

## Scholarship System

Students may incur economic burdens in the pursuit of their studies. While many students might pay a portion of their expenditures with money earned through part-time jobs, too much work might hinder their studies. Because we value our students' studies, our University offers scholarships or loans that support covering part of the necessary costs.

To receive either a scholarship or a loan, applicants must have a good academic record, a good personality, and be in need of financial assistance.

### ■ University Scholarship

#### Scholarship Name

Graduate School Scholarship

#### Period for Application

April through May

#### Scholarship Award Grades (number of grantees) Amount

- Master's program 1st grade : (25) JPY 200,000 per year.
- Master's program 2nd grade : (12) JPY 250,000 per year.
- Doctoral program : (10) maximum JPY 500,000 per year.

#### Requirements

Good academic record  
Good personality  
In need of financial assistance

#### Loans

The Japan Student Services Organization also offers loans for graduate school students. For details, please contact the Student Center after you have been accepted to the University.

#### Term

One year

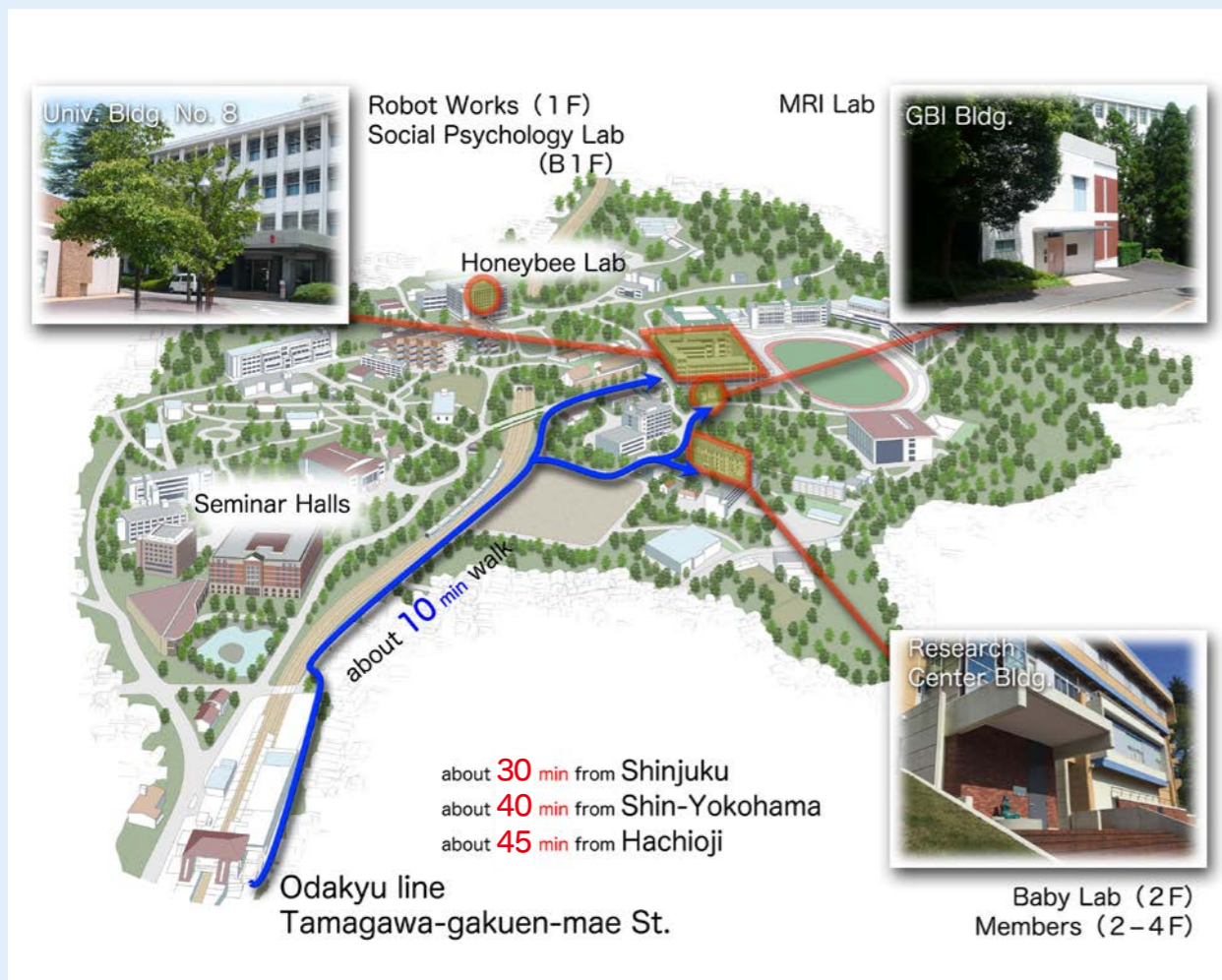
# Graduate School of Brain Sciences

Mind and Brain Sciences Major (Master's program)

Brain Sciences Major (Doctoral program)

## 2018

### Access



### Information

Questions about the Graduate School of Brain Sciences should be sent to the following email address.

E-mail [gbs@tamagawa.ac.jp](mailto:gbs@tamagawa.ac.jp)

6-1-1, Tamagawa-gakuen, Machida, Tokyo 194-8610, Japan.

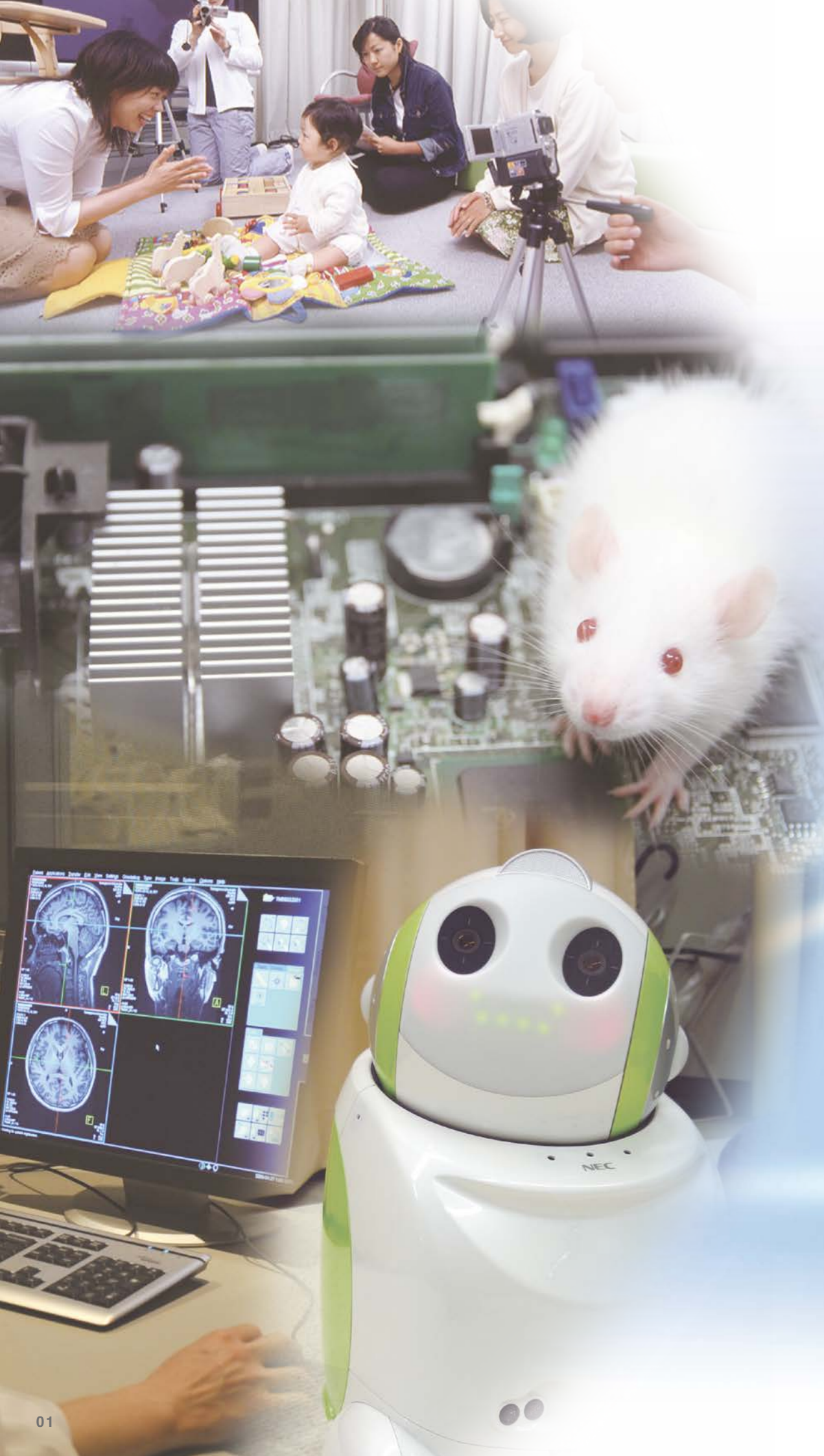
Closed on weekends, national holidays, and following periods.  
Aug. 24-Sep 1 (summer vacation)/Dec. 27-Jan. 4 (winter vacation)

[brain@tamagawa.ac.jp](mailto:brain@tamagawa.ac.jp)

[http://www.tamagawa.jp/graduate/brain\\_e/](http://www.tamagawa.jp/graduate/brain_e/)



Tamagawa University



# Mission

## Establishing New Sciences of the Mind and Cultivating the Next Generation of Leaders

Brain-science research has enjoyed remarkable progress, and fledgling research areas will expand rapidly as it continues to be a central scientific field in the 21st century. Further, we strongly expect it to be a field that contributes toward the development of society, the economy, education, and medicine.

Traditional natural sciences such as neuroscience and information science are not sufficient for a fundamental understanding of the mind's basic elements, including memory, reasoning, creativity, or emotions, or the will to control intellect and sensibility. However, a scientific understanding of the mind will be possible if we combine the vast amount of knowledge that has been built through research in psychology, cognitive science, and other fields in the humanities and social sciences with natural sciences that make the most of state-of-the-art technologies. At the Tamagawa University Brain Science Institute, we have begun to establish new sciences of the mind and are training the next generation of leaders.

### Graduate School of Brain Sciences

**Mind and Brain  
Sciences Major**  
(Master's program)

M.Sc. in Neurosciences  
M.Sc. in Engineering

**Brain Sciences  
Major**  
(Doctoral program)

Ph.D. in Neurosciences  
Ph.D. in Engineering



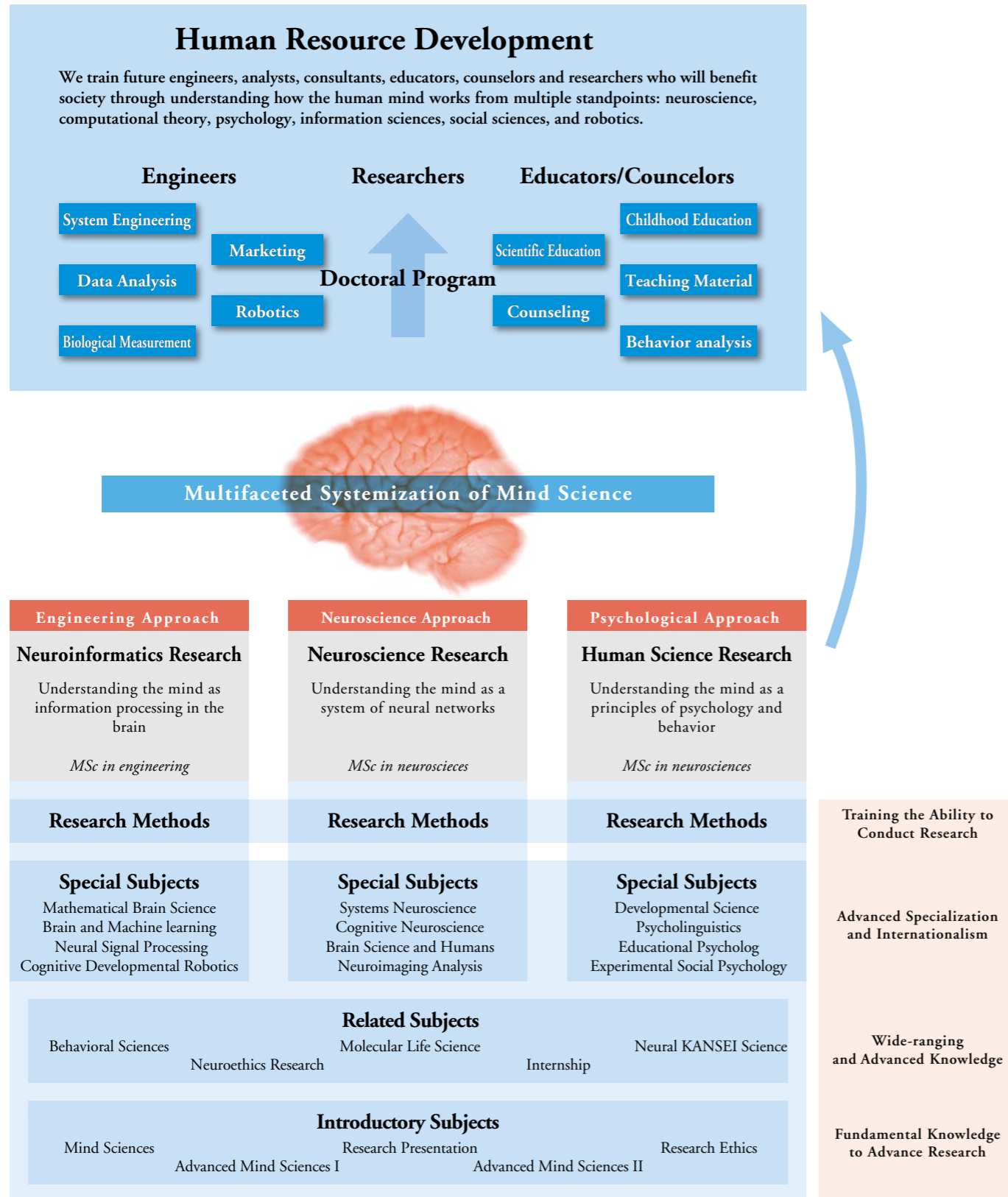
The Graduate School of Brain Sciences was established at Tamagawa University in order to expand and improve the education and research of the existing Graduate School of Brain Information. Our Master's program (Master of Neurosciences/Engineering) trains the future engineers, educators, and researchers who will lead efforts to understand how the human mind works. Towards this end, they will study information processing in the brain, research the physical basis of neural circuits, and examine human behavior from a psychological perspective. Based on the Master's program, our doctoral program (Ph.D. in Neuroscience/Engineering) trains the future researchers and engineers in neuroscience to pursue an understanding of the human mind and brain from interdisciplinary perspectives.

Dean of Graduate School of Brain Sciences

**Hidehiko Komatsu**

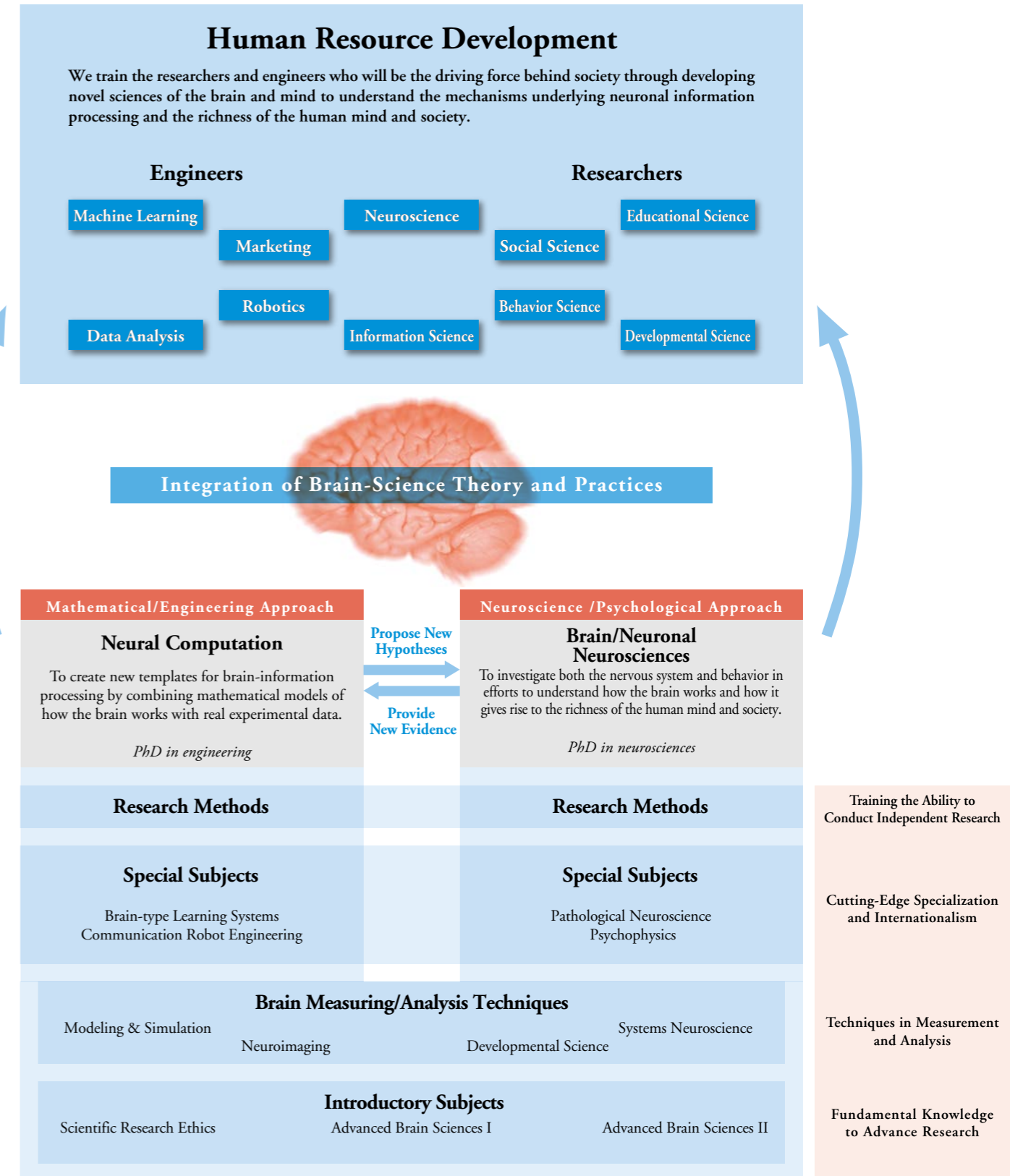
# Graduate School of Brain Sciences

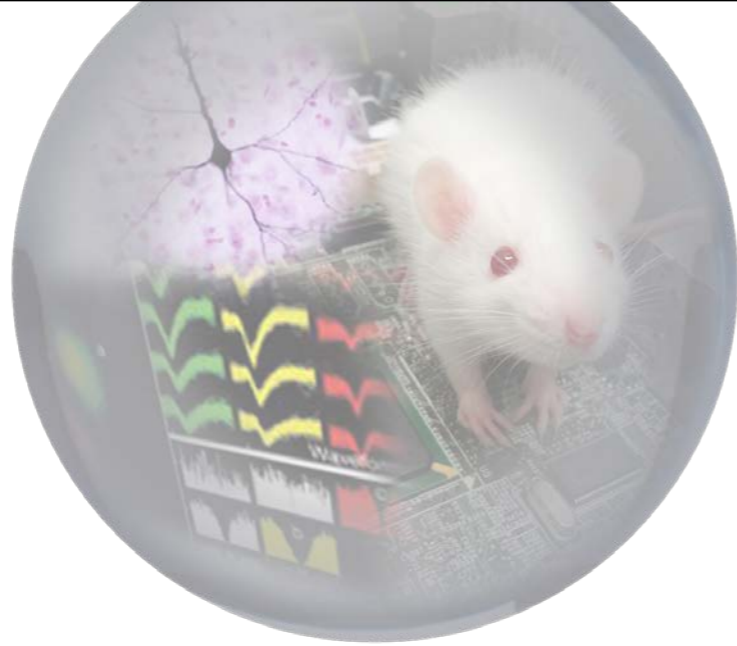
## Mind and Brain Sciences Major (Master's program)



# Graduate School of Brain Sciences

## Brain Sciences Major (Doctoral program)





**Yoshikazu Isomura** Professor Ph.D.  
Neuroscience, Neurophysiology

When animals behave voluntarily, neurons in the cerebral cortex and hippocampus show various forms of spike activity. However, the subtypes of neurons involved and how they interact are still not completely understood. Thus, we are attempting to clarify how information that is necessary in the selection, execution, and control of behavior is sent to neural circuits in the cerebral cortex and hippocampus of rodents, using behavioral and electrophysiological methods that we established originally.



**Hiroyuki Okada** Professor D.Eng.  
Cognitive Developmental Robotics

I am engaged in cognitive developmental robotics research, with the aim of clarifying developmental mechanisms in human cognitive processes using infants and robots. I am interested in a wide variety of subjects, from language acquisition in infants to robot vision. My objective is to connect the seemingly unrelated fields of infant research and robotics, and understand the flexible framework of intelligence. I won the 2008 and 2010 RoboCup world championship (@Home league), and the RoboCup Japan Open since 2008. My published work includes "Neural Networks: Foundations and Practice" (Corona Publishing Co., Ltd. [coauthor]).



**Yuichiro Okamoto** Professor Ph.D.  
Western Philosophy,  
Contemporary Philosophy, Bioethics

The traditional understanding of "humanity" continues to change dramatically with the advancement of science and technology. How to best understand these changes as a philosophy is the central theme of my research. I approach this theme by rethinking how science and technology must exist, while attempting to understand what effect(s) these have on humans from various points of view. While my specialty is the humanities, I am conducting cross-sectional research in the social and biological sciences. In particular, I am carrying out developmental research from the biological sciences on the recently active field of "neuroethics."

## Toward the future of brain sciences

**Keiko Iwata** Professor Ph.D.  
Developmental Psychology,  
Early Childhood Care and Education

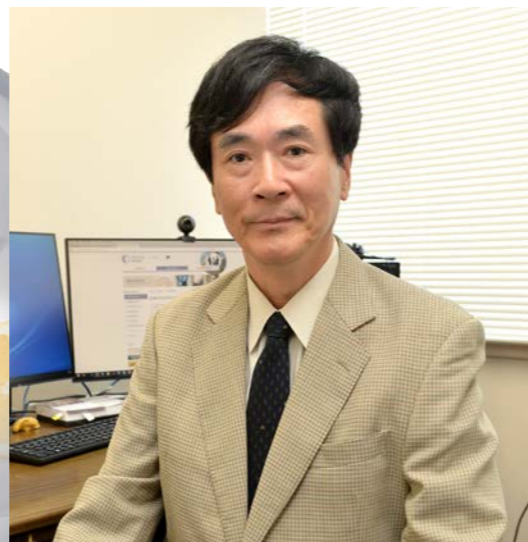
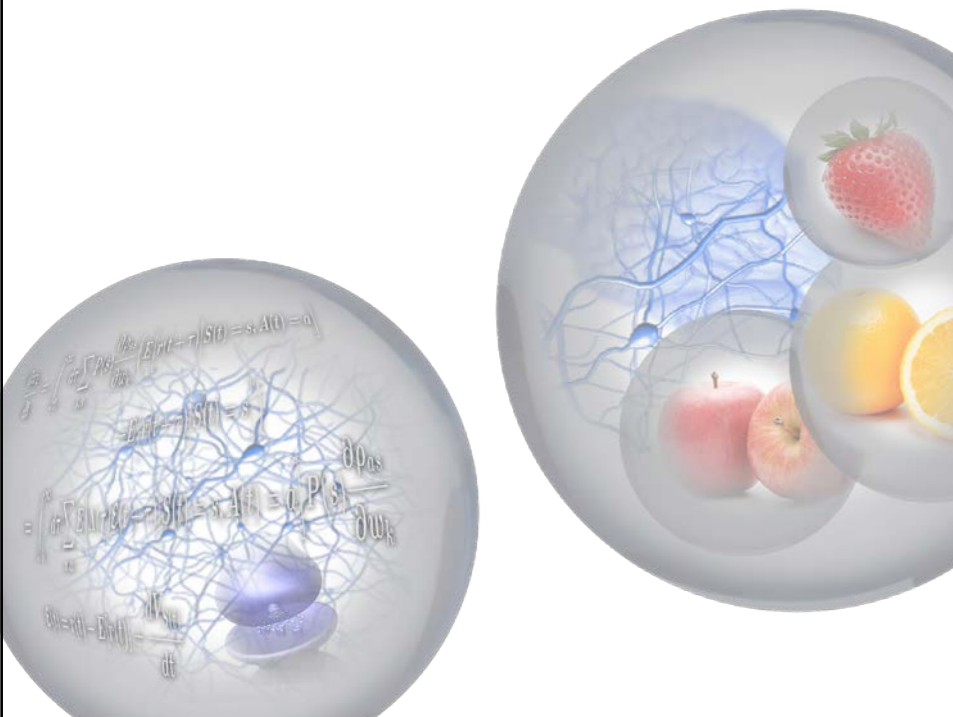
I am attempting to understand the children's development and learning processes in childcare and education environments from a sociocultural point of view. While I focus on the ability of individual children to emulate behavior from brain science and developmental psychology points of view, I place more emphasis on where the emulation occurs within relationships, and where and within what type of sociocultural conditions it arises. My goal is to conduct research of events occurring on site that can ultimately be utilized in childcare environments.



**Sachiyo Kajikawa** Professor Ph.D.  
Experimental Psychology, Developmental Psychology

In order to clarify language acquisition processes and mechanisms from a cognitive developmental sciences perspective, I am conducting research on infant behavior studies, as well as on observation and paper-based surveys of mother-child interaction. I have focused my attention on the relationship between phonetic perception in language and vocabulary acquisition with input from parents. In addition, I am investigating comparisons between language and music development, and characteristics of how parents sing or speak to their children. I use acoustic analysis and cardiometry, with attention on the role of songs in the initial stages of language acquisition.





**Hidehiko Komatsu** Professor Ph.D.

Neurophysiology, Cognitive Neuroscience,  
Visual Neuroscience

We are studying neural mechanisms of visual perception and cognition where special emphasis is on those related to color vision, material perception and neural processes on surface perception. To study these problems, we use various techniques including neural recordings and behavioral experiments in the monkey as well as psychophysical experiments and fMRI imaging from human subjects. In addition, we actively pursue integrative studies with experts in various fields.



**Yutaka Sakai** Professor Ph.D.

Theoretical Neuroscience, Non-linear Physics,  
Statistics in Information Sciences

The brain is an excellent learning machine. Animals can learn appropriate behavior for various situations, although they have never experienced completely identical situation in their life. It implies that the brains can extract significant information for selection of behavior from huge sensory and stored information. The current computers can not yet do such excellent extraction of information. In order to clarify how animals can do, I am exploring the mechanisms of strange phenomena observed in brain and behavior of animals, from a view point of physics. I am tackling the unexplored topic of constructing a theoretical framework for learning mechanism of animals linking from neural systems to behavior.



**Masamichi Sakagami** Professor Ph.D.

Neuroscience, Experimental Psychology

I am conducting research investigating the basic neural mechanism of decision-making and thinking by combining experimental psychology and neuroscientific methods. My experimental methodology is the use of neuron activity records and functional brain imaging (i.e., fMRI). In addition, I am discussing and carrying out collaborative research with economists and philosophers on how basic brain functions related to decision-making may be linked with complicated social brain functions (i.e., neuroeconomics and neuroethics).



**Tetsuhiko Sasaki** Professor Ph.D.

Molecular Biology, Neurophysiology,  
Applied Entomology

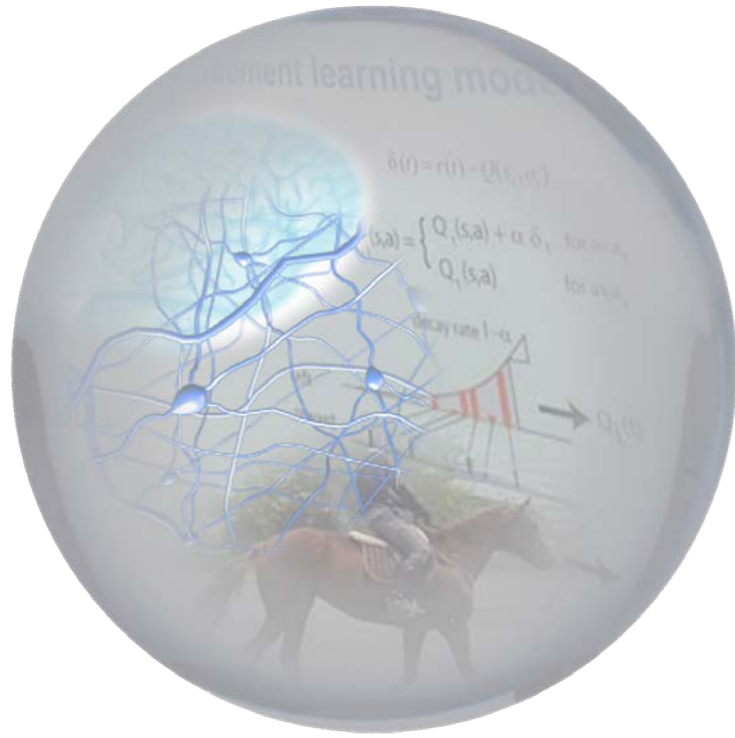
I am investigating the development and function of brain of the European honeybee. The honeybee is a typical social insect that exhibits various social behaviors. It is surprising that they are able to carry out complicated and sophisticated behaviors using a very small brain consisting of only approximately one million neurons, which is just one ten-thousandth of the human brain. My goal is to study the framework of the simple honeybee brain at a molecular level, and clarify the relationship between the development of the brain and social behaviors.

**Ryoya Saji** Associate Professor D.Eng.

Developmental Neuroscience, Science Education

I am conducting developmental neurological research of infant. My goal is to gather behavioral observation surveys in the field while revealing the developmental mechanisms of the minds of infants using brain function measurement that mainly employs electroencephalogram method. I am also emphasizing pioneering educational practical activities in order to leverage the developmental neurological perspective I have gained through my research in the classroom.

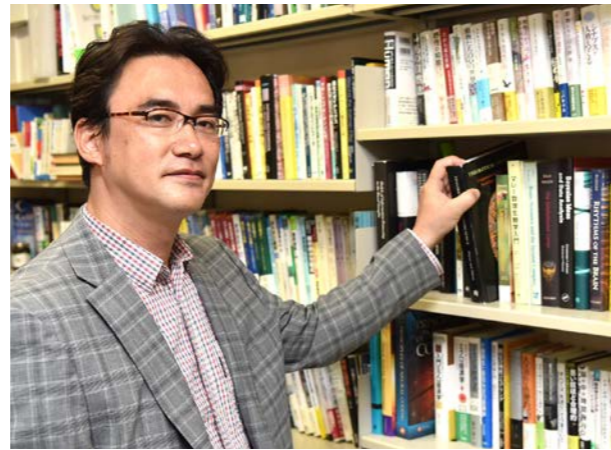




**Kazuyuki Samejima** Professor D.Eng.

Computational Neuroscience, Cognitive Neuroscience

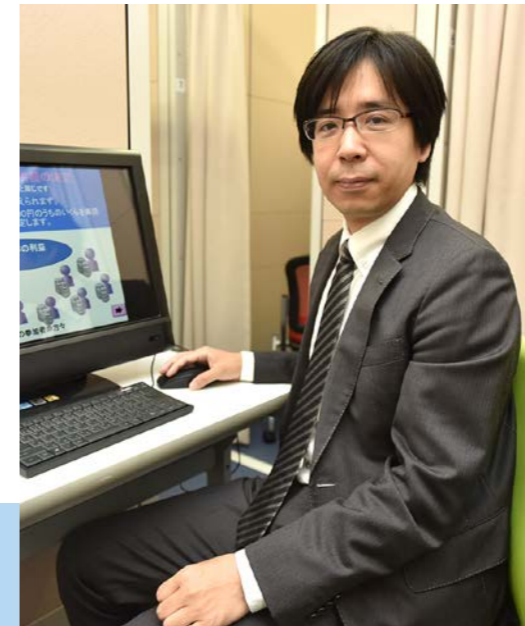
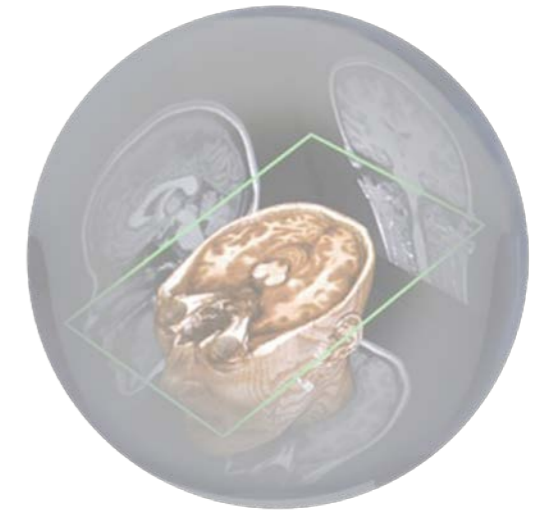
My research goal is to know the nature of the intelligence from a theoretical point of view combined with neurophysiological methods in order to investigate brain functions. How are our behavioral choices optimized, and what do neural mechanisms contribute to the process? How do we explore actions, including behavioral repertoires, in novel environments? My approach for the research is to construct a mathematical model from an information-processing perspective in order to elucidate the neural mechanisms that create intelligence, by measuring neural activity during behaving animals and comparing it with computational models.



**Haruto Takagishi** Assistant Professor Ph.D.

Social Psychology, Developmental Psychology, Social Neuroscience

I am conducting research to clarify the psychological / neural basis of social behavior through experiments that combine economic games and functional brain imaging. I am also investigating the effect theory of mind have had on the development of altruistic behavior and sense of fairness via developmental psychology experiments with preschoolers and elementary school students. My published works include "Of course! Babyology" (Shinchosha Publishing Co., Ltd., [coauthor]) and "Learning the Psychology of Human Relationships in Evolution and the Sciences of the Mind" (Fukumura Shuppan Inc., [coauthor]).



**Tetsuya Matsuda** Associate Professor Ph.D.

Clinical Neuroscience, Neuropsychiatry

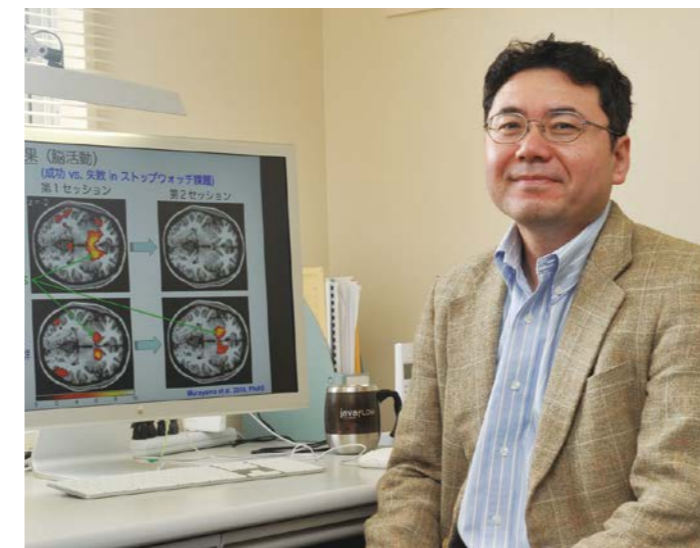
I am conducting research related to the neural mechanisms of social decision-making using functional brain imaging, as well as psychological and physiological methodologies. First, I examine these mechanisms with basic neuroscience; then I take an approach that connects these findings with clinical research. In my clinical research, I investigate the relationship between the pathology of mental disorders and social decision-making impairment.



**Akira Takaoka** Professor Ph.D.

Music Theory, Composition, Computer Music

Drawing on formal logic, analytic philosophy, philosophy of science, cognitive psychology, and formal linguistics, my research examines the ways we categorize musical entities of various kinds such as chords and scales and designate them in natural languages. It focuses in particular on atonal pitch organization, which still remains mostly unclear since the advent of atonal music over 100 years ago, and tries to describe rules of atonal pitch organization in abstract-algebraic terms. The development of computer programs in Java for algorithmic composition (automated composition by computers) is the creative aspect of my research.



**Kenji Matsumoto** Professor Ph.D.

Cognitive Neuroscience, Neuroeconomics, Systems Neuroscience

My challenge is to clarify the neural mechanisms of human agency from the view of goal-directed behavior, value representation, and motivation, by combining functional brain imaging with educational and social psychological methodologies. Some of my groundbreaking findings are highly regarded internationally.

