

<https://www.ntt-review.jp/archive/2025/202510.html>

View from the Top

- ▶ Ichiro Uehara, President, NTT Infrastructure Network Corporation

Front-line Researchers

- ▶ Mitsuki Akiyama, Senior Distinguished Researcher, NTT Social Informatics Laboratories

Rising Researchers

- ▶ Fuyuki Kitagawa, Distinguished Researcher, NTT Social Informatics Laboratories

Feature Articles

NTT R&D at Expo 2025 Osaka, Kansai, Japan

- ▶ Introduction: Creating a Happy Evolution through Future Communication
- ▶ IOWN × Spatial Transmission—A Communication Experience in Which Distant Spaces Become as One
- ▶ Questioning the Nature of Communication through the “Fure-au Denwa” and “Denwa for Listening to the Universe” Exhibits—From the Telephone to Vibrotactile Communication Media
- ▶ Another Me Planet—An Alter Ego That Shows Potential Future Self
- ▶ A Pavilion Clad in Emotions: Harmonized Communication Experiences between People and Objects

Feature Articles

Exploring Humans and Information through the Harmony of Knowledge and Envisioning the Future

- ▶ Exploring the Nature of Humans and Information, and Connecting Them—Communication Science for a Sustainable Future through the Discovery of Hidden Truths and Interdisciplinary Research
- ▶ From the Study of Embodied Empathy to Supporting Family Wellbeing—Understanding Embodied Empathy and Connecting Distant Families via Bodily Information Transfer
- ▶ Techniques for “Reading the Room” in Attentive Conversational AI—Understanding Dialogue Context through Multimodal Information and Incremental Response Generation
- ▶ AI that Learns to Listen on Its Own—Advancing Self-supervised Audio Representation toward Cutting-edge Sound Understanding with Large Language Models
- ▶ Discovery of Hidden Knowledge in Data Relationships—Prospects for Reliable Healthcare through Infinite-hypothesis AI Models That Interpret Biological Phenomena
- ▶ Children Perceive Minds in Robots—Learning Companion Robots for the Future of Early Childhood Education

Regular Articles

- ▶ Micro-transfer Printing of III-V Membrane Photonic Devices on Various Platforms

Global Standardization Activities

- ▶ ITU-T TSAG (Telecommunication Standardization Advisory Group) Participation Report

Information

- ▶ Event Report: NTT Communication Science Laboratories Open House 2025

View from the Top

Ichiro Uehara, President, NTT Infrastructure Network Corporation

▼ Abstract

NTT Infrastructure Network Corporation (NTT InfraNet) is tackling a variety of social challenges, such as aging facilities, labor shortages, environmental issues, and disaster prevention, by applying the technical capabilities it has cultivated through its business—namely, providing information and communications infrastructure—and co-creation with its partners. We spoke with Ichiro Uehara, President of NTT InfraNet, which builds and operates social infrastructure for a new era, about the development of NTT InfraNet's business and his role as leader.



Feature Articles

NTT R&D at Expo 2025 Osaka, Kansai, Japan

Introduction: Creating a Happy Evolution through Future Communication

▼ Abstract

This collection of feature articles introduces NTT laboratories' initiatives for Expo 2025 Osaka, Kansai, Japan, focusing on the NTT Pavilion and the latest technologies and their applications. This article explains the concept of “future communication that makes you feel as if someone is right next to you,” one of the messages NTT wanted to convey at the expo.



Feature Articles

Exploring Humans and Information through the Harmony of Knowledge and Envisioning the Future

Exploring the Nature of Humans and Information, and Connecting Them—Communication Science for a Sustainable Future through the Discovery of Hidden Truths and Interdisciplinary Research

▼ Abstract

NTT Communication Science Laboratories (CS Labs) conducts fundamental research to deeply understand both information and humans, and on the basis of this understanding, develops core technologies that connect information and humans. Our research and development efforts focus on achieving “heart-to-heart communication” between humans, between humans and artificial intelligence, and between humans and society. This article highlights some of the latest research activities at CS Labs.

Regular Articles

Micro-transfer Printing of III-V Membrane Photonic Devices on Various Platforms

▼ Abstract

We demonstrate micro-transfer printing of III-V membrane lasers onto silicon photonics and thin-film lithium niobate (TFLN) platforms. The III-V membrane lasers feature high modulation efficiency and simple adiabatic tapers for efficient optical coupling. On silicon, direct modulation at 40 Gbit/s is achieved with low bias current. Integration with TFLN Mach-Zehnder modulators enables data transmission up to 128 Gbit/s. These results highlight the versatility and effectiveness of micro-transfer printing for heterogeneous photonic integration, and its potential for efficient use of III-V materials across a wide range of photonic platforms.