



Information of the Researchers

Main Research Themes

2024

Faculty of Environmental Engineering and
Graduate School of Environmental Engineering, The University of Kitakyushu
Graduate School of Life Science and Systems Engineering, Kyushu Institute of Technology
Graduate School of Information, Production and Systems, Waseda University
Fukuoka University Graduate School of Engineering
Fukuoka Research Commercialization Center for Recycling Systems

KITAKYUSHU SCIENCE AND RESEARCH PARK

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https://fais.ksrp.or.jp/05kenkyusha/srch_e.asp



Position	Name	Main Research Theme
Department of Chemical and Environmental Engineering		
Chemical Processes		
Professor	Kenji Asami	Development of Novel Processes for the Production of Synthetic Clean Fuels and their Utilization
Professor	Xiao-Hong Li	I am working on the development of catalysts for synthesis of high-quality gasoline, diesel, jet fuel, methanol, hydrogen from natural gas, biomass, and carbon dioxide.
Professor	Syouhei Nishihama	1. Separation and recovery process of rare metals from waste materials 2. Removal process of toxic compounds in water environment
Lecturer	Takao Gunji	I am working on the development of new materials based on nano-particles, such as fuel cell catalysts and electrocatalysts for CO ₂ reduction reaction.
Lecturer	Yumi Katayama	1. Development of decomposition method of persistence organic pollutants by reductive dehalogenated reaction 2. Development of insolubilization method of heavy metal contaminated soil 3. Development of portable hydrogen storage system using self-assembled monolayers
Advanced Materials		
Professor	Isamu Akiba	1. Synthesis, Properties and Structures of Organic Polymers 2. Mesomorphic Phase Formation of Multicomponent Polymer Materials
Professor	Seung-Woo Lee	1. Nano-structured materials 2. Fabrication and application of chemical sensors 3. Analysis of disease odors
Professor	Katsutoshi Yamamoto	1. Synthesis and application of new structures of porous materials 2. Development of new synthesis routes for porous materials 3. Development of catalysts for bio-fuel synthesis
Associate Professor	Hiroyuki Imai	1. Development of novel catalysts for application to catalytic reaction processes 2. Synthesis and functionalization of porous materials as a solid catalyst in processes of effective utilization of petroleum resources and production of chemicals from non-petroleum resources
Associate Professor	Takahiro Teramoto	1. Property evaluation of next-generation solar cells using ultrashort pulse lasers 2. Large-scale quantum chemistry calculations using supercomputers
Environmental Processes		
Professor	Hitoshi Ohya	Development of recycling technology and its system design
Professor	Hidenari Yasui	1. Activated Sludge Population Dynamics 2. Anaerobic Digestion 3. Nutrient Removal and Recovery 4. Pretreatment of Industrial Wastewaters
Professor	Masahide Aikawa	Atmospheric Science(Acid Deposition (Acid Rain, Acid Fog), Air Pollution(Gaseous compounds, Particulate matter))
Professor	Mitsuharu Terashima	1. Modeling and simulation of water and wastewater treatment process 2. Hydrodynamics in wastewater treatment plant
Associate Professor	Takashi Miyawaki	1. Development of comprehensive analysis method for chemicals using mass spectrometry 2. Environmental pollution survey and ecological effect evaluation in Japan and overseas 3. Study on source analysis of chemicals in the environment
Lecturer	Kazuki Sugawara	Development of environmental remediation technology for heavy metal contaminated soil and water utilizing biological functions 2. Establishment of highly efficient carbon dioxide fixation technology using fast-growing tree species 3. Clarification of elemental dynamics in the environment related to the above processes
Department of Mechanical Systems Engineering		
Energy Systems		
Professor	Masaaki Izumi	1. Study on Improvement of Performance and Endurance of Solid Oxide Fuel Cells 2. Study on Inspection and Diagnosis for Fuel Cell and battery Performance 3. Study on Manufacturing of Fuel Cells by 3D Printing Technique
Professor	Yoshiaki Miyazato	Research on application for supersonic flows of rainbow schlieren tomography and laser interferometry
Professor	Sadami Yoshiyama	1. Development of Combustion Diagnostics Method Using Ion Sensor 2. Combustion and Ignition of Carbon-free fuel 3. Development of Heat cycle for Waste Heat Recovery System
Professor	Koichi Inoue	1. Electronics cooling 2. Condensation heat transfer on a large tube bank 3. Heat spreader 4. Internal natural convection
Associate Professor	Shinichiro Nakao	1. Research on numerical analysis of interference between shockwave and boundary layer 2. Research on application of laser interferometry to flow field accompanied by shockwaves
Design and Manufacturing System		
Professor	Takanori Kiyota	1. Study on Mechanical System Control Method based on Inherently Safe Design 2. Development and Application of Power Assist Systems based on Inherently Safe Control 3. Study on Safe and High-Performance Control of Pneumatic Systems
Professor	Nobuhiro Okada	1. 3D visual measurement 2. Robotics 3. System engineering
Professor	Changhee Cho	Study on the Wear of Ultra-High Molecular Weight Polyethylene for Artificial Joints
Professor	Hiroshi Murakami	1. Development of a System for 3-D Micro Metrology Using an Optical Fiber Probe 2. Study on an intelligent machine tool 3. Development of a high-speed air turbine microspindle for monitoring machining processes
Professor	Takumi Sasaki	1. Development of Nonlinear Vibration Isolator 2. Development of Vibration Analysis Method for Large Scale Systems 3. Development of Vibration Control Device using MR Fluid
Associate Professor	Hiroki Cho	1. Research for performance improvement of shape memory alloy 2. Research and development of actuator and medical equipment using shape memory alloy 3. Research and development of the heat-engine using shape memory alloy
Associate Professor	Takuya Ikeda	1. Sparse modeling 2. Optimal control 3. Multi-agent system
Associate Professor	Takeshi Miyaguni	1. Study on high performance vertical axis micro wind turbine 2. Study on catamaran type water surface cleaning ship with a movable weir
Department of Information Systems Engineering		
Signal Processing		
Associate Professor	Ryo Matsuoka	Study on remote sensing, image processing, computer vision, and signal processing based on mathematical modeling, artificial intelligence, machine learning, optimization
Systems Control		
Professor	Lianming Sun	1. Modeling and system design for control and communication systems 2. Adaptive signal processing
Associate Professor	Yusuke Fujimoto	My research interests include 1. identification of linear or nonlinear systems, 2. data-driven controller designs, and 3. applications to practical systems.
Networking		
Associate Professor	Hiroyuki Koga	1. Computer Communication Networks 2. Internet Architecture
Lecturer	Yusuke Ito	1. Edge cloud computing 2. Information-centric networking

Security		
Professor	Satoshi Uehara	Sequence design for communications applications
Professor	Yasushi Yamazaki	1. Biometrics 2. Information security 3. Pattern recognition 4. Time series analysis
Integrated Systems		
Dean, Professor	Shigetoshi Nakatake	1. VLSI Physical Design 2. Mixed Signal LSI Design 3. Sensor System Integration 4. Analog Reconfigurable Device
Professor	Makoto Sugihara	1. VLSI design technique 2. Embedded system designs 3. IT system design for advanced driver assistance
Professor	Yasuhiro Takashima	1. Algorithms to VLSI system layout design 2. Optimization Method 3. Mathematical Programming
Sensing and Robotics		
Professor	Takeshi Nishida	1. Research on AI robots for smart factories 2. Research on Robot Intelligence by Fusion of Cyber Space and Real Space
Software		
Associate Professor	Susumu Yamazaki	1. Computers and software for space rovers and satellites 2. Domain-specific architecture 3. Parallel programming processors 4. Edge-computing
Biomedical Engineering and Human Information Processing		
Professor	Masayuki Sato	Psychophysics on human visual perception, especially on depth perception and visual stability during eye movements
Professor	Takehito Hayami	Medical equipment based on electric and optic technology to diagnose and treat nervous functions (neurosurgical, ophthalmological and orthopedic applications) Psychological equipment to test human behaviour
Associate Professor	Yasuaki Tamada	1. Proposition of multi-modal stimulation method for 3D or VR contents 2. Development of applications for visual function diagnosis
Department of Architecture		
Structure and Construction		
Professor	Masae Kido	Seismic Design and Frame Stability of Steel and Concrete Filled Steel Tubular Structures
Associate Professor	Kazuaki Hoki	1. Evaluation of Seismic Performance of Old Building 2. Development of Seismic Retrofit
Building and Construction Materials		
Professor	Koji Takasu	1. Development of carbon negative concrete for carbon neutrality in 2050 2. Study on modification of recycled building materials 3. Study on self-healing type low carbon geopolymer concrete 4. Study on properties of the concrete using recycled aggregate and high volume by-products particles 5. Environmental impact assessment considered performance of building material 6. Study on analysis and test method of concrete by various analysis devices
Professor	Hidehiro Koyamada	1. Safety management in buildings 2. Hot weather concreting 3. Medium fluidity concrete 4. Sustainable system of forest resources 5. Building resource supply system in Japan 6. Research and maintenance of existing and aged buildings
Associate Professor	Hiroki Suyama	1. New building materials manufactured from by-products 2. Cement concrete engineering 3. Impression evaluation of building materials
Building Environment and Energy System		
Professor	Weijun Gao	1. Architectural/urban environment planning/design 2. Building/city energy and resource planning 3. Study on urban environment in Asia
Professor	Yasuyuki Shiraishi	1. Advanced air-conditioning system to realize energy saving and comfort 2. Development of performance prediction method of various passive environmental control systems 3. Environmental control engineering for large scale building based on CFD analysis
Associate Professor	Shintaro Ando	1. Effect of thermal environment on health (e.g. blood pressure, physical activity, sleep quality, and body temperature) 2. Productivity improvement by activity based working 3. Effect of community environment on physical activity
Associate Professor	Takahiro Ueno	1. Decarbonization of buildings by commissioning and fine tuning 2. Roadmap design to zero energy islands and zero energy communities 3. Environmental evaluation of biophilic design spaces 4. Development of external EMS using IoT and AI cameras
Architectural Design		
Professor	Hiroatsu Fukuda	1. Architectural Design 2. Design of Recyclable Houses, Low-Energy Houses, Recycle of Construction Materials 3. High-Rise Residences 4. Urban Environment, Urban Design, Compact City 5. New construction methods of Japanese cedar 6. Historical Architecture
Professor	Bart Julien Dewancker	1. Research on urban planning and citizen involvement in urban planning 2. Research on Sustainable Architecture and Urban Design 3. Landscape planning, green buildings
Associate Professor	Yumi Fukuda	1. Study on light regulating human biological rhythms 2. Study on light environment and color planning which develop vision 3. Lighting design in public spaces 4. Study on illumination
Lecturer	Hiroshi Yamada	1. Composition of industrialization and humanity, Life image drawn by modern architecture 2. A new learning space that makes use of the surrounding nature, Proposals for awareness and emotional education in childhood 3. Correlation between traditional settlements and urban development in Asia 4. Urban farms and dwelling forms, Expansion of production green space in rural residential area
Department of Life and Environment Engineering		
Life Science and Biomaterials		
Executive Director, Vice-president, Professor	Kazuya Uezu	1. Biosensors utilizing the structures and functions of living organisms 2. Biomaterials for capturing the intracellular messengers 3. Design of functional materials with computational chemistry 4. Environmentally-friendly firefighting foam for forest fire
Professor	Kohji Nakazawa	1. Development of cell array 2. Development of sensing technology of cell functions 3. Study of tissue engineering using cultured cells
Professor	Takaaki Isoda	Development of a new bio sensor and the application : 1. Bacteria sensors for food sanitation, 2. fast testing for virus and infection
Associate Professor	Shinichi Mochizuki	1. Development of drug delivery system 2. Novel immunotherapy 3. Glycoengineering 4. Nucleic acid chemistry

Biological and Ecological Engineering		
Professor	Akira Haraguchi	Eco-physiological study on Sphagnum plants
Professor	Hiroshi Morita	1. Study on physiological function of IGUSA 2. Bio-control science of mold spores and mites 3. Study on novel co-culture Koji for Sake brewing 4. Development of submerged culture system for brewing
Professor	Tomonori Kawano	1. Plant and microbial biology (photosynthesis, plant immunity, environmental response, cell signaling) 2. Plant-production factory-related technology (light source, monitoring, mathematical models) 3. Redox biochemistry (ROS) 4. Environmental assessment 5. Metallic ecotoxicity 6. Bioengineering with protists 7. Fire-fighting agents and environment 8. Science history 9. Biochemistry of blood 10. Fish and the environment
Professor	Takanori Kihara	1. Biomineralization in our body 2. Phenotypic regulation of smooth muscle cells 3. Tissue formation with stem cells
Associate Professor	Katsunori Yanagawa	Microbial distribution, community composition and biogeochemical cycles in the geobiosphere including extreme environment
Associate Professor	Lisa Ito	1. Environmental issues such as heavy metal pollution on coral reef islands 2. Cross-border movement of chemical substances contained in anthropogenic products (including transboundary pollution mediated by the atmosphere) and their impact on ecosystems 3. Relationship between soil formation of atoll sediments and nitrifying bacteria
Environmental Management		
Associate Professor	Katsushige Uranishi	1. Transboundary Air Pollution from Biomass burning 2. Regional and transboundary pollution in terms of air quality 3. Analysis of chemical substances (pesticides, PPCPs) using mass spectrometry 4. Understanding the actual state of microplastics in the atmosphere

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Position	Name	Main Research Theme
Professor	Takuya Oda	1. Research on supply and demand management for renewable energy introduction 2. Development of energy management technology through energy demand activation
Professor	Takaaki Kato	1. Economic evaluation of environmental and energy policy 2. Evaluation and governance of risk
Professor	Tsuruo Matsuda	Biomedical Eng., and so on Magnetic and Electrical stimulation of the Human Brain, peripheral nervas system and Blood flow system
Professor	Toru Matsumoto	1. Sound material-cycle society and industrial symbiosis 2. Urban environmental management in Asia 3. Servicing as sustainable business models 4. Environmentally conscious life style
Associate Professor	Atsushi Fujiyama	1. Study on energy management systems 2. Study on using information technology in the environmental field
Associate Professor	Akira Tsuchiya	1. Modulation of cellular function on biomaterials 2. Establishment of an in vitro osteoporosis model by calcium phosphate-organic materia 3. Development of antibacterial or osteoconductive implant
Associate Professor	Ryusuke Fujisawa	1. Study on swarm intelligence / swarm robotics 2. Study on the function of recognition of the external world in living organisms 3. Study on identification using machine learning

Center for Fundamental Education, Hibikino Campus, The University of Kitakyushu

Position	Name	Main Research Theme
English Education		
Professor	Masanobu Ueda	A quantitative and qualitative analysis of verb semantics and constructions
Associate Professor	Eiichiro Tsutsui	1. English education 2. EFL with information and communication technology 3. Creating web apps for Japanese learners of English 4. Analyzing computer-mediated communication data
Associate Professor	Roger J.A. Prior	Translation studies, particularly the potential for translating jokes and humour
Associate Professor	Anne Marie Crescini	1. Research on the Effectiveness of Using Study Abroad as One Way to Improve Language Ability and Increase Cultural Awareness 2. Research on the Relationship between Foreign loanwords and the English Pronunciation of Native Japanese Speakers
Associate Professor	Naoki Kiyama	1. Lexical semantics 2. Construction-semantics interface 3. Text-mining
Japanese Education		
Professor	Ryusuke Ikeda	1. Japanese for Specific Purpose 2. Analysis of The Features of Language Adjustment of Japanese Native Speakers 3. Development of Learning Resources for International Students Majoring in Environmental Engineering 4. Research on Academic Writing Education in Japanese
Liberal Arts		
Professor	Hiroyuki Tsujii	Research on Business Management for Sustainability 1. Corporate Environmental Management 2. Engineering Ethics Education 3. Entrepreneurship
Professor	Miyuki Nakaoka	I am engaged in a comparative study of urban mechanisms and urban structures in Asian countries, focusing especially on China. I am also interested in the differences between the Japanese economy during its rapid growth period and the present Chinese economy.
Professor	Takayuki Ishikawa	1. Human Resouce Development 2. Development of PBL Education Program 3. Social Innovation

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Position	Name	Main Research Theme
Department of Biological Functions Engineering		
Green Electronics		
Professor	Tsuyoshi Hanamoto	Development of human-friendly and environmentally friendly electrical power conversion systems and application for motor control systems

Professor	Ichiro Omura	Development of ultimate power semiconductor devices to achieve carbon neutral. Power semiconductors are key device for xEVs, PVs and wind firm for the energy efficiency.
Professor	Tingli Ma	Design and syntheses of nanomaterials and their characterization. Development of new materials for stable perovskite solar cells, Development electrode materials with high performance and low cost for application to Li-ion batteries and Na-ion batteries, as well as metal-air batteries.
Professor	Shyam Sudhir Pandey	Design and development of photo-functional materials for energy harvesting and organic electronic devices.
Associate Professor	Akihiko Watanabe	Research on ultra-high performance power devices based on the superior semiconductor properties of diamond. The realization of diamond power devices will contribute to the realization of a decarbonized society by enabling the highly efficient use of electrical energy and the construction of energy grids with the direct current transmission.
Biological Mechanics		
Professor	Hiroshi Yamada	1. Mechanical evaluation of human vascular diseases and its application to medical treatment 2. Macroscopic and microscopic studies of soft tissues and products for safety of biliary stenting and prevention of pressure injury 3. Computer simulation to improve the tooth repair technique
Professor	Masaaki Tamagawa	1. Computational and experimental studies of Hemolysis and Thrombus formation in blood flows 2. Application of Shock Waves and Ultrasonic to Drug Delivery Systems, Water treatment, Tissue Engineering 3. Development of driving force of micromachines by investigating chemotaxis of neutrophile, Keyword:Bio-fluid dynamics, Bio Medical Engineering,CFD, Shock Wave
Professor	Takashi Yasuda	Using techniques of semiconductor processing and cell culture, we are developing microdevices for medical and drug discovery applications, including devices for analyzing human iPSC cell-derived neurons, microelectrode array devices for measuring electrical signals from neurons, and microfluidic devices with reconstructed brain structure.
Professor	Toshiki Miyazaki	Development of biocompatible materials for repair and regeneration of bone, tooth and nerve. Development of ceramic processing with low energy consumption inspired by biological system. Development of microparticles for cancer treatment
Associate Professor	Kazuto Takashima	Applications of shape-memory materials and artificial muscle to human-interactive robot. Development of soft tactile sensor. Development of device placement simulator for endovascular treatment.
Associate Professor	Momoko Kumemura	Applying MEMS (Micro Electro Mechanical Systems) technology to biological research at the molecular, cellular, and tissue level. Development and characterization of novel microfluidics for mechanical, chemical, and genetic assays for oncological studies.
Associate Professor	Jin Nakamura	Development of composite materials (ceramics, metals, and organic molecules) that exhibit multifunctions in response to stimuli emitted by living organisms. Development of synthetic processes for composite materials with controlled structures at molecular order. Development of materials for tissue regeneration medicine and environmental purification.
Environmentally-Conscious Chemistry and Bioengineering		
Professor	Tetsuya Haruyama	We are developing research to realize various functional interfaces (reaction fields) by elucidating the functions of heterogeneous interfaces. "Chemical resource conversion of nitrogen, oxygen, and water (phase interface reaction technology)", "interface that converts CO ₂ into resources", "process technology with low environmental load", "safe decomposition of harmful substances", etc.
Professor	Toshinari Maeda	Unique microbial functions can be elucidated and improved using biotechnologically-engineered approaches to construct an innovative technology which should be useful to the environment and human society.
Associate Professor	Tamaki Kato	Design, synthesis, and conformational analysis of peptide-based artificial functional molecules (Peptide nanostructures, peptide-based drug design etc).
Professor	Naoya Murakami	Analysis of photofunctional material using photoacoustic spectroscopy. Development of photocatalytic system for light-energy conversion.
Associate Professor	Shinya Ikeno	I have been studying development of functionalized nanomaterial combined with biomolecule and nanoparticle, and application of functionalized biomolecular to bioprocess such as production of recombinant protein.
Associate Professor	Yoshito Ando	We aim to pursue environmental conservation and sustainable science by focusing on environmentally friendly materials and processes. Our research involves identifying the properties of biomass and natural materials, including underutilized agricultural waste, and designing and evaluating high-value functional materials that leverage these properties.
Associate Professor	Yoshiyuki Takatsuji	Our research has committed to solving to environmental and energy problems with the catalytic a metal electrode that can produce the efficiency substance. The catalytic metal electrodes have been developing and also analyzing the reaction mechanism and the produced substance.We will pursue research in the field of clean cycle chemistry (Tri-C) and achieve the goals of the SDGs.
Green Technology		
Visiting Professor	Iwao Sasaki	Research on functional materials utilizing the unique phenomena, which are prominent in a micro/nanometer scale.
Visiting Professor	Hideki Honda	As robots are good examples, mechatronic devices are now used in various fields as well as in the industry. Therefore, in addition to research on the high-speed and high-accuracy performance required by the industry, we also study mechatronics technology that is kind to people and supports them.
Collaborative Research Laboratory		
Specially Appointed Associate Professor	Masahiro Nakano	Plant Life Cycle Engineering (Research on autonomously controlled robot welding, and Research on thermal elasto-plastic analysis of welds and optimization of welding order)
Department of Human Intelligence Systems		
Human Intelligence and Machines		
Professor	Kazuo Ishii	Development of field robots such as underwater robot, agricultural robot, inspection robot, and research on related topics, environment recognition system, self-localization system, adaptive learning system, motion control system, bio-inspired information processing, etc.
Professor	Hirofumi Tanaka	Research and development of electric nanodevices for artificial intelligence hardware, whose target is to generate new electrical functionalities by using the circuit of the nanodevices.
Dean, Professor	Chikamune Wada	Research on developing human-friendly assistive device/substitution system for the disabled/the elderly people based on psychophysical analysis of human sensory-motor systems.
Professor	Hakaru Tamukoh	A brain-like computer system laboratory aims to realize a brain-like computer based on a hardware/software complex system and its application to embedded systems on home-service robots.
Associate Professor	Hiroyuki Miyamoto	Development of learning by watching robot, skill acquisition robot, motor learning robot, welfare robot.

Associate Professor	Shinsuke Yasukawa	Development of living creature observation/ manipulation technique using robot, Simulation of the visual nervous system, Development of Bio-inspired robot vision system, Trials of their techniques in field, etc...
Associate Professor	Yuuya Nishida	To reliably accomplish the mission, our laboratory develops robot that robustly navigates in actual environment, and its elemental technology. We survey actual environment using developed robot and system to benefit society.
Associate Professor	Yuichiro Tanaka	1. Development of brain-inspired artificial intelligence models 2. Development of fast and low power hardware for artificial intelligence models 3. Application for home service robots
Assistant Professor	Yuki Usami	Research and development of nanoscale various basic physical properties of organic/inorganic materials for extracting flexible bio-inspired function. Creation of unconventional nanodevices by circuitization and deviceization from nanomaterial function.
Specially Appointed Professor	Takashi Morie	Research and development of brain-like processing models, new functional devices and digital/analog integrated circuits (VLSI) and systems mainly targeted to service robots toward achieving brain-like artificial intelligence.
Intelligence Systems and Emergent Design		
Professor	Tetsuo Furukawa	Our destination is to develop the learning theory and its algorithms, which enable us to discover general rules and intrinsic information underlying the given datasets. Typical themes are higher-order modeling through meta-learning and multi-task learning. We also challenge to develop embodied knowledge discovery systems from complex data network.
Professor	Tomohiro Shibata	Our research spans across academic fields such as robotics, artificial intelligence, biomechanics, bio-signal processing, and neuroscience. Our primary aim is to apply these technologies to caregiving, medical, and welfare fields. We are engaged in the research, development, and social implementation of assistive technologies using robots and smart devices. This effort is carried out in collaboration with a diverse range of stakeholders in the fields of elderly care, disability support, and healthcare.
Professor	Keiichi Horio	The Research aimed at estimating and classifying individual characteristics by measuring and analyzing human behavior. Besides, we pursue optimization of the intervention method based on analysis results and aim to apply it to real-world society, especially data analysis involving humans.
Professor	Sozo Inoue	We develop human activity recognition from smartphones and sensors, and their services. We also cultivate AI by collecting medical and nursing care big data.
Professor	Hiroaki Wagatsuma	We explore systems design inspired by biological emergent intelligence, through an understanding of what makes us human (intelligence), how we are embodied in the environment (body kinetics/morphology), why emotional and social aspects are so important to us (sociality). Our mathematical modeling and investigation are applied to the design of an artificial intelligence, robot development, and rehabilitation tools.
Associate Professor	Kaori Yoshida	We study Kansei Information Processing as one of Human-Computer Interaction research. The research aims to design appropriate information systems based on psychological, social, and technical analysis. Research topics include human-centered design, soft computing, usability, conceptual models, interface metaphors, human cognitive models, implicit behavior analysis, and interactivity structures.
Associate Professor	Shuuhei Ikemoto	Behind sophisticated abilities of living organisms are the mechanisms that exploit demerits, e.g., complexity/flexibility of body and unignorable noise, as merits. Toward understanding and applying the mechanisms, academic studies about biologically inspired systems based on robotics have been conducted.
Assistant Professor	Hideaki Ishibashi	The aim of our research is to develop the learning theory and its algorithms for meta-modeling, which enables to discover meta-knowledge by modeling a set of knowledges or models. We also aim to construct universal framework for actively modeling of meta-knowledge by connecting the Friston's free energy principle.
Human Interaction and Brain Functions		
Professor	Kiyohisa Natsume	We study experimentally on the generation of neuronal rhythm and compute the rhythm on the computer. We also developed the e-learning system for Japanese English learners using BMI technology.
Professor	Doosub Jahng	For diverse individuals to agree with each other and become one as a team, innate needs, learned knowledge/skills acquired needs from personal/environmental circumstances, self-action, health resources and communication become essential. We conduct research on the factors above by utilizing both people's conceptual needs and experimental/statistical designs to further our study on team management.
Associate Professor	Katsumi Tateno	Our interests are complex behavior of neural activity and theoretical investigation on neural coding in the brain. Specifically, we are currently researching neural network models of the medial temporal lobe.
Associate Professor	Yoshitaka Otsubo	We investigate the cellular and molecular mechanisms underlying the signal processing occurred in mammalian taste buds and we contribute to develop a new signal processing based on features of taste buds.
Human Technology		
Visiting Professor	Hiroshi Nakajima	Research and development on algorithms of intelligent systems by studying soft computing, statistical analysis, and social intelligence in human-machine collaboration with application studies
Visiting Associate Professor	Takayuki Matsuo	Development of mobile robot systems inspired by mechanisms of animals for irregular terrain, underwater and so on.
Collaborative Research Laboratory		
Specially Appointed Associate Professor	Kazumichi Tanaka	Value-added creation for mechatronics technologies such as Machine Vision System, high-speed, high-precision, energy-saving, and vibration control by combining AI technology with semiconductor inspection machine manufactured by Ueno Seiki

Industry-Academia Innovation Center, Kyushu Institute of Technology

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Position	Name	Main Research Theme
Professor	Yasushi Sato	1. Controlling of Device Installed Artificial Intelligence 2. Sound Compression and Noise Removal by Sound Signal Process 3. Noise Removal by Array microphone 4. High Quality Sound and Lossless Compression by Sound Signal Process 5. Interface by Dialogue System 6. High Quality image and Search System by image Processing Technology 7. Development of Microwave Parts Using Dielectric

Next Generation Power Electronics Research Center, Kyushu Institute of Technology

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Position	Name	Main Research Theme
Assistant Professor	Ravi Nath Tripathi	Power electronics systems can utilize green energy by efficiently converting electrical energy. We are conducting research on power semiconductor converters and control technology for environmentally friendly technologies, and virtual prototyping using model-based development and design (MBD). "

Center for Future Society Implementation for Robotics, Kyushu Institute of Technology
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Position	Name	Main Research Theme
Assistant Professor	Daigo Katayama	Research on robotics applications for advanced information on mobile/IoT systems, such as self-position estimation or point cloud processing implementation on smartphones or IoT devices. This research also includes system application in fields such as welfare, marine engineering, agriculture, and civil engineering.

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Position	Name	Main Research Theme
Assistant Professor	Muzhen Xu	Developing in-material computing semiconductive materials, including metal oxide single crystals and carbon nanoribbons, and making low-power consumption and stable physical reservoir devices using those materials. My goal is to apply these devices to voice recognition, image classification, etc. which are crucial for intelligent robots.

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Position	Name	Main Research Theme
Information Architecture Field		

Dean, Professor	Shigeru Fujimura	1. Production Planning and Scheduling 2. Production Management 3. Project Management 4. Digital transformation 5. Business Process Modeling
Professor	Jinglu Hu	Neurocomputing Systems and their Applications to Identification and Control of Nonlinear Systems
Professor	Mizuho Iwaihara	1. Database Query Processing 2. Web Information Systems 3. Text Mining 4. Knowledge Management 5. Social Media
Professor	Seiichiro Kamata	1. Image Processing 2. Pattern Recognition and Computer Vision 3. Applications of Space-filling curves 4. Image & Video Retrieval 5. Visual Information Processing
Professor	Jun Kameoka	1. Development of Wearable biosensor and IOMT platform 2. Integration of IOMT and AI Platform technologies for early detection of disease and prognosis management 3. Application of IOMT for agriculture
Professor	Yves Lepage	1. Natural language processing and Artificial intelligence 2. Example-based, statistical and neural machine translation 3. Study of analogy, application to morphology, syntax and semantics, machine translation and paraphrasing 4. Multilingual word and sentence alignment 5. Academic writing aid system for researchers who are non-native English speakers
Professor	Takafumi Matsumaru	Bio-Robotics & Human-Mechatronics 1. Human-Symbiotic / Synergetic Robot 2. Human-Robot Interaction (physical / informative / psychological) 3. Intelligent / Behavioral Robotics 4. Social / Ethical Robotics 5. International Cooperation / Collaboration Robotics 6. Human Understanding / Education
Professor	Makoto Tsubokawa	1. Optical network architecture (Survivable network architecture, Maintenance techniques, Transmission systems) 2. Sensing technologies (Fiber-optic sensors, Optical measurement techniques) 3. Optical waveguide design (Optical fiber textile, Light concentrator, Nano waveguide devices)
Professor	Osamu Yoshie	1. Global machine diagnosis service using the Internet technologies 2. Environmental Information Processing 3. IoT application to manufacturing 4. Analysis of consensus building 5. Knowledge logistics
Professor	Jun Wu	1. Network Intelligence 2. Network Security 3. Application and System Development for Intelligent Security 4. International standard for security management of intelligent networks
Lecturer	Yuya Ieiri	1. Agent Simulation 2. Cyber-Physical System 3. Augmented Reality 4. Information Utilization for Revitalizing Community 5. Social System Construction in Collaboration with Stakeholders

Production Systems Field

Professor	Masao Arakawa	1. Design Engineering 2. Multiple Decision Making and its applications 3. Design of Heuristic Search and its applications 4. Practice by Design Thinking 5. Design of Data Mining and its applications
Professor	Kenji Hashimoto	1. Problem-solving oriented robotics 2. Autonomous mobile system 3. Mobile robot (legged robot, wheeled robot) 4. Humanoid robot 5. Mechatronics 6. System integration
Professor	Kazuma Mawatari	Micro- and Nanofluidic Engineering 1. Mobile chemical and bioanalysis device 2. Biomimetic device 3. High-performance bio-analysis device 4. Medical diagnosis device 5. In air and realtime virus detection device
Professor	Takeo Miyake	1. Smart contact lens using integrated circuits 2. Wearable biofuel cell using enzyme catalysts 3. H ⁺ -mediated control of biofunction with electrochemical pH modulation 4. DDS system with nanostraw membrane
Professor	Eiichiro Tanaka	1. Automatic Remote Diagnosis of Gear Driving System Using a Small Laser Sensor 2. Development of a Walking Assistance Device for Gait Training of Patients and Promotion Exercise of the Elderly 3. Development of Various Assistance Devices for ADL, lifting up and standing up, etc.
Professor	Shigeyuki Tateno	1. Development of fault detection and diagnosis systems for chemical plants 2. Estimation of Corrosion Rates for Corrosion Under Insulation in Petrochemical Plants 3. Wireless Communication support system for rescue actions 4. Development of on-demand PC BTO systems
Professor	Kenji Ueda	1. Semiconducting materials and devices 2. Thin film growth 3. Carbon electronics 4. AI electronics
Professor	Takayoshi Shimura	1. Semiconductor devices, materials, and processes characterization 2. Development of synchrotron radiation technology 3. Development of optoelectronic integrated devices 4. Development of germanium based devices
Professor	Junko Takahashi	1. Development of therapeutic methods using radiation responsive organic compounds (radiosensitizers) 2. Analysis of micro changes of physiological status 3. Bioinformatics
Lecturer	Gabor Mehes	1. Bacterial electronics devices (energy conversion, sensing) 2. Extracellular electron transfer 3. Bioelectrode engineering by organic electronics materials

Integrated Systems Field

Professor	Tamio Ikehashi	Micro Electro-Mechanical Systems(MEMS) 1. MEMS Sensors(accelerometer, vibrometer, gravimeter, gyro, etc) 2. Sensor system(pressure/height monitoring) 3. Actuator devices 4. FEM simulation 5. MEMS fabrication
Professor	Takeshi Ikenaga	1. Ultra High Speed Vision System 2. 3D Human/Sports Analysis 3. 6DoF Object Tracking 4. Video Filter 5. Video Compression
Professor	Shinji Kimura	High Level System LSI Design and Verification, Design for Testability
Professor	Shoji Makino	1. Blind Source Separation 2. Speech Enhancement 3. Speech Dereverberation 4. Microphone Array 5. Acoustic Scene Analysis 6. Acoustic Event Detection 7. Acoustic Scene Classification
Professor	Toru Tanzawa	Greening of integrated systems, especially on 1) Energy harvesting technology, 2) Semiconductor memory system, 3) Analog circuit system, 4) Power conversion system
Professor	Shintaro Yamasaki	1. Structural optimum design of various integrated devices such as power semiconductors and optical MEMS 2. Integrative optimal design of integrated systems composed of integrated devices 3. Optimal design of other devices
Professor	Toshihiko Yoshimasu	1. RF IC circuit design methodologies such as power amplifiers, VCOs, filters, and so on 2. RF transistor modeling for SiGe HBTs, Si CMOS, and so on
Associate Professor	Takaaki Kakitsuka	Information-communication systems employing light emitting devices 1. Semiconductor lasers and light emitting devices 2. Optical circuit design 3. Nanophotonics 4. Optical signal processing
Associate Professor	Kiyoto Takahata	Opto-electronic integration technology 1. Opto-electronic integrated circuits 2. High functional optical devices 3. Photonic microwave/millimeter-wave devices
Associate Professor	Kazunori Serita	1. Terahertz sensing applications 2. Terahertz imaging applications 3. Terahertz sensor development using metamaterials 4. Terahertz integrated device development
Lecturer	Shinichi Nishizawa	1. Computer-Aided Design related to VLSI physical design: cell library design, timing analysis, variation aware design, low voltage and low energy design techniques 2. Process variation and aging induced transistor performance variation evaluation and its monitor circuit

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Position	Name	Main Research Theme
Junior Researcher	Hidekatsu Tazawa	1. Microdevice for Environmental Analysis 2. Microdevice for Epigenome Analysis 3. IoT Platform and Analytical Devices
Assistant Professor	Saman Azhari	1. CNT/PDMS nanocomposites for pressure sensing and robotics 2. topological effects of SWNT-POM reservoir computing on temporal information processing 3. wireless power transfer for sensors 4. synthesis and characterization of carbon nanotubes
Assistant Professor	Weinan Feng	1. Nano particle manipulations by micro bowtie core optical fibers 2. Highly efficient nano-optical spot generation in non-metallic tips 3. Ultralong nanojet generation by inverse design method
Assistant Professor	Weilian Zhou	1. Image processing 2. Hyperspectral imaging with deep learning 3. Remote sensing
Research Associate	Dongchen Li	1. Autopilot 2. Pedestrian Prediction 3. Large Language Model
Research Associate	Yang Cui	1. Near infrared fundus imaging system with light illumination from electric contact lens 2. Split-Ring Resonator biosensor for biomarker detection
Research Associate	Zhendong Du	1. Construction of academic English writing assistant 2. Academic English corpus analysis 3. Construction of language model
Research Associate	Jun Yang	1. Development and application of data-driven topology design with high robustness and efficiency 2. Prediction of DDTD parameters based on deep learning
Research Associate	Ryoichi Ohta	Micro- and Nanofluidic dic Engineering 1. High-performance bio-analysis device 2. Micro/Nano fabrication 3. Medical diagnosis device

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Position	Name	Main Research Theme
Recycling and Eco-Technology		
Professor	Yasuo Yanagibashi	Water Supply System, Odor Measurement
Associate Professor	Kazuo Tameda	Waste Management System, Total system for the landfill

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Main Research Theme

- ◇Research and development function
Studies improving social system concerning waste disposal, such as separate collection, recycling technology, are carried out synthetically by cooperating with industries, governments, universities, and citizens.
- ◇Practice support function
Regional development and making the result of the research achieved by a joint research are supported.
- ◇Environmental information function
Information on recycling technology and the social system are sent, and the measure of related each subject for the construction of the recycling society is supported.



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