

Remarks for Special Issue on AI & Social Value Creation

As a social value innovator, NEC is not only tackling global issues ranging from the essential resources of food, water and energy to global warming, natural disasters and our aging social infrastructure, but also taking the initiative in meeting the challenge of honing Japan's competitive edge across industries. All our endeavours share a common destination: the realization of a safe, secure, efficient and equal society for all.

Many of the issues that demand urgent solutions are quite complex in such a way that many factors contributing to those issues are influencing each other. Tapping the power of AI (Artificial Intelligence) is expected to play a significant role in their solution. At NEC, we define AI as the use of computers to replicate human intellectual activities by making use of machine learning technology. At the heart of our approach is an array of advanced visualization, analysis and control/guidance technologies. We have invested over half of a century to the research and development of these AI-related fields of technology. In fact, it was 1986, precisely 30 years ago when NEC Technical Journal (in Japanese) featured our vision of AI for the first time. Driven by this long history of research and development, our suite of AI technologies in the domains of visualization, analysis and control/guidance have attained a list of "world's firsts" and "the only one of its kind" in the world status, and have continued to set the highest global standards. We call this lineup of cutting-edge AI technologies NEC the WISE. (For more information, please refer to the last section of this issue.) For each issue to be solved, we will provide a high



EMURA Katsumi

Executive Vice President, CTO and
Member of the Board

value-added solution by optimally combining AI technologies selected from the NEC the WISE lineup. NEC's another unique advantage is the ability to provide a platform that can fully exploit the full potential performance of our AI by utilizing our technological strength in the fields of computing, networks and security. This capability enables us to provide solutions with sufficient performance with security, even under restrictive conditions such as limitations on available electrical power.

NEC has already provided a high valued-added solutions in a wide variety of fields such as an immigration control system featuring our facial recognition technology that has consistently been recognized as having the world's highest degree of accuracy, a failure prediction system that can provide early detection of the subtlest warning signs of failure in large-scale plants, and a retail order placement system that uses high precision demand forecasting based on machine learning.

The solutions provided by NEC optimally combine our AI-driven visualization, analysis and control/guidance technologies to increase their value to the customers from monitoring to analysis, analysis to forecast, and forecast to prescription/preventative action. This is truly a co-creation with our customers that realizes the amplification of the solution value at customer business site. For the creation of solutions that use the power of AI, the utilization of a wide diversity of data is required in addition to advanced AI technologies. From that perspective as well, Open Innovation is indispensable. In pursuit of advances in this field, NEC is not only closely collaborating with

customers, but also pursuing strategic alliances with universities, research institutions and venture businesses.

For the issues that we can set a clear solution goal, such as the realization of uninterrupted operation of plants or the realization of the smart cities, NEC has been providing numerous solutions already. Through the incorporation of AI, we have achieved unprecedented increases in efficiency. From now on, it will be important to study what kind of contribution AI can make for the issues that we do not even know the solution goal. It is necessary to think about the challenge of orchestrating a brighter human-centric society through the harmonious collaboration of people and AI, and consider the many ways that people and AI can engage, not only from a technological standpoint, but also from variety of perspectives.

In this Special Issue "AI & Social Value Creation", we would like to introduce our activities in creating social value with NEC's AI platforms, our vision for social solutions, and the broad range of AI technologies that support their realization. Also in special interview with an NEC researcher and his counterpart in a large-scale collaboration project pursued by NEC in the field of AI, you will get a peek at our vision of the technology that will drive our future solutions. We invite you to read the articles together with the cited technical papers.

On behalf of everyone at NEC, I would like to express our sincere gratitude for your readership and reliance on our products and services, and our hope that you will continue to provide us with your support and encouragement.

Information about the NEC Technical Journal

Thank you for reading the paper.

If you are interested in the NEC Technical Journal, you can also read other papers on our website.

Link to NEC Technical Journal website

Japanese

English

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Remarks for Special Issue on AI & Social Value Creation
Social Vision in the Age of AI – Work, life, and the pursuit of a new ethics –
NEC's Vision for AI in Social Value Creation

Creating new social value

Safety Operations Supporting the Security of Urban Locations
The Retail Industry Offers New Experiences for Consumers
"NEC the WISE" for City Transportation
Industrial Operations Supporting Industry 4.0

A world-leading array of AI technologies

Video Face Recognition System Enabling Real-time Surveillance
Optical Vibration Sensing Technology Improves Efficiency of Infrastructure Maintenance
Automated Security Intelligence (ASI) with Auto Detection of Unknown Cyber-Attacks
"Profiling Across Spatio-temporal Data" Technology to Enable Detection of Suspicious Unregistered
Individuals among Multiple Surveillance Camera Images
Customer Profile Estimation Technology for Implementation of Precise Marketing
Quality Control in Manufacturing Plants Using a Factor Analysis Engine
From Prediction to Decision Making – Predictive Optimization Technology –
Dynamic Bus Operations Optimization with REFLEX

NEC's open innovation is generating exciting developments in AI technology

Achieving a more omoroi society through the application of the brain's yuragi (fluctuations)
to bring computer energy consumption down to an amazingly ultralow level
What is Brain-Morphic AI?
Combining AI with simulation technology facilitates decision-making even under conditions where data is limited
AI Technology Brand "NEC the WISE"



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