MiFuture News

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

October 2024

Grant Agreement Number: 101119643
Project Acronym: MiFuture
Project Title: ultra-massive MIMO for future cell-free heterogeneous networks
Call: HORIZON-MSCA-2022-DN-01
Type of action: HORIZON TMA MSCA Doctoral Networks- Industrial Doctorates
Granting authority: European Research Executive Agency
Project start date: 01/01/2024

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.

Industry news

Samsung and NTT Docomo team up to research AI-powered 6G technology

October, 1st - Samsung Electronics has partnered with NTT Docomo, Japan's largest mobile operator, to jointly research next-generation AI-enabled communications technologies.

Sivers Semiconductors Receives $6M CHIPS Act Award to Advance 5G & 6G Technology

Sept. 30th - Sivers Semiconductors has received first-year funding of $6 million from the Northeast Microelectronics Coalition (NEMC) Hub through the U.S. CHIPS and Science Act under the Microelectronics Commons program, executed through the Naval Surface Warfare Center Crane Division and the National Security Technology Accelerator (NSTXL).

Device Doubles Capacity for Terahertz Signals Polarization multiplexers could help meet 6G's wireless traffic needs

Sept. 26th - Researchers in Australia and Japan have developed a signal mixer that enhances the capacity of terahertz communications. The mixer, called a polarization multiplexer, merges two polarized signals of the same frequency into a single beam and operates at frequencies being explored for future 6G networks.

TMYTEK, Anritsu Collaborate on Cutting-Edge 5G/6G Network Solutions

Sept. 23rd - TMY Technology, a pioneering provider of millimeter-wave (mmWave) solutions, will unveil its latest innovation, the XRifle Dynamic Reconfigurable Intelligent Surface (RIS), at the 2024 EuMW Exhibition in Paris.

6G mobile networks: Potential speeds, release date, and more

Sept. 4th - You might be surprised to learn that the telecommunications industry has already started working on 6G — the next-generation mobile network. Indeed, even though 5G hasn't reached all of us yet, we're starting to learn about the next big leap that could unlock new smartphone use cases. It'll ultimately be a few years before 6G becomes a global standard, but companies like Apple, Samsung, and AT&T have already invested significant resources into research and development.

6G network at least a decade away, expert says

Sept. 13th - 6G internet connectivity is not as imminent as some telecom companies suggest and could be at least a decade away, an expert has said.

Nokia, SoftBank to research AI-RAN and 6G network tech

Sept. 11th - Japanese operator SoftBank signed a Memorandum of Understanding (MoU) with Nokia for joint research on new communications technologies, the former said in a release. The agreement scope includes the development of a communication system that utilizes artificial intelligence (AI) aimed at the development of AI-RAN and 6G technology.

Huawei Wen Tong: 6G Needs to Embrace AI for Shaping Future Network

Sept. 29th - At the 6G Conference held in Istanbul, on September 24, 2024, Dr. Wen Tong, Huawei Wireless CTO, delivered a keynote speech on 6G standardization and innovation. With the release of the ITU-R 6G vision framework, the 3GPP will start 6G standardization in 2025.

New Terahertz Technology Sets Stage for Ultra-Fast 6G Networks

Sept. 9th - A groundbreaking advancement in 6G technology is on the horizon as scientists unveil a new terahertz polarization multiplexer, poised to transform high-speed wireless communications. This device, tested successfully in the sub-terahertz J-band, promises to double data capacity while minimizing loss.

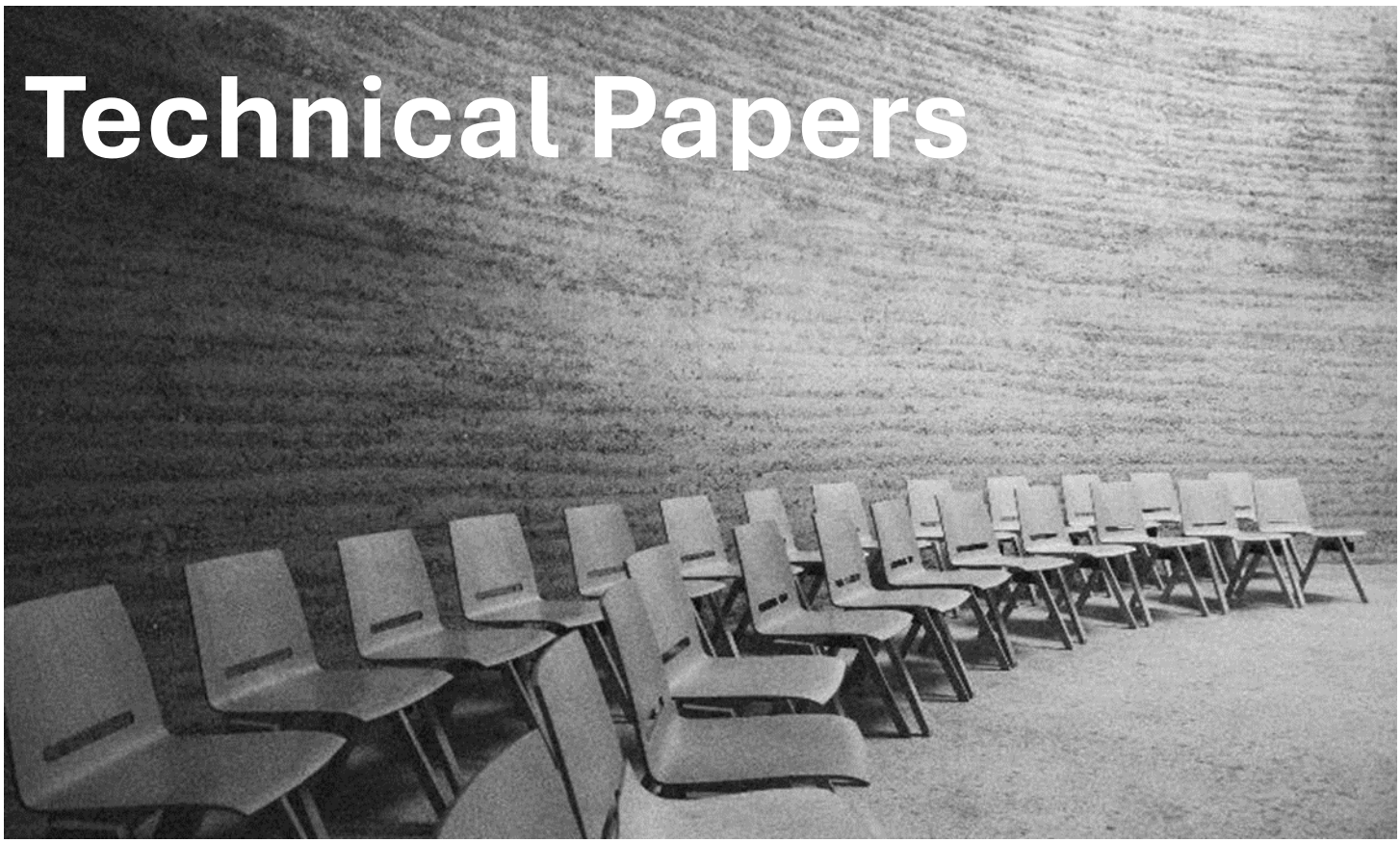
Beyond 5G: The Need for Speed in the Race to 6G

August 31st - Enter 6G, a next-gen network that promises to not just raise the bar but to redefine the entire game. With speeds that could reach up to 1 terabyte per second and coverage that leaves no corner of the globe untouched, 6G isn't just an upgrade; it's a revolution in how we interact with technology.

This article dives into the exciting developments of 5G and the ambitious plans for 6G, exploring how this leap forward could reshape industries, redefine connectivity, and pave the way for a future we're only beginning to imagine.

New 2D metamaterial enhances satellite communication for 6G networks

Sept. 9th - A new, cheap, easily manufactured device could lead to improved satellite communication, high speed data transmission, and remote sensing, scientists say.



White Paper on Critical and Massive Machine Type Communication towards 6G

Mahmood, N. H., López, O., Park, O.-S., Moerman, I., Mikhaylov, K., Mercier, E., Munari, A., Clazzer, F., Böcker, S., & Bartz, H. (2020). (Eds.). White Paper on Critical and Massive Machine Type Communication Towards 6G. 6G Research Visions, No. 11. University of Oulu.

By 2030, societies will be highly digitalized and data-driven, supported by connected industries, smart cities, and intelligent transport systems. Machine Type Communication (MTC) and near-instant wireless connectivity are key enablers of this shift. While 5G introduced support for MTC, it cannot fully meet the growing demands, leading to the need for 6G. This white paper examines the requirements for an MTC-optimized 6G network, proposing research questions on issues like energy efficiency, ultra-low power devices, scalable connectivity, and secure schemes. It highlights the need for a flexible, convergent network to address the diverse challenges of future connectivity.

6G White Paper on Localization and Sensing

de Lima, C., Belot, D., Berkvens, R., Bourdoux, A., Dardari, A., Guillaud, M., Isomursu, M., Lohan, E.-S., Miao, Y., Barreto, A. N., Aziz, M. R. K., Saloranta, J., Sanguanpuak, T., Sarieddeen, H., Seco-Granados, G., Suutala, J., Svensson, T., Valkama, M., Wymeersch, H., & van Liempd, B. (Eds.). (2020). 6G White Paper on Localization and Sensing. 6G Research Visions, No. 12. University of Oulu.

This white paper explores future opportunities for localization and sensing in wireless systems beyond 5G, identifying key technologies, challenges, and potential solutions. Unlike previous generations, 6G will integrate localization and sensing from the outset, enhancing applications with higher frequencies, wider bandwidths, and massive antenna arrays. These advancements will enable precise localization and high-resolution sensing for applications such as THz imaging, autonomous navigation, and digital health. 6G will combine communication, sensing, and localization,

creating intelligent, context-aware networks. The paper also addresses key research challenges, including privacy, security, and trust, calling for interdisciplinary collaboration to tackle these issues.

6G spectrum - enabling the future mobile life beyond 2030

Eliane Semaan, Erika Tejedor, Rajat Kumar Kochhar, Sverker Magnusson, Ericsson.

5G is still in its early phase and is ramping up even faster than previous generations of cellular communication. While there are multiple waves of deployments and upgrades yet to happen in many parts of the world, the ICT industry, academia, and standardization bodies have already begun to discuss and invest in new technologies to power the next generation of limitless wireless possibilities beyond 5G and 5G-Advanced toward 6G. Ericsson believes that future networks will be a fundamental component to virtualize all parts of life, society, and industries, fulfilling the communication needs of humans as well as intelligent machines. To realize the future network vision enabled by 6G and to deliver its full potential, there is a need to secure timely spectrum availability. This white paper focuses on the role of spectrum to unleash the full potential of 6G, the importance of existing spectrum as well as additional spectrum and the need to consider proper authorization regimes.

White Paper: The role of 6G in agriculture

Luis Perez Freire (Editor). 6G SNS Project, Alliance for IoT and Edge Computing Innovation

Agriculture is a key contributor to European GDP, with 40% of the EU budget allocated to support sustainable food production. Digital technologies, such as IoT, are transforming farming, enhancing productivity and sustainability. Trends like digital farming and precision agriculture, supported by 5G and future 6G networks, will enable high-fidelity data collection for soil, crop, and livestock monitoring, driving automation. 6G's integration of AI, machine learning, and advanced analytics will revolutionize farming with concepts like digital twins and autonomous vehicles. Future policies like the Biodiversity and Farm2Fork strategies will depend on IoT and 6G to ensure sustainability and efficiency.

6G and eHealth: Cases and Potential Service Requirements

One6G

The White Paper provides an overview of the potential of 6G on eHealth. The authors identified and developed use cases together with their functional requirements and key performance indicators in terms of communication, sensing, and AI/ML support necessary to realize them. Through discussions with different stakeholders from the medical domain, industry and academic researchers, four clusters of eHealth use cases were identified, i.e., Medical Robotic Applications, Vital Sign Wireless Sensing, Medical Data & Model Sharing, and Immersive & Ubiquitous Treatment. Building on the analysis of these use cases, initial guidance for the technology development of the upcoming 6G system to deliver enhanced sensing, connectivity, and intelligence services tailored the requirements of the medical domain has been provided. Additional eHealth use cases will be considered in future volumes of the White Paper.


Events


IEEE
Future Networks
WORLD FORUM • 2024
IEEE Future Networks World Forum
15-17 October 2024 // Dubai, UAE
IEEE
HOME
ABOUT
COMMITTEES
AUTHORS
CALL FOR PROPOSALS
PROGRAM
REGISTRATION
HOTEL / TRAVEL
PATRONS / EXHIBITORS
Search


Home
About
Attend
Agenda
Speakers
Registration
Contact
INTERNATIONAL
6G SYMPOSIUM
16th-17th October 2024
Bharat Mandapam, New Delhi, India