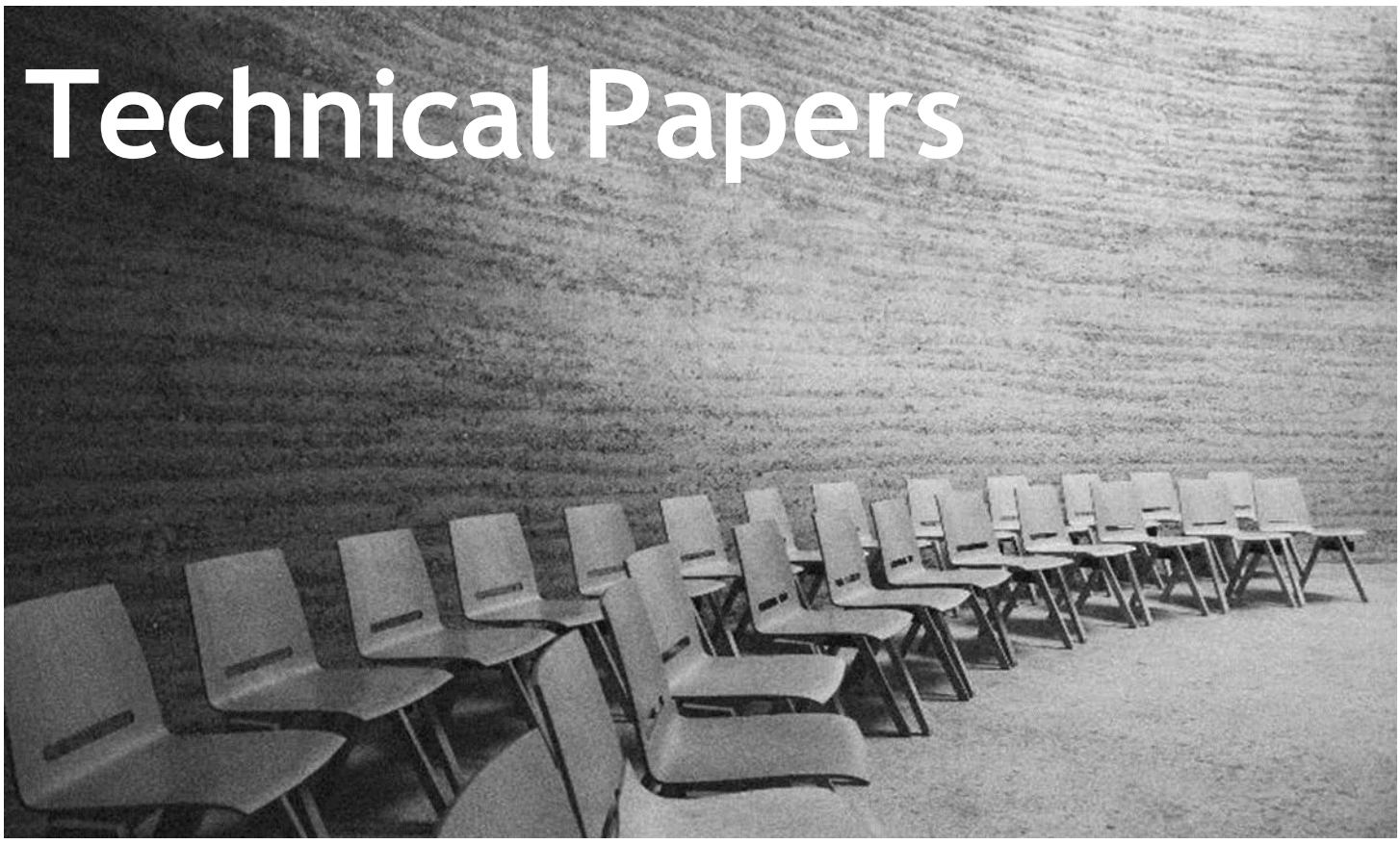
Oct. 01 - Much of Qualcomm's pitch, set under palm trees at this conference, focused on attendees' faces, where the company hopes to see smart glasses bring Qualcomm-powered AI up close. But the San Diego firm also had a message for wireless carriers: You, too, should trust our AI to help customers get the most out of your networks.

India Mobile Congress 2025 to highlight 6G innovation and global collaboration: Time and location

Oct. 05 - India Mobile Congress 2025 will be held in Delhi from October 8–11, focusing on the development of 6G technology. The event will bring together over 7,000 delegates and 800 speakers from around the world to discuss AI, satellite communication, and spectrum harmonisation.

The reality behind the 6G promises: A critical look

Oct. 04 - When 5G first arrived, it was hailed as the technology that would reinvent our lives. We were told to imagine remote surgery performed across continents, cars driving themselves on city streets, and factories humming with robotic precision, all powered by near-instantaneous connections.



VARNet-6G with FIERO model for anomaly detection and enhancing network stability in future-ready communication systems

S. Sankar Ganesh, Maha Abdelhaq, SatheeshKumar Palanisamy & S. Janakiraman
The shift to 6G will intensify security needs as traffic, application diversity, and device interconnectivity surge. Existing anomaly detection struggles with scalability, adaptability to novel attacks, and handling large, dynamic data. This paper introduces two methods: VARNet-6G, a hybrid of variational autoencoders and recurrent transformers for efficient, real-time anomaly detection on sequential data; and FIERO, a nature-inspired optimizer for accurate dropout-rate estimation that strengthens network resilience. Together, they markedly outperform prior models, overcoming key limitations in detection and estimation. The core novelty is combining deep learning with bio-inspired optimization to deliver more accurate, scalable, and adaptive protection for future 6G networks.

6G Near-Field Technologies White Paper 2.0

RISTA (Y. J. Zhao, L. L. Dai, J. H. Zhang, L.Li, et al. "6G Near-field Technologies White Paper 2.0," FuTURE Forum, Nanjing, China, Apr 2025)

3GPP's June 2025 launch of a 6G research project signals a shift from vision to development, standardization, and deployment. 6G will emphasize near-field operation using larger antenna apertures and higher bands (mid-band, mmWave, THz) with RIS, ELAA, movable antennas, and cell-free architectures, enabling beam focusing, finer localization/sensing, and efficient wireless power transfer. Unlike far-field plane-wave models, near-field propagation requires spherical-wave modeling, revealing effects like spatial non-stationarity, finite-depth focusing, tri-polarization, and evanescent waves, and enabling novel wavefronts (e.g., Bessel/Airy beams). The white paper surveys applications, fundamentals, and impacts on degrees of freedom and capacity; details channel measurement/modeling, estimation, beamforming, and codebooks; and explores integration with sensing, WPT, and PHY security, plus spectrum and deployment strategies—building a unified framework for 6G.

White Paper on Prototyping of Reconfigurable Intelligent Surface

RISTA (T. J. Cui, Q. Y. Liu, Y. F. Yuan, N. X. Li, S. Jin, Y. J. Zhao, et al. "White Paper on Prototyping of Reconfigurable Intelligent Surface ," FuTURE Forum, Nanjing, China, Apr 2025.)

Reconfigurable Intelligent Surfaces (RIS) are moving from theory to engineering in mobile networks, blending metamaterials, electromagnetics, and communications. RIS can boost deep coverage for public, low-altitude, and enterprise networks, and enable integrated functions such as sensing/positioning, physical-layer security, SWIPT, and full-duplex links. With 5G/5G-Advanced evolving toward 6G, industry–academia–research collaborations have built prototypes and amassed valuable validation data. This white paper identifies high-value, early RIS use cases for 5G-A/6G, synthesizes recent collaborative trials, and outlines an engineering evolution path—targeting practical deployment and future commercialization by translating research insights into implementable architectures, performance benchmarks, and rollout guidance.

Sensing Technologies

XG Mobile Promotion Forum

The 5G-Advanced Overview report analyzes 3GPP Releases 18–20, charting the evolution toward 6G. It highlights how 5G-Advanced integrates AI into RAN and core networks, enabling zero-touch automation, predictive maintenance, and major gains in fault detection. Energy efficiency advances, such as cell sleep modes and ambient IoT, promise up to 56% savings and battery-free devices. Enhanced latency frameworks support XR, industrial automation, and IoT scalability, while advanced MIMO and non-terrestrial networks expand coverage and achieve uplink speeds above 500 Mbps. Together, these innovations position 5G-Advanced as a transformative enabler for digital twins, private networks, and AI-driven automation.

6G Position Paper

XG Mobile Promotion Forum

The Third Generation Partnership Project (3GPP) has initiated discussions on Integrated Sensing and Communication (ISAC) for the secondary use of radio waves. Defined use cases include the detection of human and animal intrusions in indoor/outdoor environments and understanding the status of automobiles and automatic guided vehicles. Sensing technologies utilizing radio waves have found widespread applications in detecting the distance and direction of objects, among other functionalities. With the current rapid advancements in Artificial Intelligence (AI) and Machine Learning (ML), their application scope continues to broaden, particularly in shape, motion, and gesture detections.

Towards 6G-Enabled Digital Twins

One 6G

Digital Twins are generally defined as virtual representations of physical systems with bidirectional data exchange [1]. The use of Digital Twins has been widespread throughout recent years in industrial automation and process engineering, where Digital Twins can provide insights in to system performance and likely failure rates, among other metrics. However, the uptake of Digital Twin technology is now expanding to encompass other vertical industries and domains, such as smart cities, network modeling, and in particular increasingly to applications within the rapidly progressing fields of Robotics & AI. The one6G association believes that many key application areas of the future 6G communication system will be enabled by Digital Twins

Tutorial at IEEE PES ISGT Europe 2025
20 October 2025 · Malta

6G for Smart Grid Transformation

Enabling Technologies, Resilience & Cross-Energy Synergies

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