Appel à projets ANR-JST CREST

Edition 2018

MODALITES DE PARTICIPATION POUR LES PARTICIPANTS FRANÇAIS

IMPORTANT :

1. Le présent document énonce les modalités de participation des partenaires français à l'édition 2018 du programme CREST de la JST.
2. Les modalités de participation et recommandations importantes présentées dans ce document s'ajoutent aux dispositions figurant dans le texte de l'édition 2018 du programme CREST (voir en annexe).
3. Il est nécessaire de lire attentivement le texte du programme CREST, l'ensemble du présent document ainsi que le règlement relatif aux modalités d'attribution des aides de l'ANR (http://www.anr.fr/RF) avant de déposer une proposition de projet de recherche.

Date de clôture

16/04/2018, 10h00(CET)

Points de contact à l'ANR

Chargé de projet scientifique ANR (*Technologies quantiques*)
Aladji KAMAGATE
+33 1 7354 8338
aladji.kamagate@anr.fr

Chargé de projet scientifique ANR (*Interaction symbiotique*)
Vincent RAPP
+33 1 7354 8159
vincent.rapp@anr.fr

1. CONTEXTE ET OBJECTIFS DE LA COLLABORATION

En mettant en place des accords avec des agences de financement étrangères, l'ANR permet aux chercheurs français d'initier ou d'approfondir leurs collaborations. Elle entend ainsi faire émerger des équipes d'excellence européennes et internationales.

L'objectif est de financer des projets internationaux innovants se démarquant clairement des projets nationaux en cours, démontrant une forte synergie entre les équipes de chaque pays et une réelle intégration des travaux communs.

L'objectif est de contribuer au financement des projets européens et internationaux, démontrant un haut niveau d'excellence scientifique, en soutenant la participation des équipes nationales.

CREST est un programme japonais, créé afin de soutenir des objectifs de recherche prioritaires en prévision de besoins économiques et sociétaux futurs. Le programme CREST est mis en œuvre par l'agence de financement de la recherche japonaise JST (*Japan Science and Technology Agency*).

A travers l'accord ANR-JST relatif au programme CREST, l'ANR s'associe à cette démarche et invite les chercheurs français à déposer des projets de recherche en collaboration avec une ou des équipes japonaises dans deux thèmes de recherche :

- les technologies quantiques
- l'interaction symbiotique

Le descriptif complet des thèmes de recherche figure en annexe de ce document.

2. MODALITES DE SOUMISSION

Dans le cadre de cet appel, les projets sont soumis en une seule étape.

La même proposition de projet détaillée franco-japonais, rédigée en langue anglaise[1], est déposée successivement auprès de l'ANR par le coordinateur français et auprès de la JST par le coordinateur japonais :

ANR : avant le **16 avril 2018** à 10 h 00 (CET)

JST : voir le calendrier de la JST au moment de la publication de l'appel CREST au Japon

Le titre, le partenariat, le programme de travail et le partage des tâches fournis aux deux agences **doivent être identiques**.

Les participants français sont par ailleurs vivement encouragés à contacter l'ANR avant le dépôt d'une proposition.

La proposition détaillée doit être déposée auprès de l'ANR *via* la plateforme de soumission de l'ANR. Pour cela, le coordinateur français doit :

- déposer sur la plateforme le document scientifique du projet ;
- renseigner les informations administratives et financières demandées.

L'adresse internet de la plateforme sera communiquée au début du mois de mars sur la page web

[1] L'ANR incite les participants français à soumettre les propositions en langue anglaise ou à fournir sur demande la traduction en anglais du document initialement rédigé en français. En cas d'impossibilité pour les participants français de fournir une traduction en anglais, ceux-ci peuvent se rapprocher de l'ANR afin de trouver une solution adaptée.

ANR de l'appel à projets : http://www.anr.fr/crest-2018. Le modèle du document scientifique du projet est disponible à cette même adresse.

3. ELIGIBILITE

Chaque agence se prononce sur l'éligibilité d'un projet selon ses propres règles. L'ANR vérifie l'éligibilité des projets à partir des critères suivants :

- Le consortium du projet doit impliquer au moins un partenaire français[2] et un partenaire japonais.
- La durée du projet doit être de 5 ans.
- Un déposant (i.e. chercheur) ne peut être impliqué dans plus de 3 propositions déposées dans le cadre du Plan d'action 2018 (tous appels confondus) soit au maximum : une coordination et 2 partenariats ou 3 partenariats.
  Cet appel à projet s'inscrit dans le cadre du Plan d'action 2018.
- Caractère complet :
  La proposition doit être déposée sur le site de soumission à la date de clôture de soumission des propositions. Aucun document n'est admis après cette date. Une proposition complète doit comprendre :
  - ✓ le document scientifique ;
  - ✓ les informations administratives et financières.
- Thèmes de collaboration scientifique :
  Une proposition doit correspondre à l'un des deux thèmes de recherche de la collaboration ANR-JST tels que décrits dans le texte de l'édition 2018 du programme CREST (voir en annexe).
- Caractère unique :
  Une proposition ne doit pas être semblable en tout ou partie à une autre proposition soumise à l'édition à laquelle se rattache cet appel ou ayant donné lieu à un financement de l'ANR.
  Le caractère semblable est établi lorsque les pré-propositions ou les propositions en cause (dans leur globalité ou en partie) décrivent des objectifs principaux identiques, ou résultent d'une simple adaptation, et impliquent des équipes majoritairement identiques.

Un projet ne sera évalué et financé par l'ANR que s'il répond aux règles d'éligibilité de la JST et de l'ANR et aux modalités de son règlement financier.

4. EVALUATION

Les projets seront évalués successivement par l'ANR et par la JST.

Les critères d'évaluation sont communs aux deux agences et décrits ci-après.

L'évaluation par l'ANR est similaire à l'évaluation mise en œuvre dans le cadre de la 2nde étape de l'appel à projets générique :

1. un comité d'évaluation est constitué pour chacun des thèmes de collaboration scientifique ;
2. les projets sont évalués par des experts externes (hors du comité) et par les membres du comité ;
3. le comité se réunit pour établir un classement des projets (un classement par thème).

[2] Dont au moins un organisme de recherche public ou assimilé français

4.1 CRITERES D'EVALUATION

- Pertinence et dimension stratégique du projet vis-à-vis des orientations de l'appel à projets
  - ✓ Cohérence avec les thèmes de collaboration tels qu'identifiés en section 1. du présent document.
- Qualité et objectifs scientifiques : recherche fondamentale singulière, reconnue internationalement et pour laquelle des résultats remarquables sont attendus, qui contribueront grandement à l'innovation scientifique et technologique :
  - ✓ Clarté des objectifs de recherche et des hypothèses
  - ✓ Nouveauté, originalité, progression de l'état de l'art : la proposition de projet doit indiquer clairement et séparément :
    - Le contexte de l'initiative de recherche (sa nécessité et son importance)
    - Les activités de recherche des chercheurs participant au projet
    - L'initiative de recherche et son programme
  - ✓ La faisabilité, en particulier au regard des méthodes et de la gestion des risques scientifiques :
    - Des résultats préliminaires prometteurs ont été obtenus pour poursuivre l'initiative de recherche
- Organisation du projet et moyens mis en œuvre :
  - ✓ Compétences, expertise et implication du coordinateur scientifique et des partenaires :
    - le coordinateur exercera un leadership fort et portera la responsabilité pour toute l'équipe de recherche. Il s'assurera de construire un cadre de collaboration suffisant pour permettre des contributions significatives et l'atteinte des objectifs de recherche.
    - Le coordinateur de la proposition de projet a déjà produit des résultats de recherche permettant d'accomplir les objectifs du projet.
  - ✓ Qualité et complémentarité du consortium, qualité de la collaboration, valeur ajoutée de la collaboration
  - ✓ Les institutions de recherche des responsables scientifiques ont des capacités de R&D et autres fondations techniques dans le domaine du sujet de recherche.
  - ✓ Plan financier approprié :
    - Adéquation des moyens demandés aux objectifs
- Impact du projet :
  - ✓ Contribue à l'atteinte de l'objectif stratégique du thème de recherche (cf. texte en annexe)
  - ✓ Impacts scientifique, économique, social ou culturel potentiels :
    - Actions de transfert technologique et d'innovation vis-à-vis du monde socio-économique (si pertinent)
    - Stratégie pour disséminer et exploiter les résultats (si pertinent)

4.4 RESULTATS

Pour chacun des thèmes de recherche, le comité d'évaluation ANR établira un classement sur la base des évaluations. Dans le cadre de sa procédure d'évaluation, le comité JST sera amené à auditionner le coordinateur japonais du projet. L'ANR et la JST sélectionneront ensuite conjointement les projets à financer sur la base de ces deux classements et à concurrence de la capacité budgétaire des agences.

5. DISPOSITIONS POUR LE FINANCEMENT

Chaque agence financera les dépenses relatives aux équipes de son pays selon ses propres règles. Les modalités d'attribution des aides de l'ANR sont précisées dans le « Règlement financier » disponible à l'adresse http://www.anr.fr/RF.

Un rapport intermédiaire à 24 mois ainsi qu'un rapport final seront à transmettre aux chargés de missions scientifiques dont les coordonnées sont indiquées en première page.

ACCORDS DE CONSORTIUM

Les déposants doivent se référer à l'article 4.4 du règlement financier et à la fiche n°4 relative aux accords de consortium afin de connaître les règles applicables.

Annexe

Research Area in the Strategic Objective “Development of new material properties and frontier of information sciences based on the advanced control of quantum states”:
Creation of an innovative quantum technology platform based on the advanced control of quantum states

Research Supervisor:
Yasuhiko Arakawa (Professor/Director of Center for Photonics Electronics Convergence, Institute of Industrial Science, The University of Tokyo)

Overview

The objective of this research area is to create an innovative quantum technology platform that contributes to the development of society by exploring physics and technologies for high-level control of the quantum state on the basis of photonics, solid state science, nanostructure/materials science, and informatics to pioneer discoveries in the frontier of quantum science. We also aim at realizing new quantum information processing and element/system functions that are superior to prior technologies in terms of performance. This research area focuses on the following two pillars in promoting research and development: “creation of new sources” to explore physics for quantum state control and develop pertinent technologies and “creation of innovative system functions” to provide quantum technologies for social and industrial innovation in the future.

Specific examples of the research include the following: sophistication of the state control of various quantum systems such as quantum dots and superconductors and subsequent development into quantum information processing technology; the realization of a new hybrid quantum system via a highly-controlled quantum system and a high-sensitivity sensor element; and the development of super-precision measurement technology through a sophisticated use of quantum effects and quantum optics. Furthermore, we also aim at the realization of innovative quantum system functions and the subsequent integration thereof to contribute to the construction of future infrastructures. In addition, we expect proposals on research and development embracing a broader quantum technology initiative based on a new idea or approach.

In particular, this year, we will accept a joint research proposal with a French research team as a special framework of the CREST program collaborating with ANR (Agence Nationale de la Recherche). For acceptance of the proposal, it needs to receive high evaluation at both JST and ANR review committees.

Research Supervisor’s Policy on Call for Application, Selection, and Management of the Research Area

(1) Background and basic policy

Science and technology based on quantum mechanics, such as semiconductors, superconductivity, and lasers, have had considerable impacts on industries and society. Element technology for quantum state control and basic research on quantum information processing was initiated around the 1990s. Comprehensive and high-level utilization of quantum mechanics is generating seeds for the development of new academic and technological systems. Considering developments thus far, by combining our strengths in photonics, solid state science, nanostructures, materials science, and informatics it is important to deliver quantum technology that serves as a core for the creation of a platform for new industries and technologies. We also aim to lead pioneering work in the frontier of quantum science from long- and medium-term viewpoints.

In this research area, we emphasize research and development for high-level control of quantum states to respond to various economic and social needs; additionally, we aim for the development of

new quantum properties of materials and quantum information systems. In so doing, we aim to create sources for a wide range of innovation and establish basic technologies for implementing quantum technologies and systems that are foundational to a radically reformed profile of society.

We solicit proposals covering a wide range of research areas to put the above ideas into practice. The preferred content of research proposals applied to this research area is explained below.

(2) Area and content of research proposals

In this research area, we aim for high-level control of various quantum states, ranging from isolated quantum systems to many-body systems and macroscopic condensed matter in order to explore unknown physical phenomena and functions/properties of matter. We also intend to pioneer in the area of quantum informatics based on new concepts and create seeds for new technologies. We also aim to develop basic quantum technologies and systems to stimulate forward-looking mergers and breakthroughs in existing technological areas (photonics, electronics, spintronics, and the like).

For this research area, we solicit proposals that are expected to challenge current limitations by exploring the sophisticated control of quantum states and technological advances for quantum information processing and research and development for the construction of platforms to provide society with various quantum technologies. Such innovations include the realization of sensors and devices much superior to current technologies in terms of performance. A proposal needs to present a clear vision about the social significance of the results as well as a convincing research plan high academic value—specifically, in terms of science and technology for the high-level control of quantum states. Please show that the proposal would make discontinuous progress from past technologies and provide benchmarks for progress.

In this research area, we solicit proposals for one of the following two categories:

(A) Creation of new sources; exploration of physics for quantum state control and its technological development

(B) Creation of innovative system functions; providing quantum technologies for social and industrial innovation in the future

Needless to say, both categories refer to goal-oriented basic research. Therefore, whether a proposal belongs to (A) or to (B), it is required to explicitly present a vision that shows how its achievement bears fruit as a system for a future society.

In this research area, we promote research issues to establish leading quantum technologies through integration and collaboration of photonics, solid state science, nanostructure/materials science, and informatics in an integrated and multi-layered manner. Although any proposal that brings innovation to quantum technology will be welcome regardless of its content, it is essential that the proposal be excellent in terms of both academic value and anticipated social value. We also look for proposals from teams of theorists. Examples of areas into which research and development proposals for this research area may be categorized are provided below.

A joint research proposal collaborating with ANR can be submitted to either category (A) or (B).

① Realization of core technology related to quantum information processing through sophistication of the state control of quantum systems

② Realization of scalable quantum information processing technology through materialization of innovative quantum system functions

③ Realization of new quantum simulation technology through control of quantum many body systems

④ Realization of quantum communication element technology through sophisticated quantum state control of photons and electrons and system verification

⑤ Realization of a new hybrid quantum device through the development of nanotechnology and new materials technology
⑥ Realization of super-precision measurement and sensor technology through the sophisticated use of quantum effects and quantum optics
⑦ Realization of innovative biotechnology and medical measurement technology through sophisticated quantum state control
⑧ Development of quantum technology based on a new concept and its application and development

(3) Implementation structure of research and management policies for the research area

We expect joint research within an adopted proposal (research issue, hereafter) to be promoted by research teams of complementary researchers in order to turn a research plan of a proposer into reality. Although it is required to undertake research as a team for research issues of (A), the team needs not be large. Emphasis will be placed on digging deeply into creative research by the research proposer.

Please assume a research period of five and a half years for a proposal solicited in this fiscal year. The upper limit of the budget set for an (A) proposal is 200 million yen; for a (B) proposal, the upper limit is 350 million yen.

In conducting research, collaboration and integration among research teams are expected to develop through activities in the research area, although it is a premise for a research to proceed according to the proposal. Therefore, we will aim to provide opportunities for research teams to deepen their mutual understanding. In addition, the research budget will be boldly adjusted for an increase or decrease on the basis of research progress evaluated at the mid-term (planned as two years from the start of the research period). Consequently, it may be necessary to change group members on teams or in research areas. The entire research area will be directed toward favorable results in the process of research and development.

Generally speaking, the number of research issues associated with (A) is anticipated to be larger than that of (B). Please clearly state whether a proposal aims for (A) or (B) in the introductory explanation of the proposed research issue.

It is recommended that proposals are suited to shared research facilities and instruments; examples of common facilities are the Tsukuba Innovation Arena and the Nanotechnology Platform of the Ministry of Education, Culture, Sports, Science and Technology.

(4) Collaboration and cooperation with other research areas

In managing the research area, we will attempt to promote collaboration and cooperation not only with PRESTO's "Quantum state control and functionalization" research area, which shares the same strategic objective, but also with CREST's "Advanced core technology for creation and practical utilization of innovative properties and functions based upon optics and photonics" and PRESTO's "Fully controlled photons and their proactive usage for new era creation." If necessary, research area conferences and workshops will be held jointly. Furthermore, we stimulate collaboration with associated academic societies and research organizations, and plan to hold an international symposium to disclose achievements.

A briefing on the call for proposals in this research area will not be held this year.

Research Area in the Strategic Objective “Advanced Interaction Technologies within Networked Intelligent Information Environment”:
Symbiotic Interaction: Creation and development of core technologies interfacing human and information environments

Research Supervisor:
Kenji Mase (Professor, Graduate School of Informatics, Nagoya University)

Overview

The integration of cyberspace with the real world is rapidly advancing based on improvements in artificial intelligence, data analytics, and the internet of things, which are penetrating our society. We must extend the research field of the interaction of humans and computers to achieve “interaction with networked ambient intelligence.” Recent technologies are showing us a future vision of smart information environments and augmentation of human abilities. Within this research area, we aim to create and develop core information technologies that realize advanced interaction designs for a symbiotic society consisting of humans, augmented humans, connected things, ambient intelligence (i.e., a smart intelligence environment), internet of wisdoms, etc. We will call this advanced interaction in the symbiotic society, “symbiotic interaction.” In this research program, we aim to create and develop the fundamental technologies that realize symbiotic interaction based on understanding and designing interactions in a symbiotic society.

The goal of this research area is to establish core technologies of symbiotic interactions through approaches that evaluate behaviors of humans and societies, designing future societies, and constructing effective interactive systems. Proposals are expected to include state-of-the-art technologies in appropriate areas such as human-computer interaction, ubiquitous/wearable information processing, computer science, and robotics, in addition to collaboration with other disciplines such as cognitive science, social science, and brain science.

Specifically, the following types of research and development will be pursued:

1) Development of technologies to augment human abilities for advanced interactions and interfacing with ambient intelligence
2) Development of technologies to advance and explain interaction theory, principles, and mechanism though collective data analytics for deep understating of human behaviors and interactions
3) Design and development of ambient intelligence that fosters effective and efficient social structures and human creative activities when combined with advanced interaction technologies

Following these aspects, research and development efforts will contribute to establishing a harmonized and globally-optimized human and computer symbiotic society that is benefited by rapidly advancing artificial intelligence (AI) technologies and fundamentals.

This research area will be operated as part of the Advanced Integrated Intelligence Platform project (AIP project) by the Japanese Ministry of Education, Culture, Sports, Science and Technology.

Research Supervisor's Policy on Call for Application, Selection, and Management of the Research Area

1. Background and basic policies

The integration of cyberspace with the real world is advancing rapidly based on the technologies of artificial intelligence, data analytics, and the internet of things. Our society is rapidly changing into a symbiotic society with networked and smart information environments, i.e., ambient intelligences. Augmented humans will harmoniously inhabit this society. In such a society, human, economic, and social resources will be efficiently exploited by humans and the lifestyle and "work-style" will be significantly changed. To realize a symbiotic society with maximum benefit to humans, we must design novel interactions between humans and computers, and the future architecture of society.

We must extend the research field of the interactions among humans, and between humans and computers, to consider "interactions with networked ambient intelligences." The various kinds of interactions of "human and human," "human and computers," and "human and ambient intelligence" will be investigated to pursue fundamental technologies that support human lives not only in the real world, but also in cyberspace. The design of such interactions should take into account continued technology development, such that human augmentation and networked intelligent environments become increasingly advanced. Good understanding and control of the behaviors of humans, computers, and information environments will lead to optimal systems and architecture designs of human society and human activities. This understanding will foster the realization of an advanced society that fully exploits rapidly expanding AI technologies.

2. Research Goal

The goal of this research area is to establish core information technologies regarding symbiotic interactions through approaches that evaluate behaviors of human and society, designing future societies, and constructing effective interactive systems.

We envision a society in which numerous (e.g., several tens or hundreds) intelligent agents will work for humans by presenting a huge amount of information in a human-readable form within the next few years. The control of interaction with such large numbers of agents will be a very important job in our everyday lives. Not all agents will provide correct information. Humans may soon acquire thousands of times the power of their native intellect and physical capabilities with the help of human-ability augmentation. We must understand our cognitive load in the predicted future society and design appropriate interaction designs to allow people to cope with such an environment. For example, what is an appropriate design of AI-supported automatic driving cars and home service robots for effective and safe control and use? Research project proposal applications are expected to outline such a future vision as its basis.

We aim to design a future-society architecture with an information environment in which people and communities are motivated to pursue safe and healthy lives based on the understanding of human behavior. This can be achieved with the help of other disciplines such as cognitive science, brain science, and social science. When using various approaches to designing interactions, common fundamental theories such as the computational theory of interaction, design theory, and design principles are expected to be developed. The construction and sharing of interaction system platforms is also an issue. The collection and sharing of behavior data in the information environment is another important research area for new interaction analysis methods and practices. Ethical, legal, and social issues (ELSI) in current research, development, and deployment must be addressed. To deploy new

technologies of interaction with a view to the future, creative approaches to new social agreements of ELSI should be taken.

3. Examples of research themes

Examples of research and development projects are as follows:

- Human Augmentation
  - Support technology for advanced multi-modal communication
  - Technologies to augment communication intelligence
  - Support technology for advanced collaborative work and community formation
  - Support technology for behavior alternation
  - Augmentation technology for the abilities and functions of humans (for the disabled, sports players, VR, etc.)
  - Creativity support technology via interactions (design, computational creativity, computational design, etc.)
  - Kansei design (collective computational intelligence)
  - Recognition technology for interests and likes for clarifications of sense of values
  - Systemization of knowledge, wisdom, and skills for wearable and ubiquitous information environments
- Ambient Intelligence
  - Multimodal interaction technologies with intelligent agents, intelligent robots, etc.
  - Interaction design technologies for intelligent systems, self-driving cars, and smart homes
  - Networked life-logging environments
  - Development of agents/robots equipped with interaction intelligence based in collected lifelogs
  - Interaction technology for co-creative communication and collaborative work
  - Technologies to create services adaptive to changing needs and circumstances
- Fundamental interaction theory and modeling
  - Modeling of augmented-human interactions
  - System design principles based on relations between humans and ambient intelligences
  - Computational design theory that leads to scientific interaction design
  - Theories of coaching
  - Models of communication knowledge/skill/intelligence
  - Intimacy model for robots and agents
  - Affective computing and control theory for mental health care
- Platforms
  - Platform technology to support data collection, analysis, sharing, and circulation of human behaviors and social phenomena

The domains of applicable interactions are education, medicine, health-care, distribution, manufacturing, infrastructure, transportation, sports, etc. One must illustrate a clear picture of interaction in these domains in the proposal. Creation of a collaborative team focused on cognitive science, social science, and brain science is possible. Some examples of interactions should include humans (augmented humans) and ambient intelligences, different cultures/languages, healthy and handicapped people, doctors and patients, coach and players, and parents and children.

In our research and development projects, we are looking for researchers who engage in the research and envision a specific path to implementation within society while considering ELSI. We anticipate that the achievements of the research will be deployed widely, both in Japan and abroad.

These fundamental technologies must be pursued in human-computer interaction, human-robot interaction, multi-modal interaction, intelligent user interfaces, autonomous agents, virtual reality, augmented reality, mixed reality, wearable devices, augmented humans, ambient intelligence, creativity support, and related research areas. We are seeking research projects that develop (and create in parallel) novel values and future services through an iterative loop of data collection, analytics, design, and implementation. Design thinking and actuation technologies are key components.

Collaborative workshops will be organized for interactions among research teams to investigate new research issues. Additional taskforce teams will be formed by the researchers in cognitive science, brain science, etc., to tackle and solve common issues in their related research domains and to share the results among the teams.

4. Research and development period, and research costs

Proposals will be solicited for the entire research period of five years and six months (from October 2018 through March 2024). Research costs will be up to a total of 300 million yen for the entire period. Timely evaluation of research progress will be performed by the research supervisor and informed by the advisory panel. Additional budget will be provided at any time when acceleration is considered useful and appropriate during the research period, for activities such as large field experiments of the construction of public and appealing systems.

5. Considerations and advice when submitting applications

The proposal should identify,

i) the applicable domains of research achievement such as education, medicine, health-care, distribution, manufacturing, infrastructure, transportation, and sports; targeted interactions, using what form, user model, and system model; and

ii) any developing technologies, theories, or designs planned.

In the research proposal, the following specific objectives must be provided:

- A specific objective to be achieved in five years and six months
- A specific objective to be achieved in the two years and six months before the interim evaluation

More specifically, please include descriptions of the following items in “1. Outline of the Research Project” of the application form (Form 2).

1) Applicable domain,
2) Social needs of proposed research, with its impact on society,
3) Novelty and originality of core technology or concept,

4) Challenging topic and international competition,
5) The best team in the field, and
6) Future vision of ELSI.

The proposals will ideally include collaborations with other academic areas such as cognitive science, social science and brain science, as well as a proactive study of collaboration with companies, local governments, etc., for social deployment.

Young team leaders are encouraged. It is also important to consider allowing junior researchers to be involved in the research team. In terms of junior researcher training, it is our hope that involvement will not be limited to university researchers, but instead, that company researchers and outstanding students in continuing education doctoral programs will also be able to join the research team.

In this research area, applications with simple interface devices, gadgets, and interaction tricks that have only short-term appeal will not be considered for acceptance. We expect research proposals with well-thought-out ideas and concept, with feasible plans for interaction models, which we think will be the outcome of strong will and eagerness to change the world and society in the coming decades.

In this research area, we make an open call to contributions from industry for open innovation with the provision of working prototype systems and data in various forms such as robots, interaction logs, etc. After the review of proposals from industry, we will announce the list of contributions to the applicants for their reference. Applicants are expected to make contact directly.

This research area will also contribute in the integrated administration of the AIP project (which integrates artificial intelligence, big data, IoT, and cyber security) by working on research tasks in cooperation with related research institutions such as the RIKEN Center for Advanced Integrated Intelligence Research. This is one of the research areas included in the AIP Network Laboratory, which is part of the AIP project.