Hyogo Public University Corporation

Graduate School of Information Science
University of Hyogo

Leading the Development of Advanced IT Experts

01 CONCEPT

Four courses based on data science and computational science, with applied fields of healthcare science and information security.

It is thought that computational science and data science, which have been called the third and fourth paradigms of scientific method, respectively, will play a central role in solving societal problems and creating new value going forward. For this reason, at our graduate school we will be performing education and research with computational science and data science at the core, in addition to healthcare science and information security science, which are fields in which the two current graduate schools (the Graduate School of Applied Informatics and the Graduate School of Simulation Studies) have shown proficiency, for a total of four courses. We will cultivate the kinds of human resources that can make full use of knowledge and skills in data science and computational science to shine in the worlds of business and government where data utilization will be the key, as well as the kinds of human resources that can contribute to the creation of new value in a wide range of fields in society, from planning, management, and policy making, to health and medicine, information security, and beyond.

Data Science

- Empowering Advanced Data Scientists to Lead Data-Driven Business
- Building a Strong Foundation in Mathematics and Informatics

Computational Science

- Empowering Future R&D Leaders in Supercomputing
- Training Experts in Large-Scale Computing to Address Natural and Social Science Challenges

Information Science

University of Hyogo

Healthcare Science

- Empowering Health and Medical Data Scientists
- Driving Innovation for a Data-Driven Healthy Longevity Society

Information Security Science

- Empowering Experts in Advanced Security Research and Technology
- Advancing Knowledge and Application in Information Security

02
Message from Dean

Generative AI has become increasingly prevalent in graduate-level education and research. From summarizing vast amounts of literature to generating code, AI can now complete tasks in seconds that previously required days of effort. I am truly astonished by these capabilities, to the point where it prompts me to reconsider the fundamental role of graduate education. However, in the shadow of this overwhelming efficiency, we tend to overlook a crucial truth: while information can be copied, experience cannot. What, then, is required to transform information into true "intelligence"?

A hint lies in the famous words that theoretical physicist Richard Feynman left on his blackboard at Caltech: “What I cannot create, I do not understand.” Simply having AI generate an answer is akin to observing a finished product created by someone else. According to Feynman’ s philosophy, one cannot truly claim to understand something unless they can reconstruct the process from scratch with their own hands.

He also wrote on that same blackboard: “Know how to solve every problem that has been solved.” Even for problems already solved by others — or by AI — attempting to solve them again yourself is vital. It is within these "detours" and failures that irreplaceable experience truly resides.

This mindset of "reconstruction" is equally essential when interacting with generative AI. Rather than simply copy-pasting AI's output, we must probe why it reached a certain conclusion, experiment under different conditions, and rebuild the logic ourselves. This gritty, iterative process of dialogue is the very essence of the "experience" required of a researcher.

If we allow ourselves to be swept away by the wave of efficiency and rely solely on shortcuts, we risk eventually losing the "ability to formulate our own questions"— a treasure and a joy that is essential to researchers and, ultimately, to human beings. While harnessing the powerful capabilities of AI, we must never forget the sensation of walking the ground, one step at a time. True horizons of new knowledge can only be glimpsed by those who have accumulated such irreplaceable experiences. This is a pursuit that can arguably only be fully realized within the abundant time and environment afforded by graduate school. Furthermore, dialogue with fellow students and faculty is of the utmost importance. The intellectual excitement and the expansion of curiosity derived from truly "understanding" are experiences unique to human beings.

Our Graduate School conducts world-class research and education across four key areas — Data Science, Computational Science, Information Security Science, and Healthcare Science — as well as their multidisciplinary intersections. We offer an environment that is exceptionally rare for a public university, providing students with easy access to high-performance computing resources, including the RIKEN supercomputer "Fugaku" located adjacent to our campus. While the number of graduate schools specializing in "Information Science" or "Data Science" has increased rapidly in recent years, our human resources and research environment remain distinct features of this Graduate School. For further details, please refer to our website or brochure. We look forward to welcoming many prospective students and fostering new collaborative research projects.

Graduate School of Information Science,
Dean, Professor, Ph.D.

Yoshi Fujiwara

03
Curriculum Course

Data Science Course

In the era of big data, the ability to analyze large volumes of data to discover new phenomena and model real-world phenomena has become increasingly important. Professionals who have acquired such data science skills will play a key role in promoting digital transformation by proposing new business models and creating new value. In this course, we offer lectures on the role of data science and its practical applications in society, as well as practical exercises to acquire data analysis skills using actual data. Furthermore, we conduct research in data science by leveraging advanced knowledge in artificial intelligence, focusing on machine learning, mathematical models, algorithms, information management, and other related fields for handling big data.

Computational Science Course

Computer simulation plays an important role in academic studies in the natural and social sciences, serving as a third methodological concept alongside experimentation and theory. Our university's Kobe Campus for Information Science is located in the same complex on Port Island South that houses the world-top-class supercomputer: the "K computer" (2011-2020) and the "Fugaku computer" (2021-present). In our computational science course, this world-class infrastructure will be utilized to teach the fundamentals of computational science, such as parallel computation, visualization, modeling, and numerical analysis. These are commonly required for simulation studies in both natural sciences (e.g., meteorology, ecosystems, seismology, materials) and social sciences (e.g., economics, social security, innovation), as well as to explore their wide-ranging applications and to conduct cutting-edge research in the field of computational science.

Healthcare Science Course

The healthcare field has a great affinity with information technology and information science, and thus have the potential to dramatically expand healthcare services. The applications are wide-ranging, including finding new biomedical knowledge, creating a new type of medical education, and improving the effectiveness of healthcare service from biomedical and clinical data. In addition, the practical application of wearable devices and the Internet of Things (IoT) is expected to obtain health information and intervene prior to disease, contributing to the realization of preemptive medicine. In this course, students will learn systematically about the application of data science and computational science to healthcare science, and lead it to cutting-edge research.

Information Security Science Course

In the era of big data and the IoT (Internet of Things), the question of how we are going to protect information and privacy is becoming an ever more important issue for society than it was ever. This course adopts both theoretical and practical approaches to study information security, with the goal of cultivating advanced cybersecurity personnel. Specifically in our course, students will learn the basics of cryptography, information security, network security, security management and dependable systems. Students will learn about and take on cutting-edge security research in order to solve a variety of industrial, engineering and social issues with a systematic approach of computer science. In this way, the course allows students to gain a wide-range of skills in cyber security, namely from fundamental mathematics to applied security systems.

■ Curriculum Map

[Master's Program]

- Establish "course basic classes" that allow candidates to acquire specialized knowledge and skills relating to data science and computational science, and, in combination with basic knowledge of information science, establish classes that allow candidates to study each course (data science, computational science, healthcare science, information security science) with a bird's-eye view.
- Establish "course applied classes" in data science, computational science, healthcare science, and information security science, to allow candidates to acquire advanced, cutting-edge knowledge and skills for each course.
- Establish "research guidance classes" in order to allow candidates to acquire practical knowledge and skills through specific research tasks.

[Doctoral Program]

- Establish classes that grant an understanding of the frontiers of information science and its related fields and that allow candidates to study cutting-edge research in the fields of data science, computational science, healthcare science, and information security science in order for them to deepen their own research.
- Establish research guidance classes in order to cultivate research performance proficiency and literature survey proficiency, so that candidates can produce their doctoral theses.

■ Curriculum Map

Master's Program

Master of Information Science

Course basic classes

【Obligatory course】
- Introduction to Information Science
- Exercises in Information Science
- Introduction to Data Science
- Introduction to Computational Science

【Selective courses】
- Introduction to Information Science
- Introduction to Information Security
- Exercises in Programming
- Exercises in Data Science
- Exercises in Computational Science

Course applied classes

【Data Science Course 】
- Advanced Lecture for Data Science
- Advanced Lecture for Socio-Informatics
- Advanced Lecture for Information Management
- Advanced Lecture for Machine Learning
- Advanced Lecture for Artificial Intelligence
- Advanced Lecture for Algorithms
- Advanced Lecture for Operations Research

【Computational Science Course】
- Advanced Lecture for Computational Science
- Fundamentals of Natural Science Simulation
- Fundamentals of Statistical Data Analysis
- Advanced Lecture for Materials Simulations
- Advanced Lecture for Parallel Computing
- Advanced Lecture for Social Simulations
- Emerging Frontiers of AI/HPC for Science

【Healthcare Science Course】
- Advanced Lecture for Hospital Information Systems
- Advanced Lecture for Multimodal Bioinformatics
- Advanced Lecture for Medical Economics and Management
- Advanced Lecture for Biosignal Analysis
- Exercises in Healthcare Science

【Information Security Science Course】
- Advanced Lecture for System Security
- Advanced Lecture for Cyber Security
- Advanced Lecture for Cryptography
- Advanced Lecture for Network Security
- Advanced Lecture for Security Engineering
- Advanced Lecture for Information Security Management

Research guidance classes
- Basic Study in Information Science 1
- Basic Study in Information Science 2
- Advanced Study in Information Science 1
- Advanced Study in Information Science 2

Doctoral Program

Doctor of Information Science

Lecture classes
- Introduction to Information Science
- Seminar for Data Science
- Advanced Lecture for Advanced Computational Science
- Seminar for Computational Science
- Advanced Lecture for Healthcare Science
- Seminar for Healthcare Science
- Advanced Lecture for Information Security
- Seminar for Information Security
- Emerging Frontiers of AI/HPC for Science

Research guidance classes
- Special Study in Information Science Ⅰ-1
- Special Study in Information Science Ⅰ-2
- Special Study in Information Science Ⅱ-1
- Special Study in Information Science Ⅱ-2
- Special Study in Information Science Ⅲ-1
- Special Study in Information Science Ⅲ-2

Some courses are conducted in a remote lecture format. The doctoral program also includes "Cooperative Education through Research Internships" courses.

- Long-Term Study Program

Long-Term Study Program is available for students who face difficulties completing the standard program duration (two years for the master's program and three years for the doctoral program) due to employment, childcare, caregiving, or other personal circumstances. For more details, please contact us.

04 Faculty

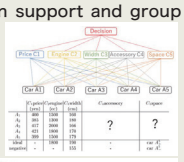
ENTANI Tomoe
Professor

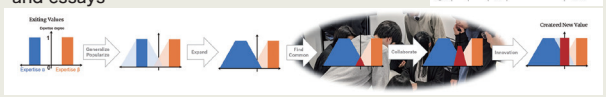
Ph.D.(Engineering)
(Osaka Prefecture University)

https://www.u-hyogo.ac.jp/ai/entani/

She is a professor at the Graduate School of Information Science, University of Hyogo. She received the degree of Doctor of Engineering at Osaka Prefecture University Graduate School of Engineering in 2002, joined the Faculty of Humanities and Economics, Kochi University as a lecturer, and had been an associate professor. From 2013 to 2019 she had been an associate professor at the Graduate School of Applied Informatics, University of Hyogo.
She was a visiting researcher at the Faculty of Computer Science, Magdeburg University, Germany, in 2008, and a visiting researcher at CyLab, Carnegie Mellon University, USA in 2017. She has carried out research in various decision-making processes such as in policy, management, individual, and group, as well as in practice and execution of decisions. On the one hand, grounding on rationalization and quantification from an engineering perspective, and on the other hand, on uncertainty and ambiguity of our understanding and behavior from a human-oriented perspective. She has also applied her expertise as a career consultant by developing practical decision-aiding systems to effectively manage career-related uncertainties.

Research Theme
- Research into ambiguity, such as fuzzy theory and interval analysis
- Research into decision-making and evaluation methods, such as Data Envelopment Analysis (DEA) and Analytic Hierarchy Process (AHP), and their applications
- Research into the application of group decision support and group work support to real-world problems
- Research on creative decision-making, particularly in uncertain career choices, balancing rational analysis and intuitive insights
- Research into preference extraction and diversity/individuality in foreign language compositions and essays





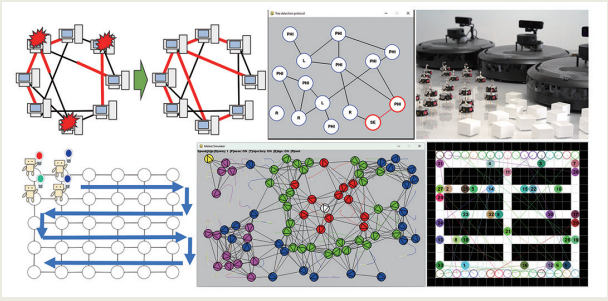
OSHITA Fukuhito
Professor

Doctor (Information Science and Technology) (Osaka University)

https://sites.google.com/view/ooshita-lab/en

I received the degree of Doctor (Information Science and Technology) at Osaka University.
I was an assistant professor at the Graduate School of Information Science and Technology, Osaka University; an associate professor at the Graduate School of Science and Technology, Nara Institute of Science and Technology; and a professor in the Faculty of Engineering at Fukui University of Technology. I joined the University of Hyogo in 2026.

Research Theme
Most systems that support modern society, including the Internet, are distributed systems in which many autonomous devices, such as computers and robots, operate cooperatively. My research focuses on the theoretical study of highly efficient and highly reliable distributed algorithms for a wide range of distributed systems, including computer networks, a swarm of mobile robots, blockchain systems, sensor networks, and nano-scale networks. In particular, I am interested in designing distributed algorithms that enable a system to continue operating correctly as a whole, even when some devices fail, stop functioning, or exhibit abnormal behavior due to malicious attacks such as cracking.



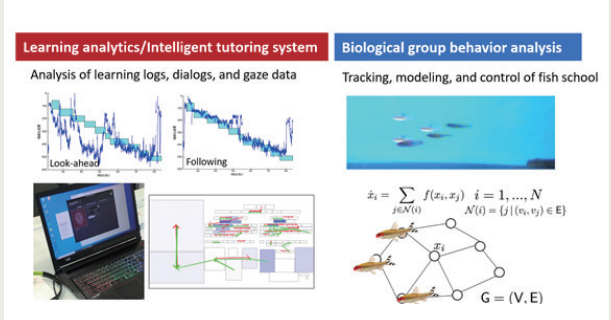
KAWASHIMA Hiroaki
Professor

Ph.D.(Informatics)
(Kyoto University)

https://interaction-lab.org/en/

He is a professor at the Graduate School of Information Science and School of Social Information Science, University of Hyogo. He was an assistant professor, senior lecturer, and associate professor at the Graduate School of Informatics, Kyoto University.
He was a visiting scholar at the School of Electrical and Computer Engineering, Georgia Institute of Technology from 2010 to 2012 (JSPS overseas research fellow) and a JST PRESTO researcher from 2014 to 2018.

Research Theme
We study a variety of interactions, including “human-machine interactions” to support our daily lives / learning activities and “biological interactions” such as fish schools to elucidate the mechanism of collective behaviors.
We seek to understand intelligence through the measurement, analysis, and modeling of those interactive behaviors using the techniques of artificial intelligence and machine learning with images, videos, and other types of sensory data.



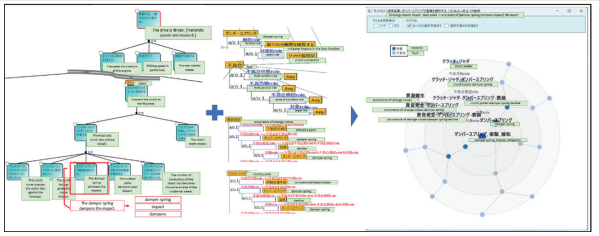
SASAJIMA Munehiko
Professor

Ph.D.(Engineering)
(The University of Osaka)

https://researchmap.jp/msasa?lang=en

He received Ph.D. in 1997 from the Graduate School of Engineering Science, Osaka University.
After working at Toshiba Corporation Research and Development Center, Research Institute of Industrial Science and Technology, Osaka University, and YMP Mundus Corporation, he has been in his current position since January 2018. He has been involved in the establishment of the Faculty of Social Information Science at the University of Hyogo since its conception, and has also been conducting research on data science human resource development since April 2019.

Research Theme
His specialty is knowledge engineering. He has participated in many industry-academia collaborative projects applying AI technology to the field from the standpoints of both companies and universities. His belief is that AI application should be done from problem discovery to policy penetration. Awards received include the Best Paper Award from the Japanese Society for Artificial Intelligence (1996 [paper commemorating the 10th anniversary of the founding of the society], 2012), the Research Excellence Award from the Japanese Society for Artificial Intelligence (1996, 2012), and the Outstanding Presentation Award from the Design and Systems Division of the Japan Society of Mechanical Engineers(2009).



Functional model and ontology of a car power train unit to reason possible faults on it.

TAMAKI Suguru

Professor

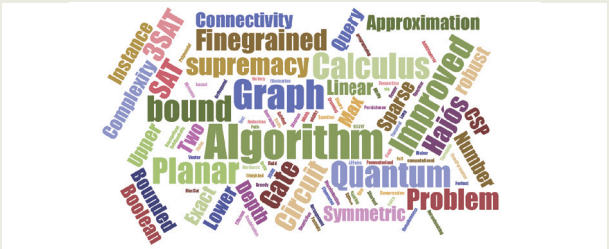
Ph.D.(Informatics)
(Kyoto University)

https://sites.google.com/view/sugur/home-en

Graduated from the Faculty of Engineering, Kyoto University in 2001, and the Graduate School of Informatics, Kyoto University in 2006.
He was a postdoctoral fellow and an assistant professor at Kyoto University and an associate professor at the University of Hyogo. He has been in his current position since April 2024. He was a visiting scholar at the University of California, San Diego and University of California, Berkeley in 2015 and at Carnegie Mellon University in 2022.

Research Theme

In general, finding the optimal solution to an optimization problem is not easy. The main reasons are combinatorial explosion (NP-hard), too large data size, incomplete data, etc.
We are tackling such computationally difficult optimization problems with approaches such as “exact algorithms” (exponential time), “approximation algorithms” (polynomial time to constant time), and “quantum algorithms”. Specifically, we consider combinatorial optimization problems such as “Boolean Satisfiability Problems” (SAT), “Constraint Satisfaction Problems” (CSP), “Local Hamiltonian Problems” (LH). We also study the theory of computation, which complements design and analysis of algorithms. The keywords are “inapproximability”, “Boolean circuit complexity”, “quantum advantage”, etc.



HIGASHIKAWA Yuya

Professor

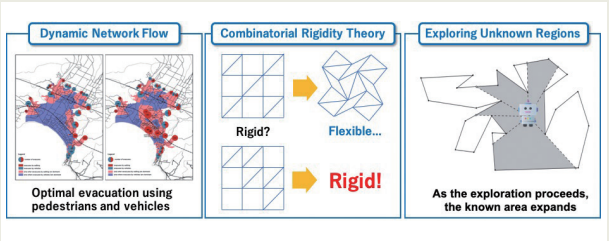
Ph.D.(Engineering)
(Kyoto University)

https://sites.google.com/view/higashikawa-lab/

He completed the doctoral program at the Graduate School of Engineering, Kyoto University in 2014.
Subsequently, he served as a JSPS Research Fellow (PD).
In 2015, he became an Assistant Professor at Chuo University.
He joined the University of Hyogo as an Associate Professor in 2018 and was promoted to Professor in 2024.

Research Theme

His research centers on Operations Research, with a particular focus on algorithmic analysis and graph theory to tackle complex real-world problems. By formulating mathematical models and rigorously examining their theoretical foundations, he aims to bridge fundamental theory with practical implementation, covering a broad range of applications.
Dynamic Network Flow: Develops models for time-varying movement of people and resources (e.g., disaster evacuation), designing algorithms for optimal routing and facility location.
Combinatorial Rigidity Theory: Investigates structural rigidity and flexibility based on graph theory and linear algebra, enabling applications in architecture, mechanical engineering, and molecular structure analysis.
Exploration in Unknown Regions: Develops exploration strategies for multiple agents in unknown regions or graphs under incomplete information, based on online algorithm frameworks.



NISHIDE Akihiko

Professor

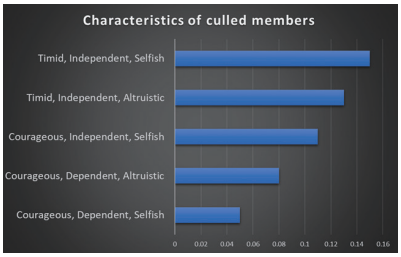
Ph.D.(International Public Policy)
(The University of Osaka)

https://researchmap.jp/55399477515071

I joined the Faculty of Information Processing Education Center at Kobe University of Commerce, the predecessor of University of Hyogo, as an assistant professor in 1994. Since then, I have worked in the School of Business Administration, the Graduate School of Accounting and the School of Social Information Science at University of Hyogo before assuming my current position in 2021.

Research Theme

My research interest is the life cycle of information systems in organizations. The effects of organizational factors may prevent information systems from being fully effective. Conversely, in some cases, information systems become a source of conflicts within the organization.
Such interactions between information systems and organizations are the subject of my research.
In my research, the behavior of the life cycle of information systems is analyzed computationally using evolutionary methods. The organizational behaviors that survive the selection process are regarded as organizational patterns and their characteristics are analyzed. Organizational phenomena can be depicted from a variety of perspectives. The challenge of my research is to create models from a prospective point of view and to describe problematic phenomena using as simple a model as possible.



HIJIKATA Yoshinori

Professor

Ph.D.(Engineering)
(The University of Osaka)

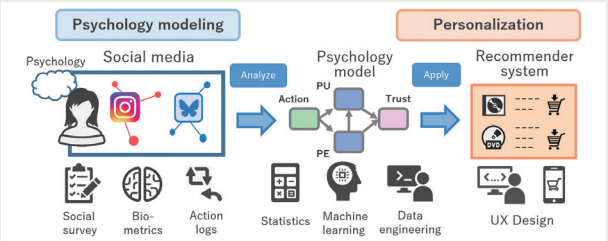
https://soc-research.org/ja/

He graduated from the Graduate School of Engineering Science, Osaka University in 1998. After working as a researcher at IBM Research, Tokyo Research Laboratory, an associate professor at Osaka University, and a professor at Kwansei Gakuin University, he has been in his current position since April 2024.

Research Theme

My research interests are social media study, computational social science, and social psychology. My team analyzes the user behavior and psychology in social media, and proposes interaction designs in recommender systems. Our research focuses on people’s online self-presentation and impression formation, persuasion and attitude change, and communication and wellbeing in social media and metaverse. By combining user modeling and personalization, we aim to drive people’s behavioral changes in both online and real-world contexts. Research theme examples are as follows:

- Impression formation of selfie photo posts on Instagram
- Friend presentation for improving conversion in recommender systems
- Developing users’ trust model in recommender systems
- Emotional analysis of politically-related posts on SNSs
- A study of persuasiveness in virtual YouTubers’ PR posts
- Analysis of users prone to envy in SNSs and real world



FUJIE Tetsuya

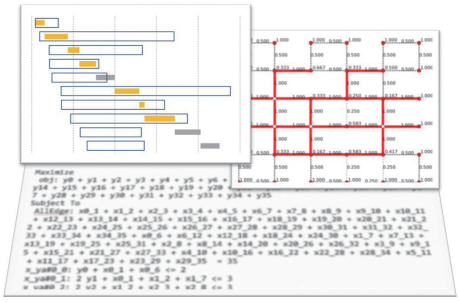
Professor

Ph.D. (Science)
(Tokyo Institute of Technology)

Received Master of Engineering (Tokyo University of Science) and Doctor of Science (Tokyo Institute of Technology, currently Institute of Science Tokyo).
I worked as an assistant professor in Department of Management Science at Kobe University of Commerce, and then an associate professor in School of Management and a professor in Graduate School of Business at University of Hyogo.
I am now a professor at Graduate School of Information Science and School of Social Information Science at University of Hyogo.

Research Theme

My research focuses on mathematical optimization in the field of operations research. In particular, I am interested in developing and implementing exact and heuristic solution methods for NP-hard discrete optimization problems such as integer linear programming, integer quadratic programming, routing problems, scheduling problems, etc. I am also interested in theoretical research behind these methods including polyhedral theory, graph theory, and relaxation methods, and in applying mathematical optimization to practical problems.



MIYAZAKI Shuichi

Professor

Ph.D.(Engineering)
(Kyushu University)

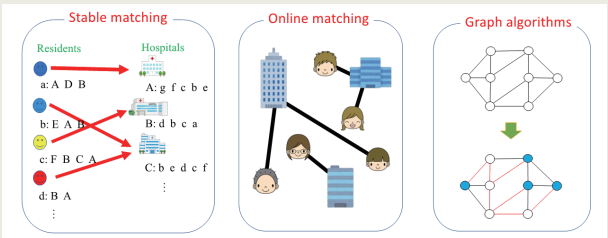
https://sites.google.com/view/shuichi-miyazaki-en

In 1998, I received the degree of Doctor of Engineering from Graduate School of Information Science and Electrical Engineering, Kyushu University.
I had been a research associate at Graduate School of Informatics, Kyoto University, from 1998 to 2002, and an associate professor at Academic Center for Computing and Media Studies, Kyoto University, from 2002 to 2022. Since 2022, I have been a professor at Graduate School of Information Science, University of Hyogo.

Research Theme

My research topic is design and analysis of algorithms for combinatorial problems. I mainly work on (1) approximation algorithms, which try to find a nearly optimal solution, (2) online algorithms, which perform computation without knowing future information, and (3) intractability, which is to show hardness of problems. My recent research topic is the stable matching problem, which has many applications in assignment systems, such as high school match, labs-students match, and hospitals-residents match. Recent work includes the following:

- Algorithms for the stable matching problem.
- Minimum cost online matching.
- Online graph exploration.
- Graph algorithms.



OHSHIMA Hiroaki

Associate Professor

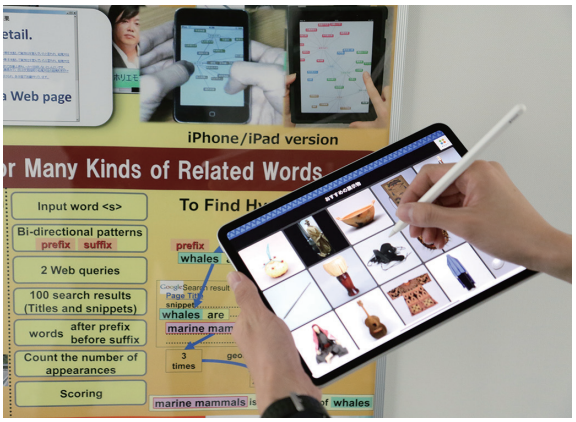
Ph.D.(Informatics)
(Kyoto University)

https://ohshimalab.github.io

He obtained his Ph.D. in Informatics from the Graduate School of Informatics, Kyoto University, in 2007.
He has been engaged in academic research and education at Kyoto University since 2007 and at the University of Hyogo since 2017.

Research Theme

Our research aims to realize new forms of information access based on data from human-created content and human behavior.
The necessary technologies include information retrieval, machine learning, natural language processing, databases, interaction, and multimedia processing.



KAWAMUKAI Hajime

Associate Professor

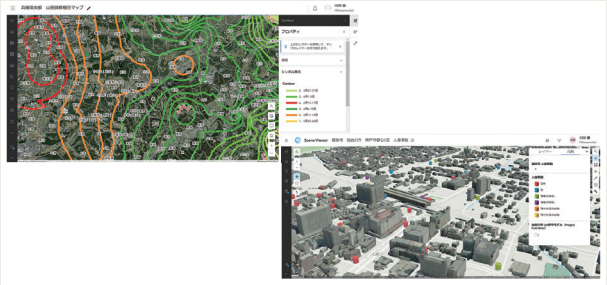
Master of Philosophy (Urban and Regional Planning) (University of Tsukuba)

https://uhkawamukailab.wordpress.com/

Research Associate, Kobe University of Commerce, 1990-1995.
Lecturer, Kobe University of Commerce, 1995-1998.
Associate Professor, Kobe University of Commerce, 1998-2004.
Associate Professor, Faculty of Applied Informatics, University of Hyogo, 2004-
Associate Professor, Faculty of Social Information Science, University of Hyogo, 2004-

Research Theme

My main research interests have focused on the theoretical and empirical analysis of the spatial structure of local areas. In line with the recent increase in both the quality and quantity of open data on regional areas, I have conducted several research projects on the spatial structure of regions using open spatial data. Additionally, I have worked with local agricultural organizations. For example, I have assisted some of these organizations by developing decision support systems that enable more effective and efficient farming activities.
Open Data Analysis, Spatial Analysis, Spatial Information Science, Geographic Information Science, Spatial Decision Support System, General System Thinking



TERUYAMA Junichi

Associate Professor

Ph.D.(Informatics)
(Kyoto University)

https://researchmap.jp/teruyama

After serving as a Project Researcher at the National Institute of Informatics, followed by a position as a Postdoctoral Researcher at Kwansei Gakuin University and an Assistant Professor in the Preparatory Office for the School of Social Informatics at the University of Hyogo. In April 2019, I was appointed Assistant Professor in the School of Social Informatics, then Assistant Professor in the Graduate School of Informatics in April 2021, and have been serving as Associate Professor since April 2023.

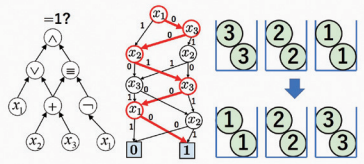
Research Theme

I am conducting research on algorithm design for various combinatorial problems. An algorithm is a computational procedure used to solve problems with a computer, akin to a recipe for cooking. My goal is to develop high-speed algorithms with theoretical guarantees for problems such as satisfiability problems, sorting, and evacuation facility placement.

The satisfiability problem (SAT) involves determining whether there exists an assignment of input variables for a given computational model (e.g., Boolean formulas, Boolean circuits, or branching programs) that produces an output of True(1). It is one of the most important problems in theoretical computer science.

Specific areas of focus include:

- Satisfiability problems on Boolean circuits or branching programs
- Understanding and improving the performance of sorting algorithms
- Developing algorithms for solving mathematical puzzles



FURUZUMI Hiroki

Associate Professor

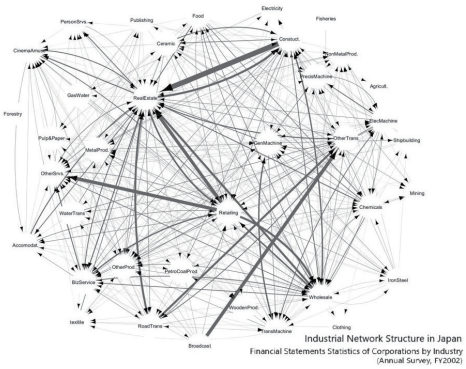
Master (Business Information Science)
(Kobe University of Commerce)

https://researchmap.jp/read0068281

I started working as an assistant professor at Information Processing Education Center, Kobe University of Commerce in 2001. I then joined the Faculty of Economics at the University of Hyogo and now to my current position.
I served as a visiting researcher at the Institute of Statistical Mathematics in 2010.

Research Theme

Previously, I built databases of bibliographic information such as public statistical survey reports.
I conduct statistical analysis using individual survey information from official industrial and household statistics.
By using exact matching and statistical matching methods to match multiple statistical surveys and administrative records, I have built panel (longitudinal) data and databases, making it possible to conduct analysis from a variety of perspectives.



YAMAMOTO Takehiro

Associate Professor

Ph.D.(Informatics)
(Kyoto University)

https://rerank-lab.org/en/

Takehiro Yamamoto received his M.S. and Ph.D. degrees in Informatics from Kyoto University, Japan, in 2008 and 2011, respectively. In 2019, he joined the School of Social Information Science at the University of Hyogo as an associate professor. Since 2021, he has served as an associate professor at the Graduate School of Information Science at the University of Hyogo.

Research Theme

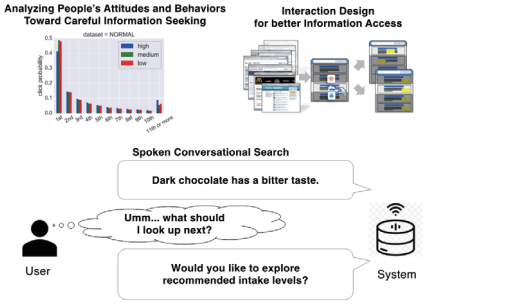
I am currently working in the field of Information Retrieval (IR). The act of “information seeking” is a ubiquitous and important behavior for human beings. To gain a deeper understanding of this behavior and improve the process, I am researching various approaches, including interaction design, algorithms, and user studies.

-Search technologies for acquiring diverse and reliable information.

-Analysis of the effects of various cognitive biases on search behavior.

-Voice-based conversational search technologies.

-Next-generation information retrieval and recommendation systems, among others.



YUMOTO Takayuki

Associate Professor

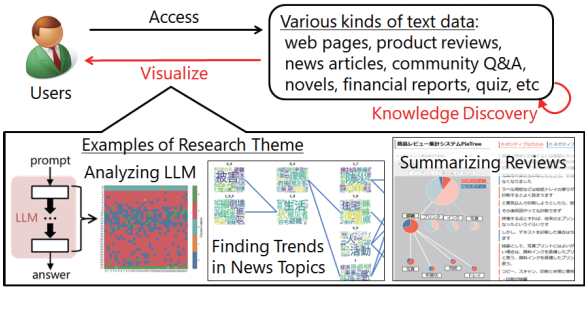
Ph.D.(Informatics)
(Kyoto University)

https://sites.google.com/view/yumotolab/

He received his Ph.D. degree in Informatics from Graduate School of Informatics, Kyoto University in 2007 and started his career as an Assistant Professor in Graduate School of Engineering, University of Hyogo.
He has been an Associate Professor in School of Social Information Science since 2020.
His research interests include text mining, web mining, and information retrieval.

Research Theme

Our lab studies how large language models (LLMs) work internally, focusing on the roles of internal components and prompt reference patterns. Based on these analyses, we explore methods to improve the reliability of LLMs, such as hallucination detection and effective prompting strategies.
We also develop a wide range of applications using text data, including news articles, product reviews, and books.



IRIE Honoka

Assistant Professor

Ph.D. (Information)
(Kansai University)

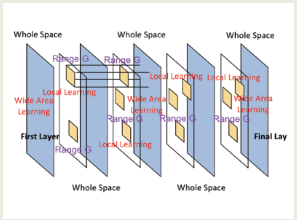
https://researchmap.jp/honoka

Enrolled in the Doctoral Program of the Graduate School of Informatics at Kansai University in 2021.
Completed the Doctoral Program of the Graduate School of Informatics at Kansai University in 2024.
Appointed as an Assistant Professor in the School of Social Information Science at University of Hyogo in 2023.

Research Theme

Human beings possess the ability to make decisions by considering their perceptions of the external world and their interactions with others, enabling comprehensive judgment. This ability to judge is also referred to as “flexible judgment” or “soft intelligence.”
In our research laboratory, with the goal of achieving “data science for flexible judgment and classification,” we propose clustering models based on ensemble machine learning using fuzzy theory, deep learning, and soft computing. In addition, to address data imbalance and improve clustering accuracy, we have proposed models for generating virtual data. This research is related to data augmentation in deep learning. In our research laboratory, we are not only researching models that can accurately represent given data but also researching data that enhances model accuracy.

1) pdi-Bagging, pdi-Boosting, and ddi-Boosting: Proposal of ensemble learning type clustering models that generate virtual data.
2) Methods for virtual data generation: Prediction of in vitro cancer cell proliferation.
3) Application of image processing and soft computing to medical information: Prediction and prevention of patient fall incidents, and skill acquisition for doctors in abdominal ultrasound examinations.
4) Knowledge acquisition using image processing and soft computing: vehicle classification in the parking lots, and knowledge extraction for flexible robot control.



MIKAMI Keita

Assistant Professor

Ph.D. (Mathematical Science)
(The University of Tokyo)

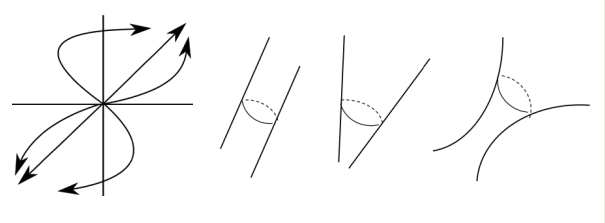
https://researchmap.jp/keita-mikami?lang=en

March. 2014 Bachelor of Sciences, the University of Tokyo
March. 2016 Master of Mathematical Science, the University of Tokyo
March. 2019 Ph.D. in Mathematical Science, the University of Tokyo
May. 2019-September. 2024 Research Scientist, iTHEMS, Riken
January.2023-September.2024 Adjunct Assistant Professor, Faculty of Science, Kyoto University
October.2024- Assistant Professor, Graduate School of Information Science, University of Hyogo
October.2024- Research Scientist(concurrent), iTHEMS, Riken

Research Theme

I am conducting research in mathematics, particularly focusing on the mathematical analysis of Schrödinger equations and operators. My main interest lies in Schrödinger equations and operators with continuous spectrum in unbounded spaces. Examples of past research topics include:

- Scattering theory for Schrödinger operators with homogeneous potentials of degree zero on scattering manifolds
- Control problems for Schrödinger equations in unbounded spaces
- Approximation of Schrödinger operators using discrete operators



SHIOTA Takumi

Assistant Professor

Ph.D. (Engineering) (Kyushu Institute of Technology)

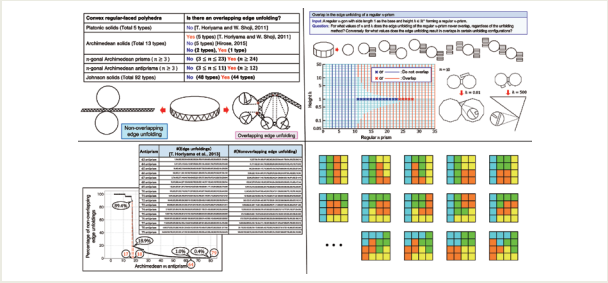
https://shiotatakumi.github.io/MyPage/english.html

2021: Graduated from the School of Computer Science and Systems Engineering, Kyushu Institute of Technology.
2023: Completed the Master's Program in the Graduate School of Computer Science and Systems Engineering, Kyushu Institute of Technology.
2024-2025: JSPS Research Fellow (DC2).
2025: Completed the Doctoral Program in the Graduate School of Computer Science and Systems Engineering, Kyushu Institute of Technology.
Since April 2025: In my current position.

Research Theme

My research focuses on theoretical computer science and computational origami, particularly on polyhedral unfoldings, while also addressing problems in graphs and puzzles.
My research topics include:

- Proving the existence of overlaps in unfoldings
- Designing algorithms for non-overlapping unfoldings
- Enumerating graphs with specific structures
- Enumerating and designing algorithms for geometric puzzles, such as polyominoes



YANASE Tomoro

Assistant Professor

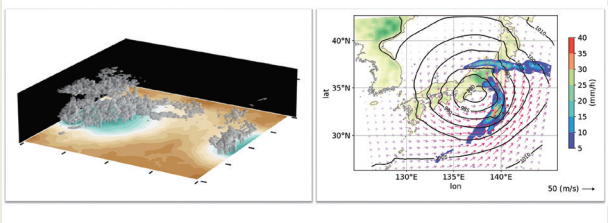
Ph.D. (Science)
(Kyoto University)

https://researchmap.jp/yanase_t?lang=en

After earning a PhD from the Graduate School of Science at Kyoto University in 2022 and serving as a Special Postdoctoral Researcher at RIKEN Cluster for Pioneering Research, I began my current position in 2024.
I am also appointed as a Visiting Scientist at RIKEN Center for Computational Science.
My expertise is in Meteorology, Climate Science, and Atmospheric Physics.
I received Yamamoto Award from Meteorological Society of Japan in 2023 for my work on the self-aggregation mechanism of moist convection in radiative-convective equilibrium.

Research Theme

Using advanced numerical simulation models, supercomputers, and theoretical analyses, I investigate the physical mechanisms of clouds and climate.
My research focuses on the self-organization of large-scale cloud clusters, the cold pool phenomena linked to precipitating clouds, the variability of droplets within cloud systems, and the development of large-scale data analysis platforms.
I am advancing these studies in collaboration with researchers both domestically and internationally.



INAGAKI Shio

Professor

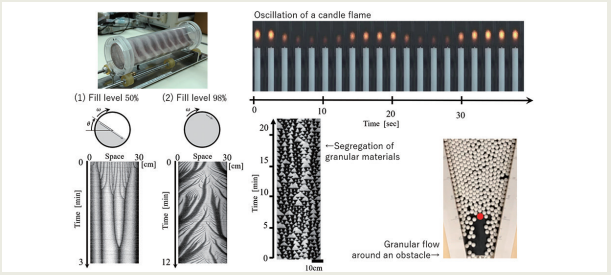
Ph.D.(Arts and Sciences)
(The University of Tokyo)

https://researchmap.jp/shio_e_inagaki?lang=en

After completing the doctoral program at the Graduate School of Arts and Sciences, University of Tokyo, I worked as a postdoctoral researcher at institutions such as the Australian National University and Paris VI University. I then served as a JSPS (Japan Society for the Promotion of Science) Research Fellow (RPD), and later as an Assistant Professor and Associate Professor at Kyushu University. I joined the University of Hyogo in April 2025.

Research Theme

My expertise is in the physics of non-equilibrium dissipative systems, particularly in the areas of granular materials, traffic flow, and oscillator systems. I conduct comprehensive research using experiments, theory, and simulations. Around us, there are various “granular materials,” such as sand piles in parks, seasonings in kitchens, and powdered medicine. These materials exhibit interesting properties, such as segregating more easily the more they are mixed, which is different from traditional liquids and solids. However, the mechanisms behind their segregation under certain conditions are still not fully understood. There are many phenomena around us that remain unexplained. In physics, there is joy and beauty in discovering and clarifying the underlying principles of things by asking “why” and “how.”



INOUE Hiroyasu

Professor

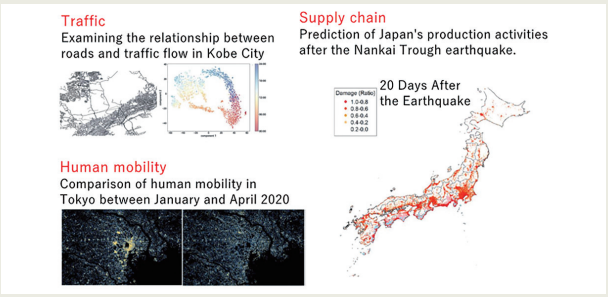
Ph.D. (Informatics)
(Kyoto University)

https://prodigium.jp/personal

After working at Hitachi, Advanced Telecommunications Research Institute International (ATR), Doshisha University, and Osaka Sangyo University, he joined the University of Hyogo in 2014 as an Associate Professor and was later promoted to Professor. He served as a visiting researcher at Northeastern University in 2011 and Kiel University in 2018. Since 2020, he has also been a Visiting Chief Researcher at RIKEN. He was awarded the Evolutionary Economics Prize in 2017 and recognized as one of the “Notable Researchers” contributing to science and technology by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) in 2021.
Societal phenomena often exhibit intertwined complexities where causes are not easily identifiable. These complexities originate not from individual components but from the interactions among them. Our research captures these interactions, utilizing network science and agent-based modeling as analytical tools, while incorporating real-world empirical data.

Research Theme

Analysis of large-scale data on societal aspects such as human mobility, traffic, supply chains, innovation, and social media, as well as simulations to replicate these phenomena.



OHNO Nobuaki

Professor

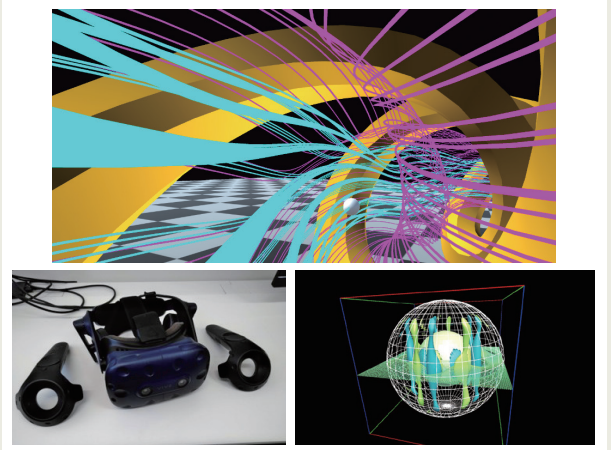
Ph.D. (Science)
(Waseda University)

https://vizlab.sakura.ne.jp/en/

I worked at NIFS (National Institute for Fusion Science) and JAERI (Japan Atomic Energy Research Institute) as a postdoctoral researcher, and worked at JAMSTEC (Japan Agency for Marine-Earth Science and Technology) as a researcher, Then, I moved to University of Hyogo in 2011.
I have researched visualization of large-scale numerical data using virtual reality systems and parallel computers.
I will continue the research on visualization of large-scale numerical data.
I am also interested in 3D scanning.

Research Theme

- in-situ visualization
- data visualization using virtual reality systems



KIMURA Shin

Professor

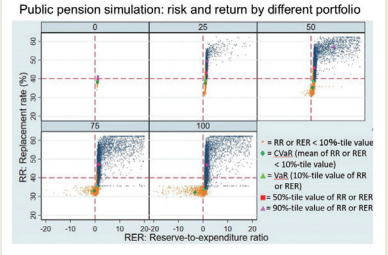
Ph.D(Economics)
(The University of Osaka)

https://researchmap.jp/shin_kimura/published_papers/43074549?lang=en

Professor Shin Kimura is an expert in fiscal studies, public economics, and social security policy. His research employs econometric analysis and simulation on public policy associated with Japan’s declining birthrate, aging population, and fiscal deficits.
He was a pioneer in developing a multi-sector overlapping generations model for Japan. His research examines the future industrial structure in an aging society and the varying impacts of fiscal consolidation measures. He is also one of the few researchers capable of handling the Japanese government’s official pension finance simulation model. His work has been published in leading journals, including Economic Modelling and Humanities and Social Sciences Communications
He previously served as Deputy Dean. In the academic year 2015/2016, he was a Visiting Researcher at University College London. Before joining the school, he was an Assistant Professor at the Hokkaido University Public Policy School and a Research Fellow at the Kansai Institute of Social and Economic Research.

Research Theme

- Simulation analysis on social security reform (public pension, public health insurance)
- Education reform and the dynamics of inequality and growth
- Fiscal austerity and Fiscal resources outflow
- Local government networks and Fiscal efficiency



SHIMA Shin-ichiro

Professor

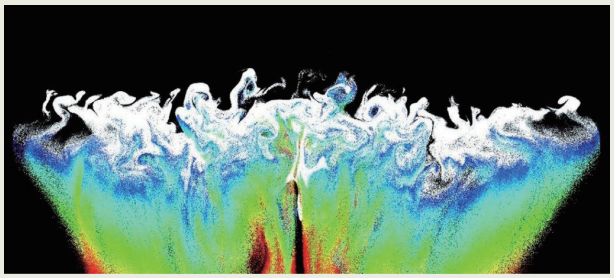
Ph.D (Physics)
(Kyoto University)

https://s-shima-lab.sakura.ne.jp

2005 Ph.D in physics (Kyoto University); 2005-2011 Research Scientist, JAMSTEC; 2011-2021 Associate Professor, Graduate School of Simulation Studies, University of Hyogo; 2021-2024 Associate Professor, Graduate School of Information Science, University of Hyogo; 2024- current position

Research Theme

- Particle-Based Cloud Modeling: The super-droplet method (SDM) is a particle-based numerical algorithm that enables accurate simulation of cloud microphysics with lower computational demand (Shima et al., 2009). We are developing a highly accurate cloud model using the SDM, which will contribute to reducing the uncertainties of numerical weather prediction and climate simulation. We are also interested in applying the methodology to other research areas, such as volcanic fumes, planet formation, and spray combustion.
- Simulation of Complex Systems: It is still difficult to predict the behavior of complex systems, in which a large number of components are interacting together and various collective behaviors emerge. Our research interest is in exploring the full possibility of computer simulation to understand complex systems.



NAKAMURA Tomomichi

Professor

Ph.D. (The University of Western Australia)

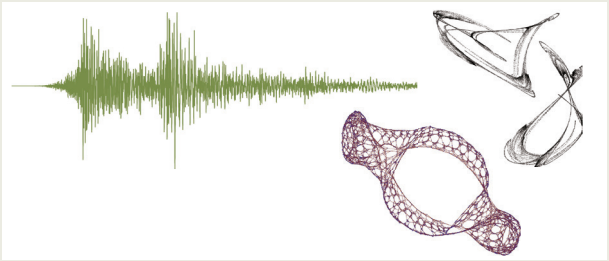
https://sites.google.com/view/tnakamura-lab-en/home

I got my Ph.D. in applied mathematics from the University of Western Australia (UWA), Perth, Australia in 2004.
Prior to my appointment at University of Hyogo, I worked with the Hong Kong Polytechnic University (PolyU) in Hong Kong and Sony Computer Science Laboratories (Sony CSL) in Tokyo, Japan.

Research Theme

My research is so-called data analysis. Data analysis is an application of mathematics using computers for various phenomena that occur in the real world, and I often use a huge amount of data. I am interested in the broad areas of Nonlinear Dynamical Systems Theory and Complex Systems Theory. Specifically, I am interested in the development of modern mathematical techniques and the application of these techniques to real-world problems. I am very interested in phenomena involving nonlinearity and phenomena that show complicated behaviours.

- Building models using data (statistical modelling)
- Characteristic analysis using statistical hypothesis testing (method of surrogate data)
- Constructing networks from data
- Analysis of phenomena using simulation



NUMATA Ryusuke

Professor

Ph.D. (Frontier Science)
(The University of Tokyo)

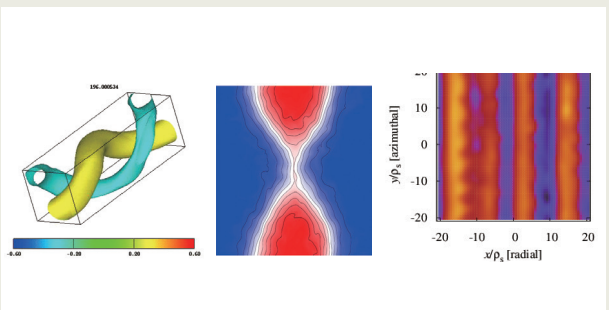
https://rnumata.org

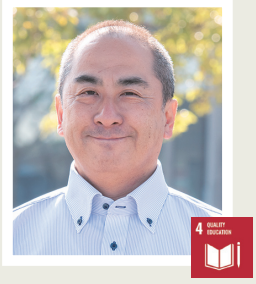
After completing a Ph.D. in Frontier Science at the University of Tokyo in 2004, I was a postdoctoral research fellow at Australian National University and University of Maryland.
I joined Graduate School of Simulation Studies, University of Hyogo in 2011 as an associate professor. I am currently a professor of Information Science,

Research Theme

I am studying complex nonlinear phenomena in space and fusion plasmas using theoretical analyses and large-scale computations. I have been working on

-Turbulence and self-organization in space plasmas, such as stellar/planetary atmospheres and magnetospheres
-Development of data-driven methods for turbulence analyses for controlling fusion plasmas
-Simulations of nonlinear dynamics in plasmas using fluid/kinetic/particle models
-High performance computing – Development of simulation tools and numerical algorithms





FUJIWARA Yoshi

Professor

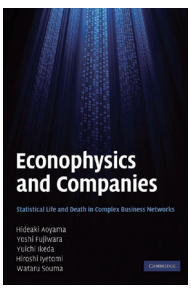
Ph.D. (Physics)
(Tokyo Institute of Technology)

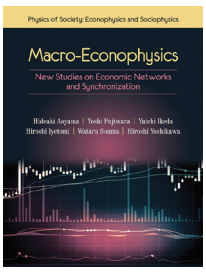
https://researchmap.jp/yoshi_fujiwara

University of Hyogo, Professor (2011-Present)
Shiga University, Data Science and AI Innovation Research Promotion Center, Visiting Researcher (2019-)
RIKEN Senior Visiting Scientist (2017)
Kyoto University, Adjunct Lecturer (2009)
ATR Laboratories, Senior Researcher (2002)
NiCT, Senior Researcher (1996)
Past: JSPS Fellow, STA Fellow, Yukawa Fellow, also visiting researcher of University of California, Santa Barbara (US), Politechnica delle Marche (Italy)

Books

- "Large-scale Structure of Economic Networks: Dynamics of Goods and Money Flow" (Cambridge University Press, 2026)
- "Macro-Econophysics: New Studies on Economic Networks and Synchronization" (Cambridge University Press, 2017)
- Econophysics and Companies: Statistical Life and Death in Complex Business Networks (Cambridge University Press, 2010)





Research Theme

Macro-economic phenomena and network science;

Complex physics and social and economic phenomena;

Project of applications of topological data analysis (JSPS Transformative Research Areas (A));

AI-HPC for Finance (Japan-Europe-US project)

YASUDA Shugo

Professor

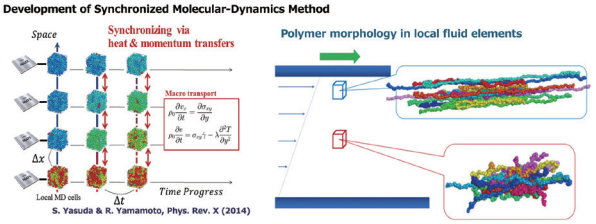
Ph.D. (Engineering)
(Kyoto University)

https://sites.google.com/view/shugo-yasuda/home

After completing my doctoral studies at Dept. Aeronautics and Astronautics, Kyoto University in 2005, I worked as a DAAD postdoctoral researcher at Dept. Mathematics, University of Kaiserslautern in Germany, followed by an assistant professorship at Dept. Chemical Engineering, Kyoto University. Since 2011, I have been affiliated with University of Hyogo. I am actively engaged in industry-academia collaborative research and international joint research.

Research Theme

My research focuses on modeling and simulating transport phenomena in soft matter and biology. Currently, I am primarily investigating two key areas: 1. the development of multiscale simulation methods for soft matter, conducted within an industrial joint research project; and 2. the development of kinetic transport models for interacting biological agents, primarily driven by an international joint research collaboration.



WASHIZU Hitoshi

Professor

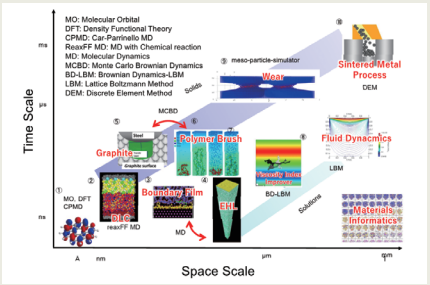
Ph.D.(Arts and Sciences)
(The University of Tokyo)

https://washizu.org/lab/

Prof. Washizu received B.S. degree from Tokyo Institute of Technology in 1996, M.S. degree in 1998 and Ph.D. degree in 2001 from the University of Tokyo.
He started research of Tribology at Toyota central R&D Labs. from 2001.
He moved from industry to University of Hyogo in 2015 and now he is a leader of materials simulation group.

Research Theme

Our lab provides simulation studies for material sciences, which is useful for industrial applications. Our viewpoint of the studies is physical chemistry of molecular ensembles in interfaces.
The properties of the materials are strongly affected by the molecular properties of interface. For example, our bodies are made of ionic polymers (polyelecrolytes solution) and transformation of materials and energy in high quality as the living systems are realized by controlling long-range Coulomb interactions between molecules in solution.
For industrial purposes, the characteristics of the interfaces are important in lubrication or in batteries electrodes. In materials simulation, there are two levels of simulation, quantum level and the level of atom ensemble, which we are focusing on.
The development of new simulation methods such as multiscale, multi-physics scheme in electron, atom and fluid level is also our object of research.



SHIBA Hayato

Associate Professor

Ph.D. (Science)
(Kyoto University)

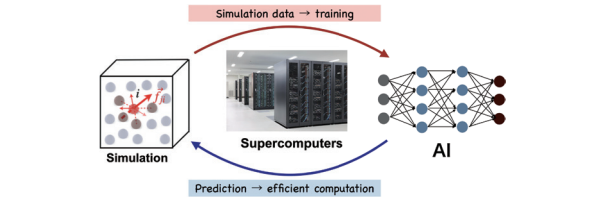
https://researchmap.jp/7000014748

Having obtained the Ph. D. Degree, Dr. Shiba started his professional career at the Institute for Solid State Physics, University of Tokyo, where he worked until 2015. He then held positions at Institute for Materials Research at Tohoku University and joined Supercomputing Division at the ITC, University of Tokyo in 2020, and is now serving at Graduate School of Information Science, University of Hyogo. He has an expertise in molecular simulations of condensed matter.

Research Theme

As dye shrink in semiconductors approaches its physical limits, continuous improvement in the processors is expected to slow down. In the meantime, specialized processors optimized for tasks such as deep learning is transforming the role of computing. This shift is prompting a move away from the traditional computation-centric approach in simulation toward a new paradigm that leverages data-centric approaches.

I am currently engaged in research and development of methods that apply deep learning to molecular simulation data. My goal is to establish a feedback loop where the predictive capabilities of machine learning models enhance the efficiency of the simulations themselves. To conduct this research, it is crucial to thoroughly understand the characteristics of the target model, develop suitable algorithms, and become proficient in utilizing computational hardware such as GPUs, which are particularly well-suited for deep learning.



GO Yasuhiro

Professor

Ph.D. (Science)
(Kyoto University)

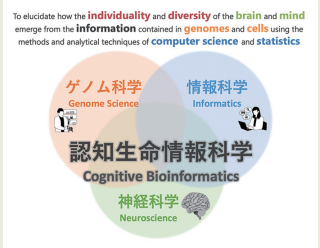
https://u-hyogo-gsis.org/en/research/faculty/go/

2003 Graduate School of Science, Kyoto University (Ph.D)
2003-2006 JSPS Postdoctoral (PD) Research Fellowships at The Graduate University for Advanced Studies
2006-2008 JSPS Overseas Research Fellowships at Harvard University
2008-2010 Program-Specific Assistant Professor (Global COE), Kyoto University
2010-2013 Assistant Professor, Primate Research Institute, Kyoto University
2013-2018 Associate Professor, Center for Novel Science Initiative, National Institutes of Natural Sciences
2013-2023 Associate Professor, National Institute for Physiological Sciences, National Institutes of Natural Sciences
2018-2023 Associate Professor, The Exploratory Research Center on Life and Living Systems, National Institutes of Natural Sciences
2023- Professor, Graduate School of Information Science, University of Hyogo

Research Theme

My laboratory conducts multi-level omics analysis and large-scale data analysis of animal disease models for human diseases, especially neuropsychiatric disorders, and promotes research to understand and elucidate pathological conditions.

- Large-scale omics and bioinformatics analysis of animal brain models of disease
- Population genomic analysis to generate animal models of disease
- Multi-level omics analysis and data analysis using humanized mouse and humanized primate brain organoids



TAKEMURA Tadamasa

Professor

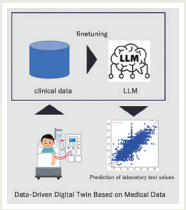
Ph.D.(Health Science)
(The University of Osaka)

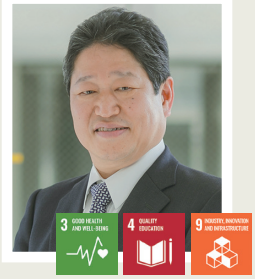
https://www.take.science/

At my previous position at a university hospital, I was responsible for implementing hospital information systems and conducting hospital management analysis. Since joining the University of Hyogo, I have been collaborating with various hospitals, primarily in Hyogo Prefecture, to explore new information systems and conduct data analysis. Additionally, from the perspective of managing personal health data beyond individual hospitals, I have been continuously working with the public sector to develop and operate Personal Health Records (PHRs) and explore the utilization of health data. Recently, I have been focusing on the use of IoT, machine learning, and large language models (LLMs) while considering the integrated utilization of health and medical data through wearable devices and sensing technologies to promote digital transformation (DX) in the health and medical fields.

Research Theme

- Development of a Data-Driven Digital Twin Based on Medical Data (Prediction of test values, symptom prediction such as pain, etc.)
- Automated Assessment of Functional Health Using LLMs (Automated frailty checks from health data, automatic generation of functional health summaries from medical summaries, etc.)
- Construction of a Medical Support System Using Pre-trained Models from Medical Records (Determination of ventilator weaning, infection detection, adverse event identification, quality assessment of medical records, etc.)
- Development of Next-Generation Hospital Ward Environments Using Sensors and Machine Learning Techniques (Recognition of patient facial expressions and delirium states using motion capture technology, automatic detection of medical device alarm sounds in hospital environments, etc.)
- Research on Methodologies for Efficient Collection of Health Data (Investigation of PHR infrastructure, exploration of mobile applications considering engagement, etc.)
- Other Various Research Topics, Including Knowledge Extraction from Medical Images





HATA Yutaka

Professor

Ph.D. (Engineering)
(Himeji Institute of Technology)

https://sites.google.com/site/yutakahatalabj/

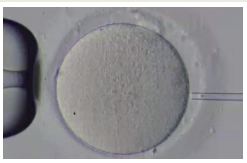
He received the B.E. degree (Electronics) in 1984, the M.E. degree (Electrical Engineering and Electronics) in 1986 and the Ph.D.(Doctor of Engineering) in 1989 all from Himeji Institute of Technology, Japan. He is currently a Vice President and Professor in the Graduate School of Information Science, University of Hyogo, Japan. He spent one year in BISC Group, University of California at Berkeley from 1995 to 1996 as a visiting scholar. He received 15 international awards such as the Franklin V. Taylor Best Paper Award (IEEE SMC 2009), World Automation Congress Lifetime Achievement Award (2008), Biomedical Wellness Award (SPIE Defense, Security, and Sensing 2010). He is editors including IEEE Trans on SMC-Systems. He is an IEEE Fellow.

Research Theme

Information technology (IT) and Artificial Intelligence(AI) have become the primary technology in the current medical practice and health care by using high performance computers with low cost. Soft computing defined by Prof. Lotfi A Zadeh (UC Berkeley) is a consortium of methodologies that exploit a tolerance for imprecision, uncertainty and partial truth. Results are achieved with tractability, robustness and a rapport with reality. My primary topics are:

MEDICAL SYSTEM: Medical imaging has evolved at an explosive rate in the past few years. High-resolution, three-dimensional anatomical information can now be obtained in a routine manner with magnetic resonance imaging(MRI) and computer-aided tomography(CT) and Ultrasonic Imaging. Three-dimensional functional imaging of blood flow and metabolic information can be obtained from positron emission tomography(PET) images, and functional four-dimensional electrophysiology (EEG) and evoked potential information can be obtained using high-speed computers. Especially, AI provides wonderful results for static image analysis. In my laboratory, dynamic image analysis for infertility of human is my target.

HEALTH CARE SYSTEM: The most promising way to save the medical cost is keeping the all Japanese people healthy. To control health condition, a wearable device including smart phones receives much considerable attention. Especially, smartphone software aimed at weight control, sleeping recording, food calorie calculation, pedometer, blood pressure recording is used for many users.In my laboratory, swallowing function evaluation and keeping by smart phone is my target.



Artificial sperm transplantation analysis.

HARAGUCHI Ryo

Professor

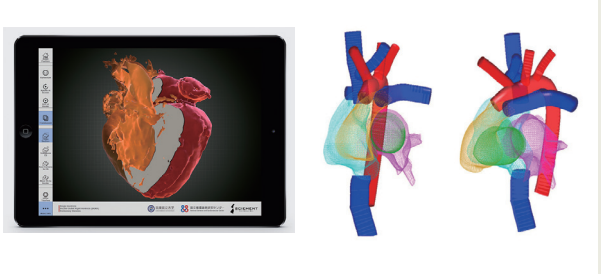
Ph.D. (Informatics)
(Kyoto University)

https://bselab.org/

- 2021 Professor, Graduate School of Information Science, University of Hyogo
- 2018 Visiting Researcher, CyLab, Carnegie Mellon University
- 2016 Associate Professor, Graduate School of Applied Informatics, University of Hyogo
- 2013 Chief Researcher, Department of Medical Informatics, National Cerebral and Cardiovascular Center
- 2004 Researcher, National Cerebral and Cardiovascular Center Research Institute
- 2003 Postdoctoral fellow, National Cerebral and Cardiovascular Center

Research Theme

- Biosimulation: Cardiac arrhythmia simulation, Ventricular/Atrial fibrillation, Wolff-Parkinson-White syndrome, Electrophysiology, Coronary CFD.
- Biomedical Imaging: Medical image analysis, Radiomics, MRI, Echocardiogram, CAG, CT, Pathological image, Visualization, Image-based modeling for biosimulation.
- Biomedical System: 3D Cardiovascular Modeler of Congenital Heart Disease.



FUJITA Takayuki

Professor, Deputy director of AMERI

Ph.D.(Engineering)
(Himeji Institute of Technology)

https://researchmap.jp/fujitatakayuki

Completed the doctoral program in industrial engineering at Himeji Institute of Technology in 2000. From 2001, he worked as an assistant and then an associate professor at the Graduate School of Engineering, University of Hyogo.

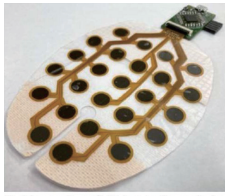
In the interim, he was also the group leader of the JST-ERATO Maenaka Sensing Fusion Project from 2008 to 2013, and a visiting researcher at the imec Holst Centre in the Netherlands from 2013 to 2014. He has been an expert member of IEC TC47/WG7 (Semiconductor devices for energy conversion and transfer) since 2016. He has been a professor and deputy director of the Advanced Medical Engineering Research Institute (AMERI), University of Hyogo since April 2022.

Research Theme

Research fields include the fusion of sensing and power generation technologies, including various MEMS devices, as well as the development of low-power IoT devices, autonomous medical engineering devices that utilize edge AI, and rehabilitation devices.

Main areas of focus:

- General manufacturing
- Research on MEMS devices and their application technologies
- Research on energy harvesting technologies
- Development of IoT, edge AI, and low-power systems
- Development of sensing technologies and rehabilitation devices



Flexible sensor for medical tube extraction monitoring

MIZUNO-MATSUMOTO Yuko

Professor

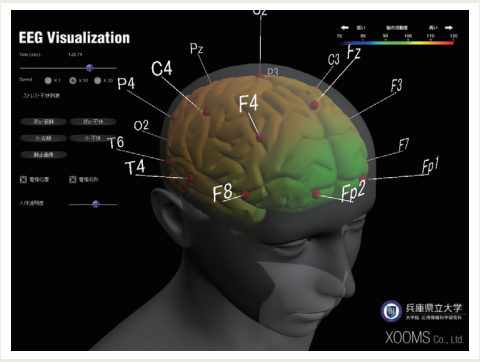
M.D., Ph.D. (Medicine & Engineering)
(The University of Osaka)

https://www.u-hyogo.ac.jp/ai/mizuno/

Yuko Mizuno-Matsumoto was a Post-Doctoral Research Fellow in the Department of Neurology, Johns Hopkins University, USA. She was an Associate Professor from 2004 to 2011, and since 2011, she has been a Professor at University of Hyogo. Since 2019, she has been a Professor in D3 Center (Cybermedia Center), The University of Osaka.
She is a Certified Psychiatrist and a Supervising Physician of the Japanese Board of Psychiatry, and a Certified Physician and Representative of the Japanese Society of Clinical Neurophysiology.

Research Theme

Brain science: Analyzing human brain function and autonomic nervous system
Medical field: Elucidating the mechanisms of neuropsychiatric disorders, human stress, emotion, and personality
Medical engineering field: Development of physiological signal processing methods



YAGI Naomi

Associate Professor

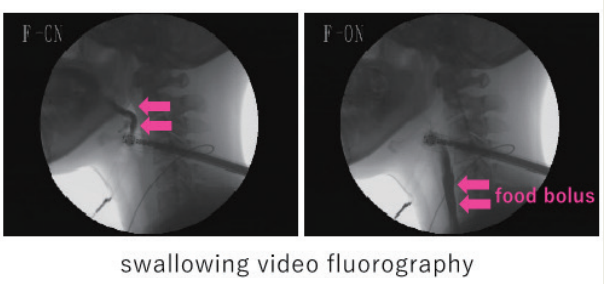
Ph.D. (Engineering)
(University of Hyogo)

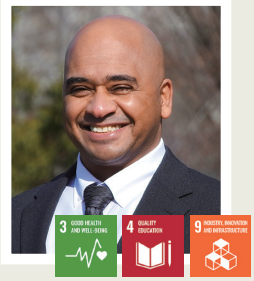
https://researchmap.jp/7000009906?lang=en

She received the B.E. degree in Engineering from Himeji Institute of Technology in 1998 and Ph.D. in Engineering from University of Hyogo in 2014.
She worked as a researcher at Graduate School of Medicine, Kyoto University. She served as an Associate Professor, Advanced Medical Engineering Research Institute in 2022 and Graduate School of Information Science in 2025, University of Hyogo. She received IEEE Senior Member and Google Anita Borg Scholarship Award.
She has been studying medical and healthcare related system using Artificial Intelligence, signal processing technology, and statistical analysis for medical diagnosis support or health checkup.
Aim to provide better medical care with human biometrics information, it is developing algorithms and systems, and analyzing medical dynamic 3D images and big data such as detecting and predicting abnormalities.

Research Theme

- Swallowing healthcare and rehabilitation diagnostic support system
- Contrast examination analysis for swallowing disorders
- AI gait diagnosis system for rehabilitation
- Infertility treatment image analysis to improve pregnancy success rate





RASHED Essam

Professor

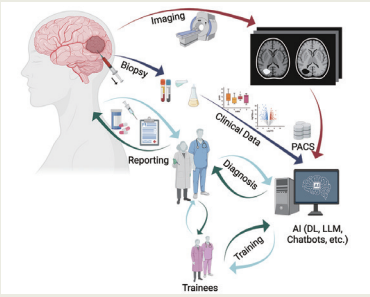
Ph.D. (Engineering)
(University of Tsukuba)

https://erashed.weebly.com

Essam Rashed received his Ph.D. (Eng.) in Computer Science from the University of Tsukuba, Japan in 2010.
He was a JSPS Research Fellow at the University of Tsukuba (2010-2012).
Currently, he is a Professor at the Graduate School of Information Science, University of Hyogo, Japan. Dr. Rashed is IEEE Senior Member and Associate Editor of the IEEE Access.
In 2024, he was a recipient of the Commendation for Science and Technology by the Minister of Education, Culture, Sports, Science and Technology (Development Category), Japan.

Research Theme

Our research interests encompass medical image processing, data analysis, pattern recognition, and machine learning applications. My group focuses on developing advanced algorithms to analyze and interpret complex medical datasets, aiming to enhance diagnostic accuracy and clinical outcomes. We believe that integrating knowledge from physics, biology, radiology, mathematics and informatics can lead to deeper insights and innovative healthcare solutions.
We are particularly interested in leveraging deep learning technology to address challenges in medical imaging and related fields to advance precision medicine and data-driven decision-making.



YAMADA Akira

Professor

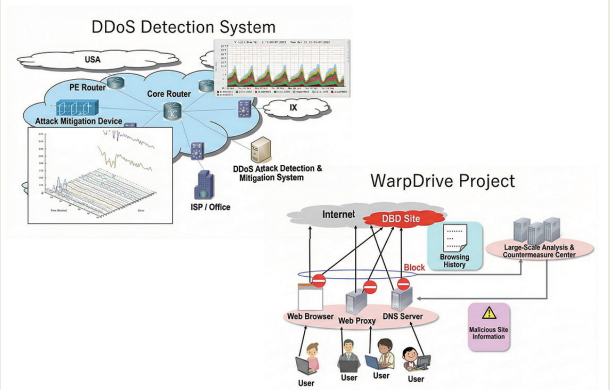
Ph.D. (Information Science)
(Tohoku University)

https://intrusion-detection.org

After graduating from Kobe University, he joined the research laboratory of a telecommunications company, where he engaged in research and development. He earned his Ph.D. through the doctoral program for working professionals at Tohoku University in 2009. From 2010 to 2011, he was a visiting researcher at CyLab, Carnegie Mellon University. From 2022 to 2025, he was a professor at Kobe University. He has been a professor at the University of Hyogo since 2025.

Research Theme

His research focuses on cryptographic protocols, network and cybersecurity, and usable security. At the telecommunications laboratory, he developed a carrier-grade system for detecting and mitigating denial-of-service (DDoS) attacks. In the field of web security, he initiated the WarpDrive project (Web-based Attack Response with Practical. and Deployable Research Initiative), funded by NICT.



MORIKAWA Tomohiro
Associate professor

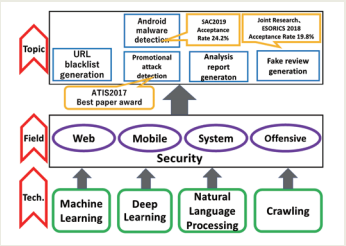
Ph.D.(Engineering)
(Waseda University)

https://sites.google.com/view/morikawa-lab

After earning a doctoral degree in Information and Communication Engineering from Waseda University, Tomohiro Morikawa contributed to research and development at the Cybersecurity Laboratory of the National Institute of Information and Communications Technology (NICT).
His work primarily focused on automating various cyberattack countermeasures through advanced technologies such as artificial intelligence.
Subsequently, he served as a lecturer in the Department of Information Systems at Saitama Institute of Technology before joining the University of Hyogo in 2022. Additionally, since 2018, he has been a Visiting Researcher at the Faculty of Science and Engineering, Waseda University, and since 2020, a Collaborative Researcher at NICT's Cybersecurity Laboratory.

Research Theme

As cyberattacks are increasingly designed to evade detection, existing countermeasures struggle to keep pace with their evolution and sophistication. To address this, we aim to detect and identify previously unknown attacks automatically and at an early stage by leveraging advanced techniques such as Natural Language Processing (NLP) and Deep Learning. Additionally, our research focuses on creating threat models that examine how attackers exploit the latest artificial intelligence technologies, enabling us to establish effective and efficient countermeasures. For instance, we have applied a natural language generation method based on deep learning to produce large-scale fake user reviews that closely mimic human language. In parallel, we have developed a highly accurate fake review detection model that surpasses the capabilities of existing methods.



TAN Cheng
Associate Professor

Ph.D. (Physics)
(Nanjing University)

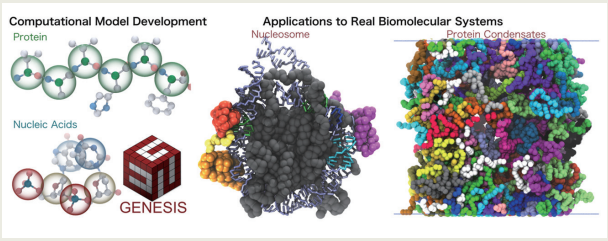
https://c-tan.com/

I received a Ph.D. in Physics from Nanjing University in 2014.
The same year, I began postdoctoral research at the Graduate School of Science, Kyoto University, focusing on biomolecule simulations.
In 2019, I joined the RIKEN Center for Computational Science to develop simulation methods for studying biomolecular assemblies using supercomputers.
In 2023, I joined as an Associate Professor (cross-appointment) at the Graduate School of Information Science, University of Hyogo.

Research Theme

My primary research focuses on using molecular dynamics simulations to study the behavior of various biomolecules-from their physical properties to their biological functions within cells and impacts on genetics. My work not only advances the understanding of biophysics at the microscopic level but also contributes to developments in medical and pharmaceutical fields.

- Developing biomolecular computational methods that reduce energy consumption and enhance simulation speed
- Investigating the microscopic mechanisms of phenomena such as liquid-liquid phase separation and aggregation of macromolecules
- Exploring protein-DNA interactions and the underlying mechanisms by which these molecules enable biological functions



Data Science Course | Computational Science Course | Healthcare Science Course | Information Security Science Course | RIKEN Cross Appointment

■ Internship Program

Eligibility
Undergraduate students or students in the 4th or 5th year of technical college (Kosen) and advanced course students.

Program Details
The internship is designed for university freshmen and sophomores, as well as 4th and 5th-year technical college students. The program content is structured so that participants with a basic understanding equivalent to a first-year university student can successfully complete it.
Duration: 5 days (30 hours)
On the final day, participants will present their work at a reporting session.
If credit recognition is required by the participant's home university or technical college, we will provide an evaluation report.
The internship will take place in various research laboratories within the Graduate School of Information Science at Kobe Information Science Campus.

Fees
No tuition fees are required.

■ Collaboration with Technical Colleges

The Graduate School of Information Science actively collaborates with National Institute of Technology (Kosen) through various initiatives. These include joint research projects, agreements for recommendation-based admissions, research exchange meetings, and internship programs specifically designed for Kosen students.

Joint Research and Recommendation-Based Admissions Agreements

We have established agreements with the following technical colleges:
National Institute of Technology(KOSEN), Akashi College. Kobe City College of Technology. National Institute of Technology, Kagoshima College. National Institute of Technology (KOSEN), Kure College. National Institute of Technology, Kochi College. National Institute of Technology, Tsuyama College. National Institute of Technology (KOSEN), Nara College. National Institute of Technology (KOSEN), Maizuru College.

05 Facilities

Computational Science Center Building, Kobe Campus for Information Science

7 stories ／ Total floor area around 7,700 ㎡／ Completed in 2011

Information Science Research Building, Kobe Campus for Commerce

4 stories ／ Total floor area around 3,300 ㎡／ Completed in 2020

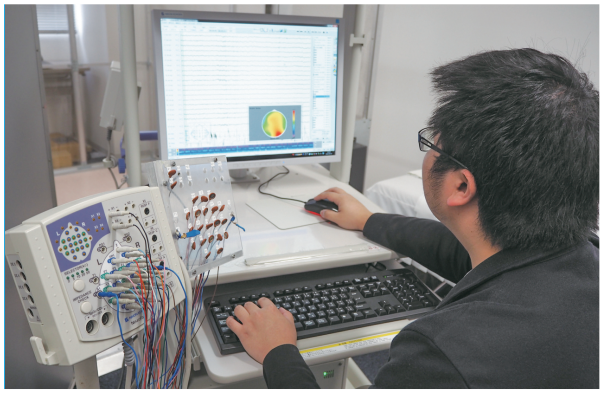
High Performance Computing System

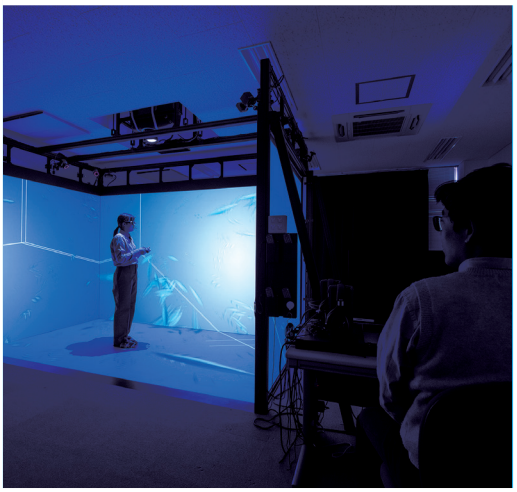
●HPE Cluster Computing System
(Total Performance 342.9 TFLOPS)

- CPU Nodes: 64 nodes, 2,560 cores
- Shared Memory Node: 3TB memory, 80 cores
- NVIDIA V100 x 8
- NEC VE x 8, 2 nodes
- Lustre File System, 2.9PB

●Kubernetes Cluster
(Installed in February 2025)

- CPU Worker
(48 cores x 2)
- GPU Worker
(Nvidia L4 24GB x 4)





CAVE (Cave Automatic Virtual Environment) 3D Virtual Reality System

- 4-sided CAVE system, 3.2 m × 2.0 m × 2.0 m
- Wireless tracking, 3D sound

Joint Laboratory

- Electroencephalograph
- Electrocardiograph
- Electromagnetic shield room
- Biological signal measuring device

Seminar Rooms

●Computer resources available via the wireless LAN

- Virtual infrastructure system with all-flash storage
- GPGPU server

06 Message from the Alumni

You can see more messages on the our website.
https://u-hyogo-gsis.org/en/message/

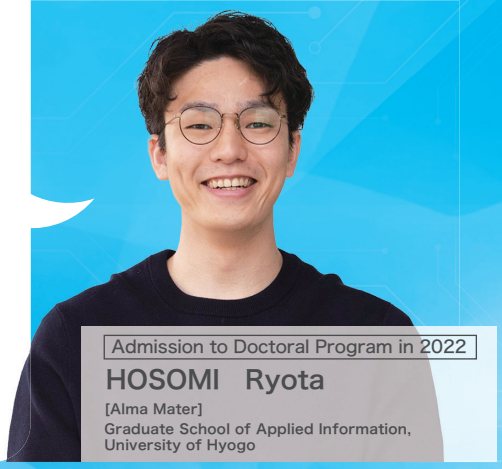
Admission to Master's Program in 2022

KAWADA Yuka

[Alma Mater]
School of Social Information Science, University of Hyogo

I graduated early from the School of Social Information Science at the University of Hyogo and proceeded to the Graduate School of Information Science. My decision to advance was influenced not only by the encouragement of my professors but also by my strong desire to gain expertise and contribute to society as soon as possible. In particular, I wanted to analyze data and use it to solve social issues.
One of the most attractive aspects of the Graduate School of Information Science is the strong support from faculty members in both coursework and research. Additionally, interacting with students from diverse backgrounds has provided an environment where we can challenge and inspire each other.
Currently, I am focusing on natural language processing, working on building a model that learns the relationship between numerical and textual data from large-scale review datasets. Through this research, I have been able to acquire the latest knowledge and techniques in machine learning and information retrieval. My decision to pursue graduate studies has allowed me to deepen my expertise, and I am very satisfied with my choice to advance from the School of Social Information Science to the Graduate School of Information Science.

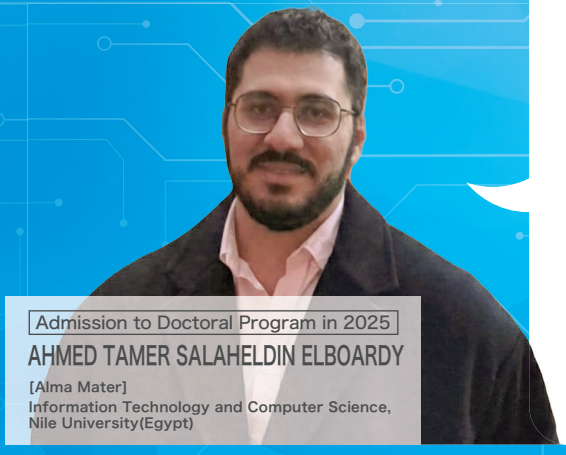
I worked as a physical therapist for seven years. In my third year of working, I decided to enroll in the Master's program, driven by a desire to contribute to society through research utilizing information technology in physical therapy.
As my undergraduate background was in physical therapy, I initially had limited knowledge of information science. However, this graduate school offers a systematic curriculum ranging from basics to advanced applications, making it accessible even for students from different fields.
The research environment is outstanding, featuring faculty members with diverse specializations and a student body that includes both working professionals and regular graduate students. Furthermore, the program offers support for working students, such as the extended enrollment system, making it easy to balance full-time work with academic studies.
I had a truly meaningful experience in this fulfilling environment. This program is ideal for anyone wishing to contribute to society through information technology. My only regret is that I didn't enroll sooner.



Admission to Doctoral Program in 2022

HOSOMI Ryota

[Alma Mater]
Graduate School of Applied Information, University of Hyogo



Admission to Doctoral Program in 2025

AHMED TAMER SALAHELDIN ELBOARDY

[Alma Mater]
Information Technology and Computer Science, Nile University(Egypt)

Supported by the MEXT Scholarship, I am an Egyptian Ph.D. candidate at the University of Hyogo, Graduate School of Information Science, specializing in Large Language Models (LLMs) and medical vision-language systems. Based in Kobe, I also serve as a part-time researcher at Intelligent Media Lab. expanding my doctoral research.
Prior to my journey in Japan, I earned a Masters in Informatics and Machine Learning at Nile University and taught courses in Deep Learning and LLMs. What makes this journey uniquely rewarding is the University of Hyogo's vibrant international community; with students from 24 countries, discussions naturally transcend cultures and disciplines. For those considering graduate studies, this blend of rigorous research momentum and global diversity is a powerful catalyst for professional growth and confidence.

07 The Achievements of the Alumni

University of Hyogo Instagram

University of Hyogo X (formerly Twitter)

Graduate School admission

Master's course Selection methods: Admission by recommendation & General examination
Admission capacity: 80 applicants (for both selection methods)

Doctoral course Selection method: General examination Admission capacity: 14 applicants

Application submission period and examination schedule will be announced along with admission guidelines.
Please check web site of the Graduate School of Information Science: https://www.u-hyogo.ac.jp/gsis/

Admission and tuition fees

Category		At the time of admission	July	October	Total
Admission fees	A (Note 1)	282,000 JPY	–	–	282,000 JPY
	B	282,000 JPY	–	–	282,000 JPY
Tuition		–	267,900 JPY	267,900 JPY	535,800 JPY

Note 1 : Category "A" applies if the applicant or their spouse (or relatives of the first degree of kinship) has a resident address in Hyogo prefecture for at least one year before the admission date. Category "A" also applies for candidates who are currently enrolled in the graduate school of the University of Hyogo and international students. Category "B" applies for other applicants.

※Applicants who continue to enroll from the Master's course at the University of Hyogo are exempt from admission fees (including those who have completed the Master's course at the graduate school of the University of Hyogo and continue to enroll in the PhD course in the middle of the fiscal year 2025).

※For more information about the free tuition system, please check web site of the University of Hyogo: https://www.u-hyogo.ac.jp/campuslife/exemption/

※For more information about the waiver of tuition fees, please check web site of the University of Hyogo: https://www.u-hyogo.ac.jp/campuslife/r-system/index.html

※The above amount is as of April 1, 2025.

Scholarship

1. JASSO(Japan Student Services Organization Scholarships)
   For more information, please check web site of JASSO: https://www.jasso.go.jp/en/

2. Other
   Please check the University of Hyogo website (https://www.u-hyogo.ac.jp/campuslife/scholarship/) and bulletin boards on campus for further information.

Access map

■Kobe Campus for Commerce

○From the Airport

【Kansai International Airport / Osaka International Airport】
Airport express buses run from both airports to Kobe Sannomiya Station.

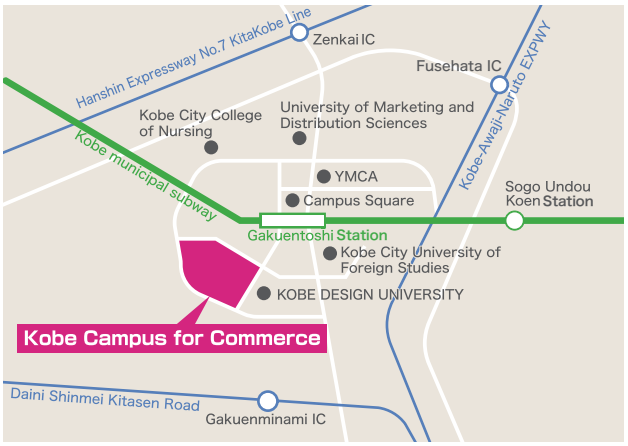
【Kobe Airport】
The Port Liner train connects the airport and Kobe Sannomiya Station.

○From central Kobe

From Sannomiya Station, take the Kobe municipal subway to Gakuentoshi Station (around 20 minutes).

If you come to Kobe by bullet train (Shinkansen), take the Kobe municipal subway from Shin-Kobe Station to Gakuentoshi Station.

It takes around 10 minutes from the subway station to our campus on foot.



■Kobe Campus for Information Science

○From the Airport

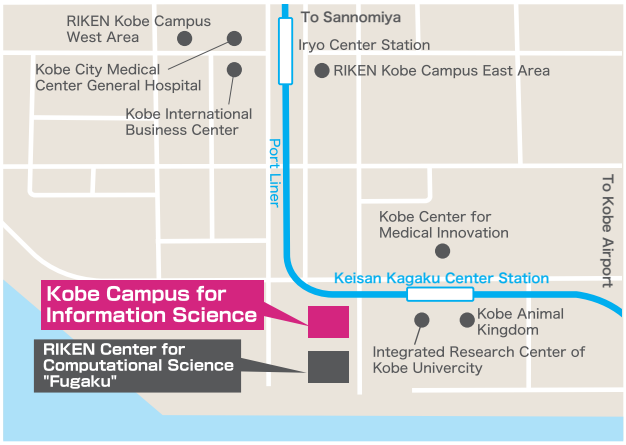
【Kansai International Airport / Osaka International Airport】
Airport express buses run from both airports to Kobe Sannomiya Station.

【Kobe Airport】
The Port Liner train connects the airport and Kobe Sannomiya Station.

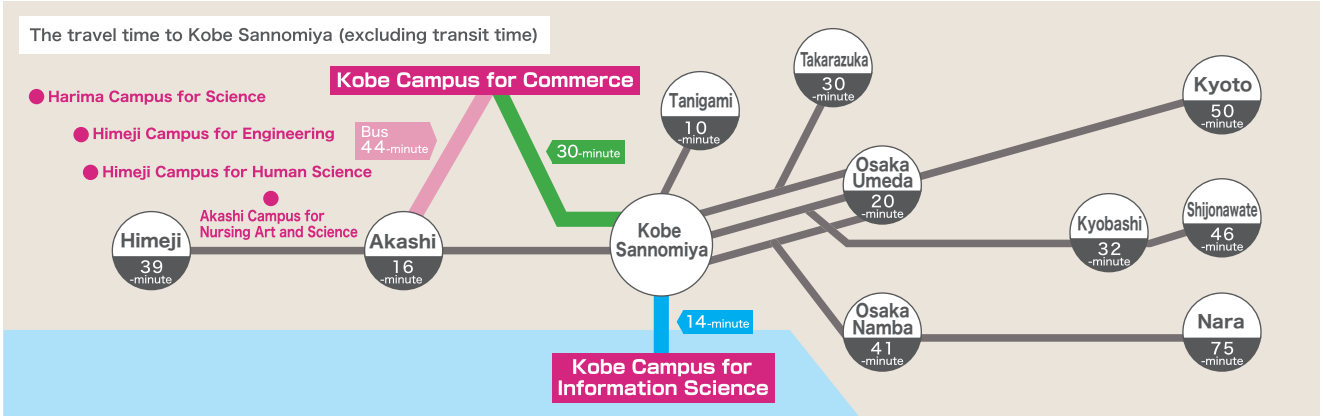
○From central Kobe

Take the Port Liner from Sannomiya Station to Keisan Kagaku Center Station (about 15 minutes).

From the station, it is about a 4-minute walk to the campus.



○Route map



University of Hyogo
Kobe Campus for Information Science

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