

Creating new value and revitalizing the community through research

Research Institute for Technological Science and Innovation (RITI)

技術科学イノベーション研究機構
Research Institute for Technological Science and Innovation (RITI)

戦略研究部門
Dep. for Strategic Research

- Prof. Shimojo (Caltech) -
TUT International
Collaborative Research
Laboratory
- AIST-TUT Advanced Sensor
Collaborative Research
Laboratory

エレクトロニクス
先端融合研究所

Electronics-Inspired
Interdisciplinary
Research Institute



Master technology, create technology

TOYOHASHI
UNIVERSITY OF TECHNOLOGY

Greetings

The Research Institute for Technological Science and Innovation (RITI) was established on April 1, 2016 to enhance our university's research capabilities by promoting collaborative research with leading companies and top research institutions both domestically and abroad. The RITI is an umbrella organization for research at TUT consisting of the Electronics-Inspired Interdisciplinary Research Institute (EIIRIS), which is an existing research institute; four Research Centers; three new Strategic Research divisions; and the Advanced Research Collaborative Laboratory.

The EIIRIS is TUT's flagship research base for the advancement of interdisciplinary research which combines research on innovative electronic technologies, such as smart sensing, with advanced application fields, including robotics, artificial intelligence, information and communication technology, life science, agricultural engineering, the environment, disaster prevention, design, and chemistry/materials.

The Strategic Research Department adopts an open application system for selecting research themes and a matching fund system to the maximum extent possible. The department consists of various projects integrating state-of-the-art ICT, such as sensor/device technology, AI and IT technology, and robot technology, as well as CPS technologies, all of which are our strengths, with cutting-edge application fields. In addition, the Strategic Research Department is made up of three divisions: the Emergent System Research Division which creates new values; the Social System Research Division which solves problems in collaboration with local communities and society; and the Advanced Research Division which has a strong collaboration system with the world's top research institutions and leading companies. In cooperation with the existing EIIRIS and four Research Centers, the department is advancing research aiming at making open innovation a reality. The industry-academia collaborative project is in principle three years long, and is currently in its second term with 20 projects being implemented.

TUT works as a research university which adopts large-scale projects relating to its research, such as the Research University Enhancement Promotion Program, the Program on Open Innovation Platform with Enterprises, Research Institute and Academia (OPERA), and the National University Management Reform Promotion Program. By simultaneously promoting basic research and applied research for practical use, TUT makes an effort to accelerate social implementation and commercialization, and aims to become a university that shines brightly in the world.

I was appointed as the second Head of the Research Institute for Technological Science and Innovation (RITI) on April 1, 2020.

The RITI was established on April 1, 2016 with the objective of strategically planning, promoting, managing and publicizing the Electronics-Inspired Interdisciplinary Research Institute (EIIRIS), the Research Center, the Advanced Research Collaborative Laboratory, and the Cooperative Project for Innovative Research. In particular, the Advanced Research Collaborative Laboratory, which was newly established in the academic year 2015, is advancing globally cutting-edge research by combining the outstanding science and technology of both prestigious foreign universities' laboratories and leading Japanese research institutes/ companies. In addition, the Cooperative Project for Innovative Research is a new initiative that aims to create innovation using a large-scale matching fund system between universities and companies and is beginning to produce results. The Research Administration Center (RAC) is responsible for the smooth operation of the RITI, providing research support in project planning, contracts, legal affairs and intellectual property creation/management.

Since its incorporation, TUT has been designated as a university to participate in the large projects carried out by the Ministry of Education, Culture, Sports, Science and Technology (MEXT), including the Research University Enhancement Promotion Program, "Research Promotion Administration Center (RAC); the Program for Leading Graduate Schools, "Fostering Brain Information Architects with Advanced Technology for Ultra Large Scale Brain Information"; and the Top Global University Project. Only a handful of universities in Japan have been selected for these three MEXT projects. In the future, we aim to vigorously promote cutting-edge research and produce various outstanding research to develop new creative industries centering on innovation. To this end, we will take an open-application approach placing electronics technology at its core, and proactively incorporate different fields, such as robotics, information and communication technology including artificial intelligence and IoT, life sciences such as medical welfare and biotechnology, chemistry and new materials, agriculture, earthquake-resistance and disaster prevention, and environment and urban engineering.

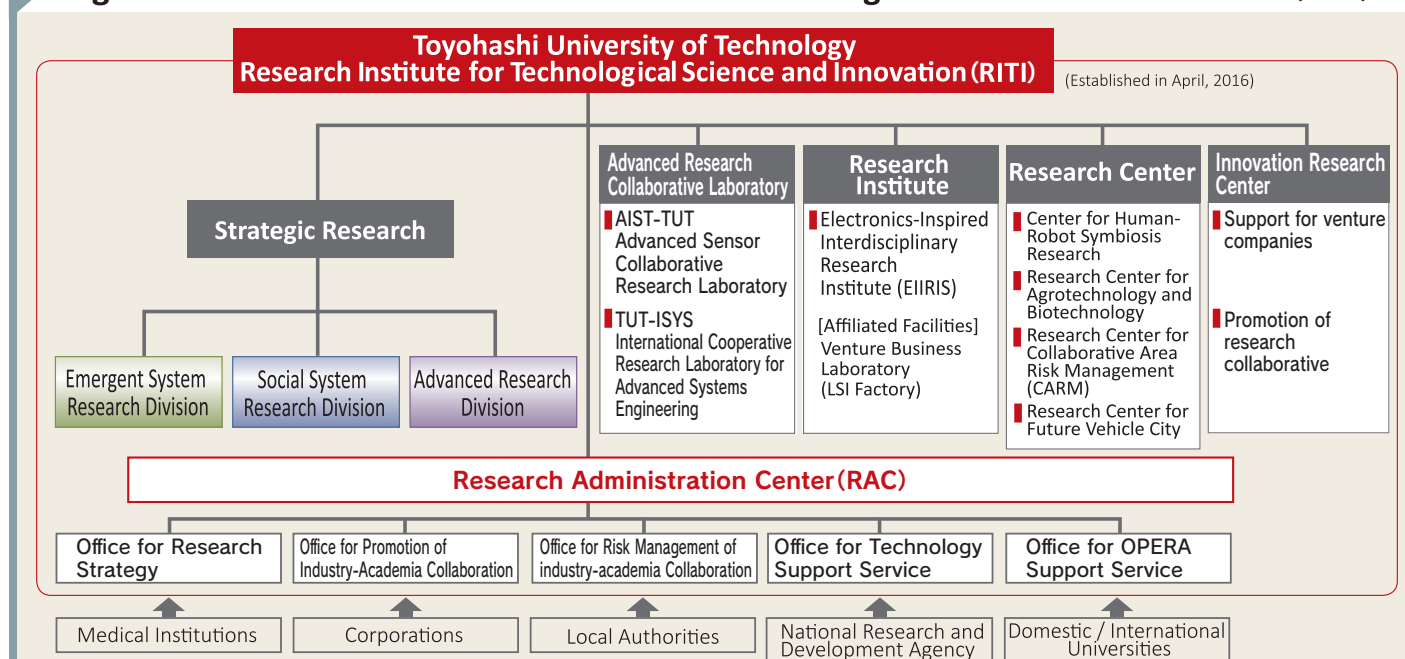


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Organization Chart of Research Institute for Technological Science and Innovation (RITI)



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Outline of the Research Institute for Technological Science and Innovation (RITI)

Toyohashi University of Technology was built on the philosophy that it will contribute to the development of mankind by discovering scientific principles that support the evolution of technology, the production of modern and innovative technology, and the creation of new value that leads us to the solutions of today's challenges and further into the future.

To put this philosophy into practice at a high level, we especially focus on developing the following:

1. Promotion of Emergent System Research for the creation of new values, which is evolving at a rapid pace and which incorporates TUT's strengths such as sensing, artificial intelligence, and robotics research
2. Promotion of Social System Research for solving problems, which can contribute to local communities
3. Promotion of Advanced Interdisciplinary Research through strong collaboration with leading companies and top research institutions both domestically and abroad

Therefore, we chose to combine our existing Electronics-Inspired Interdisciplinary Research Institute (EIIRIS) with the work of our four research centers, and established the Research Institute for Technological Science and Innovation (RITI) that aims towards achieving open innovation.

We have established three strategic research departments within the institute, and have also founded The Cooperative Project for Innovative Research which is composed of research topics that were selected by members of the school community.



■ Main Research Policies

- 1 Reinforcing the development of application and interdisciplinary research based on sensory, artificial intelligence and robotics research using the open application method*
- 2 The creation of new, top global research fields
- 3 Reinforcement of research abilities through the Research Administration Center
- 4 Improving the research ability of all members of the faculty at the university to reinforce overall research capability
- 5 Establishment as an international base for science and technology

*Open Application Method

This refers to pursuing interdisciplinary research aimed at actual application in society that makes maximum use of systems for open recruitment of research topics and open funding.

Strategic Research

Emergent System Research Division

Research that creates new value for social implementation

Social System Research Division

Research to solve the problems society and communities face

Advanced Research Division

Globally cutting-edge research in specialized areas

Cooperative Project for Innovative Research

The "Cooperative Project for Innovative Research" is a project to promote effective interdisciplinary research. The project will develop the frontiers of specific fields using a matching fund format with domestic and overseas research institutions and companies; and will strengthen the ability of participants to implement and advocate for the results of research in society.

In addition, the Research Institute for Technological Science and Innovation (RITI) will be used as a learning space for graduate students in the five-year integrated doctoral program through the "Fostering Brain Information Architects with Advanced Technology for Ultra Large-Scale Brain Information" succeeding the Program for Leading Graduate Schools.