

Our Privilege: Working on Research that Looks Ahead to Future Business

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The dramatic progress of telecommunications technology has successfully overcome the barrier of distance in human communication. It enables people to speak easily with anybody, anywhere, and anytime, resulting in the globalization of human society and unforeseen benefits in industry and our daily lives. Many barriers still remain. One is the capacity barrier, which means the inability to handle the flood of data created by new services. Another is the medium barrier, which means the limits imposed by the restricted number of communication media. For example, there is a risk that a telecommunication channel that uses only speech (for telephony) and text (for e-mail) could fail to reproduce the original rich content of human communication that utilizes all of our senses and sometimes the ambience of the communication site. Unless we can move beyond the few media currently available, we will be stuck with a suboptimal human communication environment. Now is the time to start a telecommunication renaissance in which the starting point of technological development is reset to reflect the original characteristics of human communication.

Based on the above viewpoints, we are pursuing scientific research on the nature of human communication and technological developments that apply its findings to the creation of a more desirable communication world. Our cognitive neuroscience research team has extensively studied the mechanisms of human vision and auditory sensation, producing many important discoveries such as a calibration mechanism that yields audio-visual simultaneity. In the area of artificial intelligence research, we have successfully developed many powerful media processing methods, such as a fast fingerprinting technology called the binary area matching method. Looking carefully at the next decade, we are pursuing software development for quantum computers. Furthermore, we are developing a next-generation telecommunication system that creates a virtual room in which people who are actually separated can feel in a completely natural way as if they are sitting side-by-side and working together. The approaches and

goals of these individual research projects are different. However, all of them are carefully designed and implemented so that we can effectively contribute to NTT's business and eventually to the development of a rich-communication society.

In general, the path from research to commercialization is not short. However, we believe that we can greatly reduce the distance by advancing with carefully oriented research strategies and a strong will to contribute to society. We think that our customers are as varied as their requirements. Customers of the cognitive neuroscience research team will probably be peer researchers. Customers of the technology development research team will be researchers of our sister laboratories as well as business creators in NTT operating companies. Through the multi-layered network of our customers, our technologies will be smoothly transferred to the final customers throughout the world.

It is our privilege to work in a corporate laboratory with its unique commercialization paths. Looking ahead to future business, we will do our best to create innovative technologies that can truly satisfy customers and contribute to a truly affluent and rich-communication society.

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