Innovative Technology for Human Communication
Mission

- To promote pioneering and innovative research on information and communication-related fields with global collaboration among industry, academia and government
- To contribute to a wide variety of welfare of society and humanity by outstanding achievements, and to develop highly-professional human resources
- To lead growth of Kansai Science City as a center of excellence in the world

Greetings

The COVID-19 pandemic, which started in Wuhan, shows no sign of relenting at all, even after more than a year has passed. In the 1990s, we believed that infectious diseases had been eliminated in Japan, but this view was simply arrogance. We had also been praising industrial society for the concentration of population in cities and the accelerated movement of people and goods between cities, but it turned out these developments also posed great social risks. In terms of ICT, online conferences have become the norm since last year, but I’ve also observed that office digitization has not really progressed at all over the past 20 years. I hope this pandemic turns out to be an eye-opening lesson that makes us aware of our misconceptions and arrogance.

This year marks the 35th anniversary of ATR. In 1986, ATR started basic research on technologies that were finally commercialized 30 years later, such as voice-input machine translation, virtual conferences using VR, and intersatellite optical communication, all centered on industry-academia-government collaboration as well as international collaboration. Thinking about this research experience and our long-range goals, I still feel the enthusiasm of our seniors in the 1980s who were pushing forward to the information society.

ATR aims to achieve pioneering and original research that “connects the mind,” which is critical to healthcare/medical care, community enhancement, and other basic social services. This work will be pursued in the fields of brain informatics, interaction science, wireless communication technology, and life sciences, in close collaboration with universities and companies within and outside of Japan. In an aging society with a declining birthrate, there are many issues such as one’s reason to live and the coexistence of humans and robots. We aim to contribute to innovation and regional revitalization in the public interest, which has been our corporate philosophy since our establishment. We promote technology that supports the needs of the next society in lockstep with research and business development.

I warmly thank you for your continued support.

Tohru Asami, President
June 2021
Company Profile

<table>
<thead>
<tr>
<th>Foundation</th>
<th>March 1986 Foundation of ATR 1989 Move to present location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital</td>
<td>100 million yen (Capital Surplus: Approx. 21,900 million yen)</td>
</tr>
<tr>
<td>Shareholder Composition</td>
<td>111 companies including NTT and KDDI</td>
</tr>
<tr>
<td>Location</td>
<td>2-3-2 Hikaridai Seika-cho, Soraku-gun, Kyoto 619-0288 Japan (Kansai Science City)</td>
</tr>
<tr>
<td>Employees</td>
<td>226 people (including 148 researchers) Breakdown of researchers: Contract researchers 90%, Loan researchers 7%, Permanent researchers 3%, International researchers 12% (as of April 1, 2021)</td>
</tr>
</tbody>
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Main Board Members

- President: Tohru Asami
- Executive Vice President: Hiroyuki Suzuki
- Advisor of the Board: Masayoshi Matsumoto

Organization

- Strategic Management Unit
- Business Development Office
- Brain Information Communication Research Laboratory Group
  - Research Planning Section
  - Computational Neuroscience Laboratories
  - Cognitive Mechanisms Laboratories
  - Neural Information Analysis Laboratories
- Deep Interaction Laboratory Group
  - Interaction Technology Bank
  - Interaction Science Laboratories
  - Hiroshi Ishiguro Laboratories
  - Norihiro Hagita Laboratories
  - Adaptive Communications Research Laboratories
  - Wave Engineering Laboratories
  - The Thomas N.Sato BioMEC-X Laboratories

Affiliated Companies

- ATR-Promotions
- ATR-Research Partners
- ATR Learning Technology
- ATR-Trek

ATR History

<table>
<thead>
<tr>
<th>Month</th>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>March</td>
<td>1986</td>
<td>Foundation of Advanced Telecommunications Research Institute International</td>
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<tr>
<td>April</td>
<td>1986</td>
<td>Foundation of four laboratories regarding Interpreting Telephony, Communication Systems, Auditory and Visual Perception, Optical and Radio Communications</td>
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<tr>
<td>April</td>
<td>1989</td>
<td>Opening of full-scale laboratories (The first institute established in Kansai Science City, “Keihanna”)</td>
</tr>
<tr>
<td>October</td>
<td>2001</td>
<td>Change of funding scheme (Invested research to funded research scheme)</td>
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<tr>
<td>November</td>
<td>2004</td>
<td>Foundation of “ATR-Promotions,” a subsidiary for commercialization</td>
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<tr>
<td>April</td>
<td>2006</td>
<td>Change of funding scheme (Transition to multi-funding system)</td>
</tr>
<tr>
<td>May</td>
<td>2007</td>
<td>Foundation of “ATR-Trek”, the first joint company</td>
</tr>
<tr>
<td>January</td>
<td>2014</td>
<td>Foundation of specialized laboratories (Enhancing open innovation)</td>
</tr>
<tr>
<td>June</td>
<td>2014</td>
<td>Establishment of Business Development Office</td>
</tr>
</tbody>
</table>
With world-leading, cutting-edge research achievements and their applications to society, the ATR Group pursues innovations based on science & technology and contributes to regional revitalization.
**Computational Neuroscience**

Develop novel Brain Machine Interfaces (BMI) inspired by our knowledge of brain functions, to form the basis for innovative technologies accessible to all.

**CNS** Computational Neuroscience Laboratories - Toward understanding brain function using a computational approach.

We aim to understand brain functions through computational modelling, and develop Brain Machine Interfaces (BMI) leading to improved AI and clinical applications, such as for the recovery of motor functions in humans.

**CMC** Cognitive Mechanisms Laboratories - Toward Understanding High-Order Brain Functions.

We investigate the mechanisms for high-order brain functions by utilizing advanced technologies for the measurement of brain activity as well as manipulation of brain activity based on neurofeedback. Our results enhance human communications and the development of natural human-machine interfaces.

**NIA** Neural Information Analysis Laboratories - Toward Co-evolution of Brain and Artificial Intelligence with Machine Learning-based Methodology.

We aim to provide new machine learning-based methods to understand brain functions and to induce co-evolution of brain and artificial intelligence (AI), hence leading to development of novel AI technologies that mimic brain functions.

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**Deep Interaction Science**

We are trying to deeply understand the interaction between human-human and human-robots, in order to realize a human-robot symbiotic society.


We are conducting joint research with various companies to socially implement research results of Deep Interaction Science to create services and products that enrich people's lives.

**ISL** Interaction Science Laboratories - Science and Technology for Cognitive Interaction with Network Robots.

We are investigating a principle of cognitive interaction through R&D of network robots that has social intelligence. We are dealing with social-touch and moral interaction for robots, human-centric self-driving technology, and active social participation with avatar-type robots.

**HIL** Hiroshi Ishiguro Laboratories - Studies on Android Living together with Humans in the Real World.

We develop autonomous social robots that can kindly communicate with multiple persons in social context, and study to facilitate human's learning capabilities and energetic life by means of tele-operated androids.

**NHL** Norihiro Hagita Laboratory - Exploring Deep Interaction Science Research Areas.

We are exploring new research areas in collaboration with researchers from different fields to indicate the potential of Deep Interaction Science.

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**Wireless and Communications**

Aim to achieve wireless and communications as infrastructure enabling a comfortable and secure life and also to create advanced applications by use of radio waves, from the user's perspective.

**ACR** Adaptive Communication Research Laboratories - Safe and reliable telecommunications in any environment.

Telecommunications adapted to all environments including office, factory, and living space of everyday life, and advanced security technologies that protect privacy and form the foundation of trust.

**WEL** Wave Engineering Laboratories - Open Up Wealthy Future by Utilizing Radio Waves.

We pursue research and development on innovative technologies and applications that achieve comfortable services by thoroughly utilizing limited radio wave resources for realizing a prosperous and secure future in various fields, ranging from ICT to energy-related usage.

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**Life Science**

Our research team aims at deciphering biological mechanisms of our nature by focusing on cross-talks among multiple organs to maintain homeostasis.

**TNSL** The Thomas N. Sato BioMEC-X Laboratories - Realization of “Virtual Live Clinics”

The ultimate goal of our research is to realize healthy and long-lasting life style. We undertake cross (X)-disciplinary approaches towards this challenge by integrating concepts and methodologies of Biology, Medical science, Mathematics, Engineering and Computational sciences: BioMEC-X.
## Affiliated Companies

Business affiliates were established to commercialize products and services based on ATR’s research outcomes. They have served as the core agents of commercialization in the ATR Group and have achieved successful results since 2004.

### ATR-Promotions Inc.  
**ATR-Promotions**

Our missions are to develop and to market products relating to speech and sensor technologies developed by ATR. We also provide services to support advanced neuroimaging research.

### ATR Learning Technology Corp.  
**We create new learning environment in collaboration with foreign language learning technology “ATR CALL” based on ATR’s studies and know-how in education support of Uchida Yoko Co., Ltd.**

### ATR-Trek Co., Ltd.  
**ATR-Trek**

We promote speech recognition and translation technologies by combining speech recognition technologies of ATR and embedded software of FueTrek Co., Ltd.

*ATR CALL is registered trademark of ATR.*

## Global Innovation Ecosystem

We are building a global innovation ecosystem in Keihanna Science City.

### Startup Support

In collaboration with world’s leading innovation partners, we are providing an acceleration program “KAGAP+” to support Japanese and overseas startups in marketing their products or services together with Japanese enterprises. The “Osaka, Kyoto, Hyogo-Kobe Consortium” has been selected by the Japanese government as “Startup Ecosystem Global Hub City” and Keihanna is acting as a hub for developing startups in the Kansai region.

### Open Innovation Promotion Support

We are building and operating “KOSAI[N],” a platform to create issue-driven and business development projects for Japanese enterprises through open innovation. We organize teams with startups and researchers from Japan and abroad, making the project pioneering and agile. “KOSAI[N]” is also being carried out with supports of the governmental agencies in Israel and Canada.

KAGAP+: Keihanna Global Acceleration Program Plus, KOSAI[N]: Keihanna Open Global Service Platform for Accelerated Co-Innovation

## Companies Invested by "Keihanna ATR Fund"

Keihanna ATR Fund* established in 2015 has invested 15 start-up companies as of April 2021. ATR accelerates business development based on its R & D outcomes by conducting joint R & D with, and/or providing technical licensing / support to these startups, thus contributes to the vitalization of Keihanna Science City.

*Kansai Science City ATR-Venture NVCC Investment Limited Partnership

### Blue Innovation Co., Ltd.  
**Blue innovation**

Blue innovation delivers drone-based solution services based on Blue Earth Platform, an application of ATR’s Ubiquitous Network Robot Platform (UNiR-P).

*Ubiquitous Network Robot Platform *

### YUKAI Engineering Inc.  
**YUKAI Engineering**

YUKAI Engineering offers communication robot solutions. It collaborates with ATR to improve the value of the robot by applying ATR’s deep interaction technology.

### Supreme System Co., Ltd.  
**Supreme System**

Supreme System strengthens its service “Moptar” using a flow line analysis system originated in part from ATR’s position measurement software.

### XNef Inc.  
**XNef**

We develop diagnostic and therapeutic equipment, software, etc. applying the decoded neurofeedback (DecNet).

### SmartScan,Inc.  
**SmartScan**

SmartScan delivers medical checkup service of brain based on MRI with a ground-breaking business model which dramatically improve user convenience.

### TVISION INSIGHTS Inc.  
**TVISION INSIGHTS**

TVISION INSIGHTS delivers services on media research, measurement/analysis of TVCMs and programs.

### ANYCOLOR Inc.  
(former: chikara Inc.)

ANYCOLOR runs Vuber management business. It collaborates with ATR in the development of next generation Vuber based on multiple modalities.

### FIT Co., Ltd.  
**Aidea Inc.**

Aidea Inc.

### A.I.Viewlife co. ltd.  
**WaveArrays Inc.**

WaveArrays Inc.

### BackTech Inc.

## Licenses

Our research outcomes over the years have enabled us to license patents and other intellectual properties to collaborators, who in some cases have gone on to develop their own products from these outcomes. In this way, we help partners to achieve value creation.

### Karydo Therapeutics Inc.  
**Karydo Therapeutics**

We develop/ provide therapeutic/diagnostic medical R&D solutions based on the Thomas N. Sato SkoMEC-X Labs’ data science technology.

### Telenoid Healthcare Company  
**Telenoid Healthcare Company**

We provide new communication services for elderly people, based on the tele-operated robot Telenoid™ developed by Hiroshi Ishiguro Labs.

### Stroly Inc.  
**Stroly**

As a start-up company developed from ATR, Stroly Inc. plans, develops, and operates the online map platform Stroly.

### AI, Inc.  
**AI, Inc.**

AI, Inc. develops/markets the high-quality speech synthesis solution AItalk®, using ATR’s corpus-based speech synthesis.

### FEAT Limited  
**FEAT**

FEAT provides language processing and translation technologies to assist cross-language communication.
Global Collaboration Network

- ACCESS -

**At Gakken Nara Tomigaoka Sta., of Kintetsu Line,**
Take Nara-Kutsu bus #56 or #59 and get off at “ATR” stop (about a 15-minute ride).

**At Shin-Hosono Sta., of Kintetsu Line,**
or Hosono Sta., of JR Gakken-Toshi Line,
Take Nara-Kutsu bus #36, #46, #47, #56, #58, or #59 and get off at “ATR” stop (about a 15-minute ride).