



Press Release #1657

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Japan Science and Technology Agency (JST)  
5-3, Yonbancho, Chiyoda-ku, Tokyo 102-8666

**JST and ANR (France) jointly fund three research projects in the Edge AI field under the Strategic International Collaborative Research Program (SICORP) framework**

The Japan Science and Technology Agency (HASHIMOTO Kazuhito, President) has approved funding for three new joint research projects in the research field of “Edge AI” under the SICORP\*<sup>1</sup> program (Attachment 1).

JST and ANR\*<sup>2</sup> jointly called for proposals from January 2023 to April 2023 and received a total of eleven proposals. Three projects were selected after evaluation by a panel of experts in both countries and a joint review (Attachment 3). The projects will start from December 2023, and follow the 2x2 international academia-industry framework with a predicted research period of four years (48 months).

\*1 SICORP: <https://www.jst.go.jp/inter/english/index.html>

\*2 ANR (L'Agence nationale de la recherche): <https://anr.fr/en/>

**Attachments**

1. Abstracts of selected projects
2. Abstract of the joint call for proposals
3. Experts for the evaluation (Japan side)

**Enquiries**

Department of International Affairs, JST  
K's Gobancho, 7 Gobancho, Chiyoda-ku, Tokyo 102-0076  
SUGAWARA Masae  
Tel: +81-3-5214-7375 Fax: +81-3-5214-7379  
E-mail: [jointfr\[at\]jst.go.jp](mailto:jointfr[at]jst.go.jp)

**Abstracts of selected projects**

	<b>Title</b>	Principal Investigator (Japan side)	<b>Position and Institution</b>	<b>Research Abstract</b>
		Principal Investigator (France side)		
1	Lightweight Edge Artificial Intelligence for Sensing and Wireless Communications in Connected Factories (LIGHT-SWIFT)	KANEKO Megumi (Academia)	Associate Professor, Information Systems Architecture Science Research Division, National Institute of Informatics	<p>The objective of this research is to develop high-performance and power-saving lightweight Edge AI and wireless access technologies, that can be utilized in Industrial IoT devices (IIoT) with limited computational and battery capabilities.</p> <p>Specifically, the Japanese team will develop a lightweight Deep Reinforcement Learning framework tailored to IIoT devices, and design a wireless access optimization method which achieves both high energy-efficiency and reliability.</p> <p>The French team will design a low-power AI compression technique and hardware/software solutions that can be implemented in IIoT, and investigate applications such as anomaly detection using acoustic sensors in factories.</p> <p>By developing this lightweight Edge AI technology that can be used in IIoT, the joint team aims to realize power-saving, low latency, highly efficient, and reliable wireless communications and acoustic sensing, thereby enabling applications such as operational monitoring or anomaly detection within smart factories.</p>
		TAKATORI Yasushi (Industry)	Executive Manager, Senior Distinguished Researcher, Wireless Access Systems Project, Access Network Service Systems Laboratories, Nippon Telegraph and Telephone Corporation	
		Olivier BERDER (Academia)	Professor, CNRS-IRISA/University of Rennes	
		Julien ROLAND (Industry)	Lead Software and Machine Learning Engineer, Wavely	

2	Edge AI Transformer- based Adaptable Human Robot Collaboration System for Smarter Industry 4.0X (Astérix)	HARADA Kensuke (Academia)	Professor, Graduate School of Engineering Science, Osaka University	This research aims to develop a smart and highly adaptive Edge AI empowered transformer-based human robot collaboration (HRC) system for assembly tasks in Industry 4.0X.  The Japanese team will work on realizing the HRC system that includes state monitoring of workers using AI cameras and giving instructions to robots in natural language. In addition, data for dexterous manipulations will be collected through teleoperation with haptic feedback and use cases for HRC-based assembly tasks will be verified. The French team will focus on developing foundational AI models and compression technologies for robot assembly tasks that incorporate computer vision data from Edge AI cameras. Additionally, the team will supply the hardware environment to facilitate the operation of Edge AI.  The research project aims for low-energy consumption, reduced latency, and privacy-protected natural language instruction for assembly robots, while also allowing robots to understand and adapt to various changes in worker states and the environment through Edge AI cameras. The project is expected to provide flexibility and intelligence in automation for Industry 4.0X, addressing the growing demand for customized products and the shortage of qualified labor.
		BABA Hiroyasu (Industry)	Project General Manager, Social Innovation Business Development Function Unit, Denso Corporation	
		Liming CHEN (Academia)	Professor, Computer Science Laboratory for Image Processing and Information Systems (LIRIS), Ecole Centrale de Lyon	
		Vincent HEINRICH (Industry)	Engineer, Research and Development, Asygn	

3	Semantic Segmentation of Complex Sound Scenes on Edge Devices (CONFLUENCE)	ONO Nobutaka (Academia)	Professor, Graduate School of Systems Design, Tokyo Metropolitan University	<p>The objective of this research is to develop the AI technology to recognize various acoustic events around us, separate semantic sound objects, and apply it to communication services. Using two use cases as examples, immersive communication and home monitoring/assistance (watching over the house), we will design an embedded system to implement them. Specifically, by analyzing and separating various sounds and adding metadata, the system can transmit only the necessary sounds according to the situation and spatially reconstruct and reproduce them.</p> <p>The Japanese team will develop the separation and extraction of sound sources and their application to immersive communication. The French team will study the implementation of necessary tools on Edge AI devices and their application for immersive communication and home monitoring/assistance. The developed technology will also be proposed to the International Standardization of Mobile Communication Systems (3GPP) for standardization in communication services.</p> <p>The technology is expected to be applied, for example, to web conferencing systems that block out the sounds of daily life and allow only the voices necessary for business communication to pass through, and to privacy-conscious communication such as home monitoring/assistance. This enables new inclusive communications that allow local and remote participants in international conferences to share experiences.</p>
		HARADA Noboru (Industry)	Senior Distinguished Researcher, Media Information Laboratory, Communication Science Laboratories, Nippon Telegraph and Telephone Corporation	
		Romain SERIZEL (Academia)	Associate Professor, LORIA, Université de Lorraine	
		Nicolas TURPAULT (Industry)	CEO, Sonaide	

## Abstract of the joint call for proposals

### Funding agencies:

Japan side: JST

France side: L'Agence nationale de la recherche (ANR)

<https://anr.fr/en/>

### Field

Projects must be joint research between the two countries in the field of Edge AI, following the 2x2 international academia-industry framework.

### Eligibility

Japan side: any researcher actively conducting research that is affiliated with a domestic Japanese research institution or company, regardless of nationality, is eligible to apply.

### Research period

4 years (48 months)

### Amount of funding

Japan side: up to 60 million yen from JST to the researchers (Japan side) per project over 4 years, including overhead costs (30 percent of direct costs).

### Evaluation method

Based on evaluation by experts from the two countries and discussion between JST and ANR.

### Evaluation criteria

#### I. R&D innovation, technical excellence and societal relevance

- Level of innovation of the scientific and technical concept
- Scientific and technical quality of the solution
- Assessment of the social, economic and environmental opportunities and risks associated with scientific and technological innovations

#### II. Feasibility and implementation efficiency

- Quality of the science and technology approach
- Adequacy of the workplan to the budget, resources, time schedule, and/or infrastructure.

### III. Significance in consortium and international collaboration

- Project management, governance, and consortium structure
- Relevance of the partners with respect to the proposal
- Added value from bilateral cooperation and synergy effects

### IV. Exploitation and dissemination

- Relevance of the proposed solutions for targeted scientific and industrial applications
- Validity of the plan for standardization effort and open data policy of research outcomes
- Validity of the plan for possible operation and/or commercialization in practical use

## Experts for the evaluation (Japan side)

Name	Position and Institution	Role
OHTSUKI Tomoaki	Professor, Faculty of Science and Technology, Keio University	Program Officer
OTA Kaoru	Professor, Division of Engineering, Graduate School, Muroran Institute of Technology	Advisor
KAWASHIMA Hideyuki	Associate Professor, Faculty of Environment and Information Studies, Keio University	Advisor
KOIZUMI Norihiro	Associate Professor, Graduate School of Informatics and Engineering, University of Electro-Communications	Advisor
SAITO Hideo	Professor, Faculty of Science and Technology, Keio University	Advisor
SHIMAMURA Tetsuya	Professor, Graduate School of Science and Engineering, Saitama University	Advisor
SUGAYA Midori	Professor, College of Engineering, Shibaura Institute of Technology	Advisor
NISHIO Takayuki	Associate Professor, School of Engineering, Tokyo Institute of Technology	Advisor
HASEGAWA Mikio	Professor, Faculty of Engineering, Tokyo University of Science	Advisor
HAYASHI Kazunori	Professor, Center for Innovative Research and Education in Data Science, Institute for Liberal Arts and Sciences/ Graduate School of Informatics, Kyoto University	Advisor