October 16, 2024

Fujitsu Limited

National Institute of Informatics

NEC Corporation

Keio Research Institute at SFC

Institute of Industrial Science, The University of Tokyo

University of Aizu

Nagoya Institute of Technology

Osaka University

Fujitsu to combat fake news in collaboration with leading Japanese organizations

Fujitsu-led industry-academia consortium commences development of world's first disinformation countermeasure platform

Kawasaki, Japan 16, October 16, 2024 – Fujitsu today announced that it has begun a project to develop a disinformation countermeasure platform alongside a consortium of leading academic and private sector organizations. Fujitsu was selected as a primary operator for this initiative in July 2024 through a public call for proposals by Japan's New Energy and Industrial Technology Development Organization ("NEDO") (1). The effort is part of the Key and Advanced Technology R&D through Cross Community Collaboration Program ("K Program") (2), which was established with the collaboration of Japan's Cabinet Office, the Japanese Ministry of Economy, Trade and Industry (METI), and other related Japanese ministries, to strengthen and drive Japan's economic security. The consortium, assembled by Fujitsu, includes the National Institute of Informatics (NII), NEC Corporation, Keio Research Institute at SFC, Institute of Science Tokyo (formerly Tokyo Tech), The University of Tokyo, University of Aizu, Nagoya Institute of Technology, and Osaka University.

The project aims to develop the world's first comprehensive disinformation countermeasure platform that can process false information from initial detection to evidence gathering, analysis, and evaluation, with development slated for completion by the end of fiscal year 2025.

Vivek Mahajan, Corporate Vice President, CTO, CPO, Fujitsu Limited, comments:

"We are excited to be working on this initiative with a top-tier consortium of Japanese academic and private sector organizations that have a proven track record of combating disinformation. In addition to our consortium partners, Fujitsu will collaborate with relevant government agencies and other organizations to develop a robust countermeasure solution and contribute to solving this serious societal challenge."

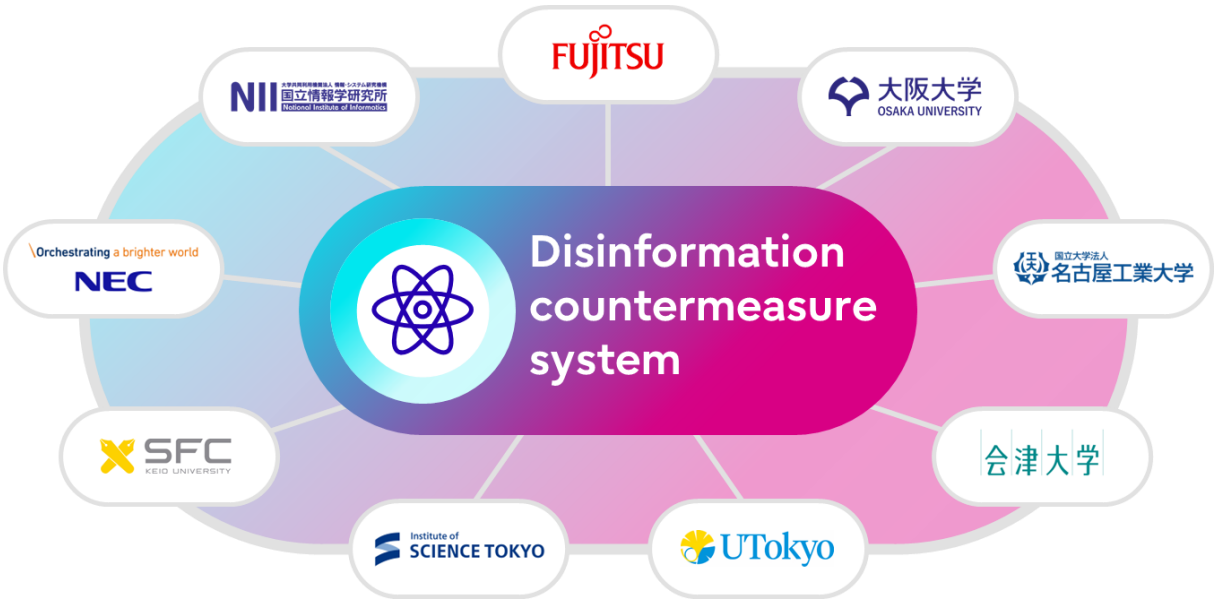

Figure 1. Consortium member organizations

As prime operator of this project, Fujitsu will lead the R&D efforts, technology integration, and construction of the overall platform. Leveraging the latest trends in disinformation tactics and technologies, Fujitsu will also create use cases for public and private sector organizations, facilitating the practical application of the research findings.

Technology to be developed and consortium roles

1. **Information analysis by media type and disinformation detection (Responsible parties: NII, NEC)**

NII

- Leveraging its track record in the field of fake media detection, NII will develop a technology to detect deepfakes of images, video and audio from social media posts and other content. The technology will identify how the media content has been created and any areas that have been manipulated and assign a confidence score which will be provided as supporting evidence.

NEC

- NEC will develop media understanding technology that extracts content including images, video and audio as text and uses it to analyze matches with social media posts and to collect supporting information.

2. **Evidence/endorsement management**
(Responsible parties: Keio Research Institute at SFC, Fujitsu, Osaka University)

Keio Research Institute at SFC and Fujitsu

- Keio Research Institute at SFC which has a track record in the field of trusted internet architecture and Fujitsu develop technology to integrate evidence collected from the internet, including the analysis results from technology 1 above. This evidence will be structured and stored as an evidence/endorsement graph (3) to verify authenticity and assess impact.

Osaka University

- Osaka University will leverage its expertise in IoT data analysis to develop technology to collect sensor data as a source of evidence. In cases where information for the target area is incomplete, the system will infer evidence based on available data from neighboring areas. This proactive, AI-driven evidence gathering, mimicking human information collection and inference, is a highly advanced initiative.

3. **Comprehensive authenticity determination (Responsible parties: Fujitsu, Nagoya Institute of Technology)**

Fujitsu

- Fujitsu will develop technology to analyze the consistency of evidence linked to target information using evidence/endorsement graphs from technology 2. This technology enables comprehensive information authenticity analysis, presenting the results and supporting evidence in a user-friendly manner.

- Fujitsu will also develop a specialized Japanese LLM for disinformation countermeasures, utilizing its supercomputer (Fugaku) and LLM (Takane) expertise. This specialized LLM will enhance comprehension of news and social media data, improve logical reasoning capabilities, and enable high-speed, high-accuracy inference for authenticity verification while mitigating hallucinations.

Nagoya Institute of Technology

- Fujitsu will collaborate with Nagoya Institute of Technology to develop a user interface and information provision technology based on cognitive science, considering factors related to human psychology (e.g., continued influence effect). This will help users to accurately judge the truthfulness of information and encourage appropriate actions, including making efforts to avoid the unintentional spread of false information.

4. **Evaluation of disinformation impact (Responsible parties: Institute of Science Tokyo, The University of Tokyo, Aizu University)**

- Institute of Science Tokyo, The University of Tokyo, and University of Aizu, with their expertise in computational social science related to social media, will develop technology to assess the impact of disinformation. By extending LLMs to build an AI model for disinformation assessment, the three parties will analyze characteristics of disinformation, such as similarity to past disinformation and proliferation speed, focusing on the source, content, and social context of messages from social media data. This will allow for the evaluation of metrics such as proliferation scale and social impact. This development of technology to visualize and quantitatively assess the social impact of disinformation represents a highly advanced endeavor.

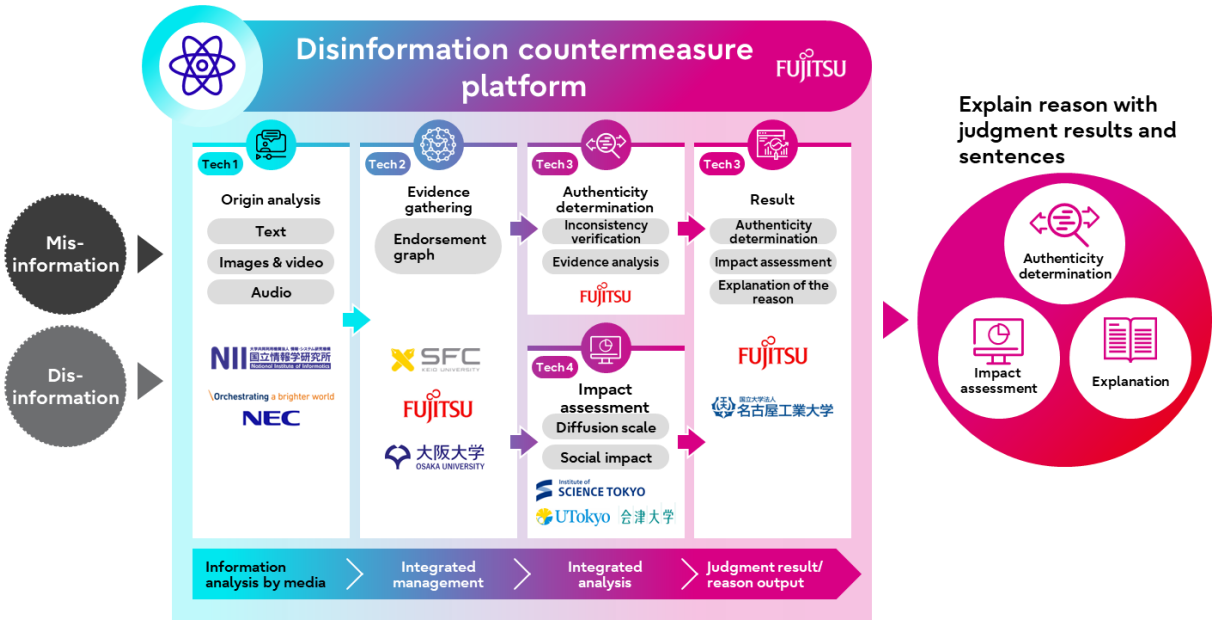

Figure 2. Diagram of the disinformation countermeasure platform

Future plans

In fiscal year 2024, the project will focus on analyzing use cases for private companies and public institutions, defining functional requirements, and initiating R&D of individual technologies, with the final system scheduled for development by the end of fiscal year 2025.

By developing this platform, Fujitsu and its consortium partners aim to contribute to economic stability in the face of increasing disinformation risk and with NEDO's support aid in increasing new industry development, international competitiveness, and strengthening Japan's global position.

Comments from partner academic-industrial organizations

Prof. Junichi Yamagishi, National Institute of Informatics, comments:

“Combating disinformation demands a sophisticated, integrated arsenal of technologies. Leveraging years of cutting-edge research in technology for detecting fake media, we are going to create a robust foundation for a powerful disinformation defense system.”

Motoo Nishihara, Corporate Executive Vice President and CTO, NEC Corporation, comments:

"We are excited to join this important initiative. As AI is linked to the production of increasingly sophisticated disinformation, AI-powered countermeasures are paramount. Leveraging NEC's cutting-edge AI technologies, we aim to contribute to the development of truly effective solutions."

Prof. Hiroyuki Kusumoto, Faculty of Environment and Information Studies, Keio University, and Project Professor Shigeya Suzuki, Graduate School of Media and Governance, Keio University, comment:

“Information on the internet nowadays is not only transmitted by individuals, but also by information systems utilizing LLMs. Leveraging cutting-edge digital identity technology, we will create a platform that meticulously tracks sender identity and information relationships, enabling multifaceted analysis for more informed and accurate end-user decision-making.”

Prof. Kazutoshi Sasahara, Institute of Science Tokyo, comments:

“The increasing scale and sophistication of disinformation pose a grave threat to our daily lives and democracy. With AI making truth increasingly indistinguishable from falsehood, developing technologies to assess the influence of disinformation is a critical, urgent task. We aim to spearhead the development of widely accessible tools to combat this escalating challenge.”

Prof. Masashi Toyoda, The University of Tokyo, comments:

"We are excited to have the opportunity to collaborate with experts from diverse fields in tackling the challenge of misinformation. We will leverage a wide range of expertise and technologies to build a foundational infrastructure for assessing the impact of disinformation."

Yasuhiro Hashimoto, Senior Associate Professor, Aizu University, comments:

“The generation and spread of disinformation pose a grave threat to societal stability and national security, demanding a multidisciplinary approach drawing on informatics, engineering, social sciences, and more. We will develop technologies to visualize the large-scale structures and complex relationships in which disinformation circulates, and build an environment where the dynamics of disinformation can be quickly viewed and analyzed.”

Prof. Yuko Tanaka, Nagoya Institute of Technology, comments:

"I am pleased to participate in this project that integrates cutting-edge technologies to address the increasingly sophisticated and serious circulation of disinformation. I am contributing to the development of interface design that effectively communicates the results—from disinformation detection to evaluation—by considering human cognitive characteristics."

Shin’ichi Arakawa, Associate Professor, Osaka University, comments:

"We are excited to be involved in R&D that addresses the growing problem of disinformation. Within the project, we will focus on practical research and development, and on delivering real-world impact, going beyond theoretical evaluation."

Notes

1. **Key and Advanced Technology R&D through Cross Community Collaboration Program Press Release regarding the Key and Advanced Technology R&D through Cross Community Collaboration/Development of Disinformation Analysis Technology (K Program) (in Japanese):**
   https://www.nedo.go.jp/koubo/CD2_100359.html
2. **Key and Advanced Technology R&D through Cross Community (“K Program”):**
   https://www8.cao.go.jp/cstp/anzen_anshin/kprogram.html (in Japanese)
3. **Evidence/Endorsement Graph:**
   Information added to the target information that serves as the basis for authenticity judgment, such as the sender (person or organization and its attributes), location, and date.

Related Links

- Fujitsu chosen to help solving social issues caused by fake news (Press release, July 19, 2024: https://www.fujitsu.com/global/about/resources/news/press-releases/2024/0719-01.html)

- Fujitsu and Cohere launch strategic partnership and joint development to provide generative AI for enterprises (Press release, July 16, 2024: https://www.fujitsu.com/global/about/resources/news/press-releases/2024/0716-01.html)

About Fujitsu

Fujitsu's purpose is to make the world more sustainable by building trust in society through innovation. As the digital transformation partner of choice for customers in over 100 countries, our 124,000 employees work to resolve some of the greatest challenges facing humanity. Our range of services and solutions draw on five key technologies: Computing, Networks, AI, Data & Security, and Converging Technologies, which we bring together to deliver sustainability transformation. Fujitsu Limited (TSE:6702) reported consolidated revenues of 3.7 trillion yen (US$26 billion) for the fiscal year ended March 31, 2024 and remains the top digital services company in Japan by market share. Find out more: www.fujitsu.com.

About National Institute of Informatics

NII is Japan's only academic research institute dedicated to the new discipline of informatics. Its mission is to "create future value" in informatics. NII conducts both long-term basic research and practical research aimed at solving social problems in a wide range of informatics research fields, from fundamental theories to the latest topics, such as artificial intelligence, big data, the Internet of Things, and information security.

As an inter-university research institute, NII builds and operates academic information infrastructure essential for the research and educational activities of the entire academic community (including the Science Information Network) as well as developing services such as those that enable the provision of academic content and service platforms.

https://www.nii.ac.jp/en/.

About NEC Corporation

NEC Corporation has established itself as a leader in the integration of IT and network technologies while promoting the brand statement of "Orchestrating a brighter world." NEC enables businesses and communities to adapt to rapid changes taking place in both society and the market as it provides for the social values of safety, security, fairness and efficiency to promote a more sustainable world where everyone has the chance to reach their full potential. For more information, visit NEC at http://www.nec.com.

About Keio Research Institute at SFC

The Keio Research Institute at SFC was established in 1996. In its capacity as an academic entity and research institute affiliated with the Graduate School of Media and Governance, Graduate School of Health Management, Faculty of Policy Management, Faculty of Environment and Information Studies, and Faculty of Nursing and Medical Care, the institute serves as a platform for promoting advanced research activities and collaborative initiatives involving the community and local regions. By 2021, the institute had more than 40 laboratories (transdisciplinary research groups with advanced research missions) and more than 30 SFC research consortiums (joint research deployed by the Keio Research Institute at SFC in conjunction with a number of external organizations), and together with approximately 500 senior and guest researchers from various industries, government, and academia, aims to develop unique research to create a vital society. In this manner, the Keio Research Institute at SFC has an impressive wealth of experience and track record in the creation of pioneering knowledge through collaborations among industry, government, and academia.

About Institute of Industrial Science, The University of Tokyo

The Institute of Industrial Science, The University of Tokyo (UTokyo-IIS) is one of the largest university-attached research institutes in Japan. UTokyo-IIS is comprised of over 120 research laboratories—each headed by a faculty member—and has over 1,200 members (approximately 400 staff and 800 students) actively engaged in education and research. Its activities cover almost all areas of engineering. Since its foundation in 1949, UTokyo-IIS has worked to bridge the huge gaps that exist between academic disciplines and real-world applications.

About University of Aizu

Nurtures talent who will exercise leadership in the knowledge-based society.Nurtures computer scientists and highly-skilled computer engineers who will create and exploit "knowledge" for the new era.Has first-class faculty members from almost twenty countries around the world.Provides an outstanding computer environment unparalleled by other universities.Established the graduate school open to the world, where English is used as the common language.Fosters students' latent limitless creativity by training critical thinking and appreciating their curiosity, free from preconceived ideas.

About Nagoya Institute of Technology

Nagoya Institute of Technology (NITech) was founded as the first national institution of higher education in central Japan in order to develop the region as Japan’s center of industry. Maintaining a respect for this historic mission and acting as one of the leading engineering institutes in Japan, NITech shall therefore make its fundamental mission as follows: developing revolutionary science and technologies, fostering rich human resources, and contributing to peace and social welfare of the future by acting as a source to consistently produce and develop new industries and culture.

About Osaka University

Osaka University was founded in 1931 as one of Japan’s imperial universities through strong demand from political and business circles in Osaka, as well as the people of Osaka City and Prefecture. The spiritual roots of Osaka University can be found in Kaitokudo and Tekijuku, educational institutions of the Edo period. After its merger with Osaka University of Foreign Studies in 2007, Osaka University became a comprehensive university with its own School of Foreign Studies. Boasting 11 undergraduate schools, 15 graduate schools, and 6 affiliated research institutes excelling in the fields of the humanities and social sciences, medicine, dentistry, pharmacy, science, and engineering, Osaka University is one of Japan’s premier comprehensive research universities.

Osaka University will celebrate the 100th anniversary of its founding in 2031. We will contribute to the creation of a society where each member feels worth living through co-creation with diverse stakeholders to solve local and global challenges in accordance with the university's motto of “Live Locally, Grow Globally.”

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