# NTT Technical Review 11

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■ Katsushige Kojima, President and Chief Executive Officer, NTT DOCOMO BUSINESS

#### **Front-line Researchers**

Tessei Kobayashi, Senior Distinguished Researcher, NTT Communication Science Laboratories

## Rising Researchers

Takafumi Tanaka, Distinguished Researcher, NTT Network Innovation Laboratories

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#### View from the Top

## Katsushige Kojima, President and Chief Executive Officer, NTT DOCOMO BUSINESS

#### **▼**Abstract

On July 1, 2025, NTT Communications changed its name to NTT DOCOMO BUSINESS. As an "industrial and regional digital-transformation platform provider" that supports an autonomous, decentralized, and collaborative society where businesses and communities can achieve sustainable growth, NTT DOCOMO BUSINESS aims to create new value and a prosperous society. We spoke with Katsushige Kojima, president and chief executive officer of NTT DOCOMO BUSINESS, about priority areas of NTT DOCOMO BUSINESS and his mindset as the company's leader.



#### **Feature Articles**

Al Constellation—Toward a World in Which People and Al Work Together

# Al Constellation—Collaboration among Diverse Al Models

#### **▼**Abstract

NTT has been promoting AI Constellation since FY2023 as a large-scale artificial intelligence (AI) collaboration technology that enables different AI systems to hold discussions and correct each other to generate solutions from diverse perspectives for problems with causes that are difficult for humans to infer. This article provides the background and details leading up to this concept, such as AI technology trends, capabilities that need to be acquired, and related use cases, and the relationship between Al Constellation and NTT's IOWN (Innovative Optical and Wireless Network) vision for the future.



# **Feature Articles**

Security R&D for a Better Future

# Changes in the Environment Surrounding Security R&D and **NTT Social Informatics Laboratories' Challenges**

#### **▼**Abstract

Based on more than 40 years of the world's most advanced cryptography research and 20 years of pioneering cybersecurity research, NTT Social Informatics Laboratories is engaged in security research and development (R&D), contributing to the development of society by materializing new activities and businesses that were previously abandoned due to their inability to tolerate risks while contributing to the defense of society. This article introduces our approach to security R&D and the latest priority research themes.



#### Regular Articles

# Space and Wavelength Multiplexed Programmable Photonic **Processors**

#### **▼** Abstract

Photonic computing based on programmable photonic processors is raising interest as it promises massively parallelized computation with low energy consumption for tensor processing in machine learning by harnessing inherent parallelism of light. In this article, we describe our recent progress in scaling up photonic computing platforms, including our development of a large-scale photonic matrix-vector processor and on-chip photonic linear processor. We experimentally demonstrate the applications of our processors to a machine-learning accelerator and pre-processor for optical communications.