

**Department of Policy and Planning Sciences**  
**Master's Program in Policy and Planning Sciences**

Field of Research	Faculty	Detailed Description of Research Field
	AKIYAMA, Eizo	Evolutionary game theory, Dynamical systems theory, Agent-based simulation.
	ARITA, Tomokazu	Industrial location, Agglomeration economies, Urban and regional policies, City planning systems.
	ITOIGAWA, Eiichi	Urban disaster mitigation planning: Mathematical modeling of urban disaster mitigation, risk assessment of urban disaster.
	SATO-ILIC, Mika	Multi-dimensional data analysis, statistics: clustering based on latent structure models for similarity data, fuzzy clustering, and multi-way data theory.
	OHSAWA, Yoshiaki	City Planning through IoT, Infrastructure asset management, Spatial voting equilibrium, Quantitative analysis on landscape, Spatial competition and harmonization in Europe, Location Theory
	OKAMOTO, Naohisa	Tourism Science, Transportation planning, Transport Policy, Travel Behavior Analysis and Demand Forecasting, Evaluation on Infrastructure Development
	SHIGENO, Maiko	Mathematical programming, combinatorial optimization, Network flow theory, Algorithm engineering.
	SUZUKI, Tsutomu	Urban Analysis, Facility Planning, Location Analysis, Environmental Modeling, Geographical Information Science.
	TANIGUCHI, Mamoru	Compact city, Sustainable urban and regional planning, Management of urban layout, National land-use plan, Social capital.
	ZHANG, Yongbing	Resource allocation and management in parallel/distributed systems, mobile and pervasive computing, wavelength routing in optical networks.
	TSUTSUMI, Morito	Spatial Statistics, Spatial Econometrics, Geospatial Information Sciences, Economic analysis of infrastructure investment, Industrial location, Urban modeling, Local government/Public facilities management
	ONAKAMURA, Yutaka	Theory and applications in decision making under uncertainty.
	FUJIKAWA, Masaki	Spatial composition of early modern cities and modernization of traditional cities.
	MIAO, Ying	Combinatorial design theory and its applications to coding theory, Cryptography and DNA library screening.
	MURAKAMI, Akinobu	Urban and rural planning history, Evaluation of the role of urban greenery in environmental conservation, Urban landscape planning.
	YOSHISE, Akiko	Mathematical optimization and its applications, Algorithms for solving conic optimization problems

Field of Research	Faculty	Detailed Description of Research Field
	WATANABE, Shun	Architectural and urban planning toward the highly-networked information society, Development of intelligent information systems for their planning and design.
	WATANABE, Shinichiro	Studies on person-situation interactions and organizational behavior.
	AMEMIYA, Mamoru	Environmental design and community planning for crime prevention, Planning and management of residential environment in depopulating society
	ANDO, Hiroyasu	Mathematical modeling of bio-inspired complex networks and its application to social systems
	IKUINE, Fumihiko	management of product development, MOT (management of technology), Innovation
	ISHII, Kenichi	Social psychology of consumer behavior; Diffusion and adoption of information media; Use of mobile communications; Nation branding.
	UEICHI, Hiedo	Individual differences and decision-making, risk perception, cognitive psychology, emotion.
	UMEMOTO, Michitaka	Countermeasures against infrequent risk in urban and regional area: Evacuation planning, Disaster information, Regionals' countermeasures against nuclear disaster, Perception of disaster risk.
	OKUBO, Masakatsu	Empirical study on intertemporal consumption decisions, Application of time series econometrics.
	OTA, Mitsuru	Selforganization of spatial economic system and structural change.
	OKADA, Yukihiko	Management accounting in service organizations. Service target costing.
	OKUSHIMA, Shinichiro	Environmental economics, Energy economics, Policy analysis, Environmental ethics, Inequality analysis, Decomposition methodology.
	KAIDA, Naoko	Pro-environmental Behavior; Economic Valuation of Environmental and Natural Resources; Built Environment Systems; Environmental Governance; International Environmental Cooperation
	KURATA, Hisashi	Research on marketing-operations interfaces in a supply chain system.
	KURINO, Morimitsu	Matching market design, Experimental economics, Game theory, Microeconomics
	KONISHI, Yoshifumi	Empirical microeconomics, Applied econometrics, Transportation and environment
	KOBAYASHI, Yusuke	Combinatorial optimization, Graph algorithm, Discrete structure
	SAWA, Ryoji	Evolutionary game theory, Cooperative games, Behavioral game theory.

Field of Research	Faculty	Detailed Description of Research Field
	TANIGUCHI, Ayako	Attitude and behavioral modification concerning urban transportation planning, Risk communication towards disaster preventional behavior, Mobility management.
	TURNBULL, Stephen John	Internet economy (equipment and system organization; electronic commerce), Economic environment of open source software.
	HACHIMORI, Masahiro	Discrete Mathematics, Combinatorics, Analysis of discrete structures
	HARADA, Nobuyuki	Theory and analysis about the dynamic state and policy of small and medium-sized enterprises, Positive analysis of Japanese economy and industry.
	FUJII, Sayaka	Urban Planning, Urban and Community Planning of Neighborhoods, Living Environment in Aging Housing Estates, Community Business Utilizing Local Resources.
	MATSUBARA, Kosuke	Urban planning, planning history, Urban planning in Asia and Africa.
	YAMAMOTO, Sachiko	Management system of building stocks, Regional facility planning, Community design with the urban-rural exchange.
	<b>【KAWASHIMA, Hiroichi】</b>	Public-sector management, Open data, Public information-driven innovation generation, city development strategies, local government information policy making.
	<b>【ARIMA, Sumika】</b>	Supply chain management, Logistics.
	<b>【KONDO, Fumiyo】</b>	Research on the state of the profit management in a service organization. Theoretical and empirical research of a service cost plan.
	<b>【ANNO, Hidekazu】</b>	Matching market design, Game theory, Microeconomics
	<b>【IGARASHI, Gaku】</b>	Nonparametric density estimation
	<b>【USHIJIMA, Koichi】</b>	Empirical analysis of investment in child human capital, residential choice, health investment, educational investment.
	<b>【KITO, Tomomi】</b>	Complex network science, Agent-based modelling, Emergent systems, Inter-firm network analysis and firms' strategy planning, supply chain management
	<b>【SANO, Yukie】</b>	Physics of socio-economic systems, Social media
	<b>【TRAN, Lam Anh Duong】</b>	International Economics, Economic Growth, Income Distribution
	<b>【PHUNG-DUC, Tuan】</b>	Applied Probability, Stochastic Models, Performance Evaluation, Queueing Theory, Operations Research

Field of Research	Faculty	Detailed Description of Research Field
Visiting Professor of Cooperative Graduate School	KOBAYASHI, Hiroshi (National Institute for Land and Infrastructure Management)	Road Design, Traffic Safety Analysis and Measures, Bicycle Traffic, Community Road
	KONDO, Yoshinori (National Institute for Environmental Studies)	Evaluation of electric vehicles in actual uses, Proposal of environmental conscious traffic and life style.
	HASEGAWA, Hiroshi (National Institute for Land and Infrastructure Management)	Housing policy, Housing market trend analysis, Management of housing estates, Housing refurbishment.
	MATSUHASHI, Keisuke (National Institute for Environmental Studies)	Integrated planning of sustainable region and transport, Public involvement.
	MENO, Fumitake (Building Research Institute)	Housing policy in collaboration with welfare, Housing supply and support by NPOs, Disaster reconstruction of houses and areas, Urban and community planning by residents.
	YAMANO, Hiroya (National Institute for Environmental Studies)	Spatio-temporal dynamics of environment and ecosystems based on fieldwork and remote sensing, Biodiversity and ecosystem conservation
	ISHII, Norimitsu (Building Research Institute)	Evaluation and visualization of urban spatial structure, Urban and Regional management, Mathematical model of urban disaster mitigation.
	ONISHI, Masaki (National Institute of Advanced Industrial Science and Technology)	Computer Vision, Pattern Recognition, Human Behavior Recognition, Big data analysis, Visualization
	HASHIMOTO, Hiroyoshi (National Institute for Land and Infrastructure Management)	Travel Behavior Survey, Road Traffic Survey, Smoothing of road traffic.

○: Appointed until 31 March 2019

(Note)

Applicants cannot choose faculty members written in square brackets as a prospective supervisor directly, but, can choose them with the cooperation of faculty members who are not written in square brackets.

Applicants should contact an advisor whose research fields match to their interest in prior to the application.

[Contact Information]

e-mail: entexam\_pps@sk.tsukuba.ac.jp

Web: <http://www.sk.tsukuba.ac.jp/PPS/en/>

**Department of Policy and Planning Sciences**  
**Master's Program in Service Engineering**

Field of Research	Faculty	Detailed Description of Research Field
	ARITA, Tomokazu	Industrial location, Agglomeration economies, Urban and regional policies, City planning systems.
	OHSAWA, Yoshiaki	Management for local government, Infrastructure maintenance, Sports Management
	OKAMOTO, Naohisa	Transportation planning, Transport Policy, Tourism Science, Travel Behavior Analysis and Demand Forecasting, Analysis of Transportation Big Data
	SHIGENO, Maiko	Mathematical programming, combinatorial optimization, Network flow theory, Algorithm engineering.
	SUZUKI, Tsutomu	Urban Analysis, Facility Planning, Location Analysis, Environmental Modeling, Geographical Information Science.
	TANIGUCHI, Mamoru	Sustainable urban and regional planning, Management of urban layout, National land-use plan, Social capital.
	ZHANG, Yongbing	Resource allocation and management in parallel/distributed systems, mobile and pervasive computing, wavelength routing in optical networks.
	TSUTSUMI, Morito	Property valuation, Local government accounting, Public Facilities Management, Analysis on business transaction
	YOSHISE, Akiko	Mathematical optimization and its applications, Algorithms for solving conic optimization problems
	WATANABE, Shun	Architectural and urban planning toward the highly-networked information society, Development of intelligent information systems for their planning and design.
	WATANABE, Shinichiro	Studies on work-family interface, and person-situation relations in work organizations.
	AMEMIYA, Mamoru	Environmental design and community planning for crime prevention, Planning and management of residential environment in depopulating society
	ANDO, Hiroyasu	Mathematical modeling of bio-inspired complex networks and its application to social systems
	IKUINE, Fumihiko	management of product development, MOT (management of technology), Innovation
	UEICHI, Hiedo	Individual differences and situations on decision-making, Effect of emotion on decision-making.
	OKUBO, Masakatsu	Empirical study on intertemporal consumption decisions, Application of time series econometrics.
	OKADA, Yukihiko	Management accounting in service organizations. Service target costing.

Field of Research	Faculty	Detailed Description of Research Field
	KURINO, Morimitsu	Matching market design, Experimental economics, Game theory, Microeconomics
	KONISHI, Yoshifumi	Empirical microeconomics, Applied econometrics, Transportation and environment
	TURNBULL, Stephen John	Internet economy (equipment and system organization; electronic commerce business), Economic environment of open source software.
	FUJII, Sayaka	Community Business Utilizing Local Resources and Vitalizing Neighborhoods, Public Private Partnership in Urban Developments, Revitalization of Housing Estates.
	【KAWASHIMA, Hiroichi】	Open data, Public-sector innovation, Local government information strategy
	【ANNO, Hidekazu】	Matching market design, Game theory, Microeconomics
	【KITO, Tomomi】	Complex network science, Agent-based modelling, Emergent systems, Inter-firm network analysis and firms' strategy planning, supply chain management
	【SANO, Yukie】	Physics of socio-economic systems, Social media
	【PHUNG DUC, Tuan】	Applied Probability, Stochastic Models, Performance Evaluation, Queueing Theory, Operations Research
Visiting Professor of Cooperative Graduate School	ONISHI, Masaki (National Institute of Advanced Industrial Science and Technology)	Computer Vision, Pattern Recognition, Human Behavior Recognition, Big data analysis, Visualization

(Note)

Applicants cannot choose faculty members written in square brackets as a prospective supervisor directly, but, can choose them with the cooperation of faculty members who are not written in square brackets.

Applicants should contact an advisor whose research fields match to their interest in prior to the application.

[Contact Information]

e-mail: entexam\_pps@sk.tsukuba.ac.jp

Web: <http://www.sk.tsukuba.ac.jp/PPS/en/>

## Master's Program in Risk Engineering

Field of Research	Faculty	Detailed Description of Research Field
Total Risk Management	SATO-ILIC Mika	Multi-dimensional data analysis, statistics: clustering based on latent structure models for similarity data, fuzzy clustering, and multi-way data theory.
	ITOH Makoto	Systems safety: mutual trust and cooperation in human-machine systems, cognition, inference, and decision making under uncertainty or gray zone, perception and acceptance of risk.
	ENDO Yasunori	Fundamentals and applications of the following methods based on soft computing technique: systems: machine learning including clustering, fuzzy inference and fuzzy control, and risk analysis of uncertain systems by methodology of functional analysis.
	KAMEYAMA Keisuke	Pattern recognition, learning theory, and signal/image processing.
	FURUKAWA Hiroshi	Cognitive interface design: human interface to extend cognitive capability, navigation support, learning support, mental models.
	【MISAKI Hiroumi】	Statistics, econometrics and quantitative finance: high-frequency data analysis, volatility and covolatility of asset prices, financial risk management, state space models, and particle filters.
Cyber Risk	OMOTE Kazumasa	Network Security: malware countermeasure, risk assessment for cyber attacks, cloud security and sensor network security.
	KATAGISHI Kazuki	Wisdom information communication systems: Hyperfunctions-based "Fluency Information Theory", New Generation Network, Network security technologies.
	NISHIDE Takashi	Information security: design of public key encryption, cryptographic protocol, privacy-enhancing technology, method for securing information systems.
Urban Risk	ITOIGAWA Eiichi	Urban disaster mitigation planning: Mathematical modeling of urban disaster mitigation planning, risk assessment of urban disaster.
	SUZUKI Tsutomu	Location analysis and risk in urban planning: locational and spatial modeling of urban facilities, transportation networks, infrastructures, public services, urban growth and uncertainties.
	UMEMOTO Michitaka	Countermeasures against infrequent risk in urban and regional area: Evacuation planning, Disaster information, Regionals' countermeasures against nuclear disaster, Perception of disaster risk.

Field of Research	Faculty	Detailed Description of Research Field
Urban Risk	TANIGUCHI Ayako	Urban transport planning, Attitude and behavioral modification, Public acceptance, Risk communication, Mobility management.
Environmental and Energy System Risk	OKAJIMA Keiichi	New energy systems: LCA evaluation and reliability analysis of energy systems with new energy devices such as photovoltaic cell and fuel cell systems.
	HATANO Yuko	Fate and transport of pollutants in the natural environment. Remediation; adsorption; molecular dynamics simulations.
	SHOJI Gaku	Structural safety and system reliability assessment for lifeline infrastructures such as transportation networks, utilities, and communication networks in view of seismic and tsunami hazards, and mathematical modeling of public cognition for functional losses of critical infrastructures during an event.
	【SUZUKI Kengo】	Energy system: model analysis of electricity and heat supply system including renewable energy and micro-CHP; education and research of energy system by using gaming simulation.
	【TAKAYASU Akitoshi】	Verification methods for nonlinear mathematical models including mathematical models for environmental problems, Numerical analysis, Verified numerical computation.

(Note)

Applicants cannot choose faculty members written in square brackets as a prospective supervisor directly, but, can choose them with the cooperation of faculty members who are not written in square brackets.

Applicants should contact an advisor whose research fields match to their interest in prior to the application.

[Contact Information]

e-mail: entexam@risk.tsukuba.ac.jp

Web: [http://www.risk.tsukuba.ac.jp/index\\_eng.html](http://www.risk.tsukuba.ac.jp/index_eng.html)



## Master's Program in Computer Science

Field of Research	Faculty	Detailed Description of Research Field
Information Mathematics and Modeling	KAWABE Tohru	Control design: Theory and applications in robust control, receding horizon control, hybrid system, computational intelligence assisted control, etc.
	KITAGAWA Takashi	Numerical analysis: Numerical algorithms for inverse and illposed problems. Mathematical model of meaning and multimedia information system.
	KUNO Takahito	Mathematical optimization: Numerical algorithms for globally solving nonconvex optimization problems.
	SAKURAI Tetsuya	Computational Mathematics, Numerical Mathematics for Computers, Parallel Computing Algorithms for Supercomputers, Algorithms for Large-scale Data Analysis, Computational Science, Mathematical Software.
	TOKUNAGA Ryuji	Chaos, fractals and bifurcation theory. Computer amusement oriented elementary technologies.
	CAI Dong Sheng	Multimedia using artificial life theory. High performance computing and parallel computing for space simulation. Imaging using chaos and fractals.
	SANO Yoshio	Discrete Mathematics and Mathematical Optimization: Structure and Algorithms in Network Optimization.
	【AIHARA Ikkyu】	Mathematical modeling of animal behavior and its applications: Nonlinear dynamics, Field recordings of animal calls, Sensor networks.
	【IMAKURA Akira】	Numerical analysis: Numerical algorithms for solving linear systems and eigenvalue problems.
Intelligent Software	OHYA Akihisa	Intelligent robots and sensing: Mobile robots working in humans' daily life environment, real world sensory information processing, networked robotics, cooperative multiple mobile robots.
	KAMEYAMA Yukiyoshi	Programming languages and symbolic logic: type system, metaprogramming, programming logic, program verification.
	MISUE Kazuo	Information visualization: visual interface, visual analytics, network visualization, graph drawing.
	UNNO Hiroshi	Program verification : model checking, type systems, program analysis, automated theorem proving.
	SHIZUKI Buntarou	Human-computer interaction: Visual programming and interaction techniques for end users.
	TAKAHASHI Shin	User interface software, Ubiquitous computing, Computer-supported cooperative work (CSCW).
	【MIZUTANI Tetsuya】	Program theory and musical informatics: Logical foundation of verification and analysis of realtime intellectual program systems and musical information.

Field of Research	Faculty	Detailed Description of Research Field
Intelligent Software	<b>【VASILACHE Simona】</b>	Software engineering, formal methods, human-computer interaction.
Software System	AMAGASA Toshiyuki	Database system, data engineering: XML/RDF Database, social media, and scientific database.
	KATO Kazuhiko	System software: distributed systems, operating systems, information security.
	KITAGAWA Hiroyuki	Database systems and data engineering : Information integration, Data mining, Information retrieval, Bigdata, Stream processing, and Scientific databases.
	LI Jie	Distributed/Parallel computer systems, mobile/ multimedia computing, computing networks, modeling and performance evaluation, reliability.
	ABE Hirotake	System Software, Distributed Systems, Computer Security, Computer Network.
	OYAMA Yoshihiro	Computer security, system software, operating systems, virtualization.
	OKA Mizuki	Web Mining, Social Network Analysis, Web Science.
	SHINJO Yasushi	Operating systems, distributed systems, virtualization, privacy protection, decentralized social networking services.
	HASEBE Koji	Applications of logic to computer science : Formal methods, distributed systems, multi-agent systems, game theory.
	HARAIKAWA Tomohiro	Networked appliances, embedded system, accessibility.
	MAEDA Atusi	Implementation of programming languages, garbage collection, runtime system, resource management.
	<b>【CHEN Hanxiong】</b>	Database system, knowledge-base system, e-education, information retrieval, knowledge discovery and data mining.
	<b>【FURUSE Kazutaka】</b>	Database systems, information retrieval, and data engineering.
	<b>【SHIOKAWA Hiroaki】</b>	Database systems and data engineering: Large-scale data analysis, Data mining, and Graph databases.
	<b>【TSUGAWA Sho】</b>	Network mining: Social network analysis, data mining in large-scale online communities, and design of network services utilizing social networks.
<b>【HAYASE Yasuhiro】</b>	Software Engineering : Program comprehension, software repository mining, software maintenance.	
Computer Architecture	TAKAHASHI Daisuke	High-performance computing: High-performance numerical algorithms on parallel computers and performance evaluation.
	TATEBE Osamu	Parallel and distributed system software, data-intensive computing, and high performance computing.

Field of Research	Faculty	Detailed Description of Research Field
Computer Architecture	BOKU Taisuke	Massively parallel and high performance computing systems : Massively parallel processing system architecture, cluster computing and its system software, performance evaluation in high performance computing.
	YASUNAGA Moritoshi	VLSI engineering: VLSI design and implementation of parallel and distributed systems and evolutionary systems.
	WADA Koichi	Parallel/distributed processing and computer architecture: Parallel computer architecture. Parallel and distributed processing system including parallel programming language processors and applications.
	KIMURA Shigetomo	Information communication engineering: Process algebra, network protocols and performance evaluation of communication systems.
	SHOUNO Kazuhiro	Analog integrated circuit and circuit theory: Highly linearized CMOS transconductors and complex filters.
	YAMAGIWA Shinichi	Algorithm and application development for stream data compression and AI technology for human/system movements. System integration techniques for embedded, parallel computing and stream computing systems.
	YAMAGUCHI Yoshiki	Reconfigurable architecture, computing, and highly efficient systems with high performance and low-power consumption applied to AI, encryption, IoT, and scientific applications.
	【SATO Akira】	Design and operation technology for academic network systems, information systems and computing systems.
	【TOMIYASU Hiroshi】	Making better use of significantly progressing microprocessors for parallel computer architecture after Age of vector supercomputers and massively parallel computers.
	【KANAZAWA Kenji】	VLSI Engineering, Reconfigurable computing, Accelerator for hard computation problems using reconfigurable LSI.
	【KOBAYASHI Ryohei】	FPGA applications, Reconfigurable Computing System, High-speed RTL Simulation.
	【SANNOMIYA Shuji】	Autonomous, parallel, and distributed processor architecture: Research on data-driven chip-multi-processor based on self-timed elastic pipeline.
	【TADANO Hiroto】	Numerical analysis: Numerical algorithms for large scale linear systems. Parallel computing for eigenvalue problems.
Media Engineering	KAMEYAMA Keisuke	Learning, adaptive information processing, signal / image encoding, and applications to retrieval and restoration.
	KUDO Hiroyuki	Image processing and medical imaging : Image and video processing, imaging science, medical imaging (CT,PET,MRI) and computer-aided diagnosis, intelligent image sensing, music and sound processing, mathematics of inverse problems.

Field of Research	Faculty	Detailed Description of Research Field
Media Engineering	MAKINO Shoji	Acoustic signal processing, Music signal processing, Computational auditory scene analysis: Blind source separation, Acoustic echo cancellation, Segregation, processing, synthesis, 3D reproduction, and retrieval of music, Technical realization of the cocktail party effect.
	MITANI Jun	CG and CAD : Geometric modeling, Human computer interface, Computational origami.
	KANAMORI Yoshihiro	Computer graphics, image editing techniques, computer-assisted creation of illustration and animation, non-photo realistic rendering (NPR), real-time rendering and visual simulation.
	TAKIZAWA Hotaka	Intelligent image processing: medical image recognition, computer-aided diagnosis, computer vision, 3-D object recognition.
	YAMADA Takeshi	Speech and acoustic information processing: speech recognition, sound scene understanding, multi-channel signal processing, media quality assessment, and e-learning.
	【SUZUKI Taizo】	Media signal processing: Image and video processing, source coding, multidimensional transform.
Intelligent System	△KANOH Hitoshi	Evolutionary computation, genetic algorithm, swarm intelligence, artificial life, intelligent transportation systems.
	SAKAI Ko	Computational vision: early-to-intermediate-level vision, perception of 3D structure, figure-ground segregation, cortical representation, cognitive neuroscience, and psychophysics.
	SAKUMA Jun	Machine learning and knowledge discovery: data mining, statistical learning, reinforcement learning, genetic algorithm, knowledge discovery from personal information, privacy-preserving data mining.
	FUKUI Kazuhiro	Pattern recognition and computer vision: Face recognition, 3D object recognition, human sensing, robot vision.
	YAMAMOTO Mikio	Natural Language Processing on the Web using statistical methods: Statistical machine translation and Web documents processing such as sentiment analysis.
	INUI Takashi	Natural Language Processing: Information extraction and knowledge acquisition from natural language data, opinion mining, and sentiment analysis.
	HINO Hideitsu	Machine Learning: Kernel Methods, Distance Metric Learning, Ranking Model, Dimension Reduction, Entropy Estimation, Sparse Representation.
	【ARANHA Claus】	Study of Artificial Intelligence, Machine Learning and Evolutionary Computation. Applications for Optimization, Bioinformatics and Gaming. Parallelization of Machine Learning Algorithms.

Field of Research	Faculty	Detailed Description of Research Field
Visiting Professors of Cooperative Graduate School	INO Shuichi (National Institute of Advanced Industrial Science and Technology)	Human machine interface, soft actuator technology, information accessibility, haptic interface design, healthcare and quality of life technology, rehabilitation engineering.
	SATO Mitsuhsa (Institute of Physical and Chemical Research (RIKEN))	High-performance parallel computing systems : Cluster computing, parallel programming systems such a OpenMP and HPF, benchmarking and performance evaluation of parallel computing systems, parallel and distributed computing on Grid
	SATOH Yutaka (National Institute of Advanced Industrial Science and Technology)	Ubiquitous vision, Robot vision, Stereo omnidirectional system (SOS).
	NAKADA Hidemoto (National Institute of Advanced Industrial Science and Technology)	Parallel computing, distributed computing, grid, cloud.
	TANIMURA Yusuke (National Institute of Advanced Industrial Science and Technology)	Parallel and distributed storage. Large-scale data processing. Cloud computing. Grid computing. E-science applications.

△: Appointed until 31 March 2019

(Note)

Applicants cannot choose faculty members written in square brackets as a prospective supervisor directly, but, can choose them with the cooperation of faculty members who are not written in square brackets.

Applicants should contact an advisor whose research fields match to their interest in prior to the application.

[Contact Information]

e-mail: exam@cs.tsukuba.ac.jp

Web: <http://www.cs.tsukuba.ac.jp/english/index.html>

## Master's Program in Intelligent Interaction Technologies

Field of Research	Faculty	Detailed Description of Research Field
System Design	MARUYAMA Tsutomu	Reconfigurable Computer Systems, Adaptive Complex System.
	MORITA Masahiko	Brain-like Computing, Neural Networks, Modeling Brain Functions.
	KAWASAKI Masahiro	Neuroscience, Cognitive Science, Psychology, Communication, Signal Processing.
	NOBUHARA Hajime	Computational Intelligence, Multimedia Processing, Advanced Sensing by UAV.
	HASEGAWA Manabu	System Modeling.
	NIIZATO Takayuki	Emergence, Learning and Collective Behavior.
	【SHIBUYA Takeshi】	Machine Learning, Reinforcement Learning, Multi-Agent System including Hardware Components.
Man-Machine System and Robotics	AIYAMA Yasumichi	Human-like Dexterous Robot Manipulation, Advanced Industrial Robot.
	IWATA Hiroo	Virtual Reality.
	KUZUOKA Hideaki	Computer Supported Cooperative Work, Groupware, Telepresence System, Human-Robot Interaction, Mixed Reality, e-Health, User Interface.
	SANKAI Yoshiyuki	Cybernetics: Fusion of Humans, Robots and Information Systems, Cybernetic Interface/Device/System, Big-Data & AI in Physical/Physiological/Life field, Biomedical Engineering.
	SUZUKI Kenji	Artificial Intelligence, Autonomous Humanoid Robot, Human Assistive Technology, Music & Sound Media Technology, Kansei Research.
	TSUBOUCHI Takashi	Self-Contained Autonomous Mobile Robots, Outdoor Autonomous Mobile Vehicles.
	NAKAUCHI Yasushi	Human-Robot Interaction, Intelligent Environments, Sensor Network.
	HOSHINO Kiyoshi	Biomedical Measurement and Analysis, Mathematical Models for Biological System, Brain Science.
	YANO Hiroaki	Cooperative VR Environment, Virtual Reality, Assistive Technology.
	KAWAMOTO Hiroaki	Integration of Human and Robot, Biological Control Systems, Biological Motion & Physiology Analysis, Robot Therapy, Robot Safety.
	TANAKA Fumihide	Social Robotics, Human-Robot Interaction, Education Support, Development and Learning, Active Seniors.
	MOCHIYAMA Hiromi	Soft Robotics, Haptics Technology.
	【YAMASHITA Jun】	Application of Ubiquitous Computing to Remote Collaboration and Computer Supported Collaborative Learning.

Field of Research	Faculty	Detailed Description of Research Field
Man-Machine System and Robotics	【OSAWA Hirotaka】	Human-Agent Interaction, Artificial Intelligence, Human-Robot Interaction, Communication Game.
	【ZEMPO Keiichi】	Extension of Human Perception, Big Data Utilization and Integration based on Sensor Signals, Service Systems such as Recommendation and Anomaly Detection.
	【HASHIMOTO Yuki】	Tactile Interface, Tactile Perception, Interactive Technique, Virtual Reality, Telexistence.
Instrumentation and Control Engineering	HORI Noriyuki	Digital Control; Theory and Applications.
	YABUNO Hiroshi	Nonlinear Mechanical Systems, Nonlinear Control of Nano-Micro Machines, Bifurcation Control and its Applications.
	DATE Hisashi	Model Predictive Control for Nonlinear Systems, Autonomous Mobile Robot, Self-Driving System, Snake-Like Robot and Mechanical System Design.
	WAKATSUKI Naoto	Simulation based Visualization, Vibration Sensors and Actuators, Acoustical Engineering, Musical Acoustics, Inverse Problems.
	【MAEDA Yuka】	Non-invasive Measurement by Photoplethysmography, Developing Wearable Devices for Home Healthcare System.
	【YAMAGUCHI Tomoyuki】	Instrumentation Engineering, Robotics, Robot's Eye, Human Interface, Image Processing.
Communication System	UTSURO Takehito	Natural Language Processing, Web Mining, Information Retrieval, Human-Machine Communication by Speech and Language, Understanding and Creating Entertainment and Educational Contents, Language Processing by Deep Learning, Artificial Intelligence.
	KAMEDA Yoshinari	Massive Sensing, Intelligent Image Understanding / Processing, Multimedia Understanding, Model based Vision, Mixed Reality.
	KOGA Hiroki	Information Theory, Information Security.
	MIZUTANI Koichi	Medical Electronics, Welfare Technologies, Complement of Human Sensory Functions, Robot Sensing, Communication System in Sensing Grid, Environment Monitoring, Applied Optics, Applied Acoustics, Musical Acoustics, Food and Agricultural Engineering, Health Monitoring Engineering of Livestock.
	EBIHARA Tadashi	Communication and Information Engineering, Oceanic Engineering, Network Engineering.
	KAKEYA Hideki	3D Imaging, Information Display, Geometric Optics, Computer Aided Surgery, Media Technology, Natural Language Processing
KITAHARA Itaru	Real World Imaging, Free-Viewpoint Video, Mixed-Reality, Augmented Reality.	

Field of Research	Faculty	Detailed Description of Research Field
Communication System	HOSHINO Junichi	Entertainment Computing, Game Technologies, Storytelling Technologies.
Visiting Professor of Cooperative Graduate School	KITA Yasuyo (National Institute of Advanced Industrial Science and Technology)	Robot Vision, Visual Recognition of Soft Objects.
	KURATA Takeshi (National Institute of Advanced Industrial Science and Technology)	Mixed-Reality-Interaction Technology and the Service-Engineering Oriented Applications.
	GOTO Masataka (National Institute of Advanced Industrial Science and Technology)	Music Information Processing, Singing Information Processing, Media Interaction.
	SAKANASHI Hidenori (National Institute of Advanced Industrial Science and Technology)	Medical Image Processing, Computer-Aided Diagnosis (CAD), Clinical Decision Support, Pattern Recognition, Machine Learning.
	MURAKAWA Masahiro (National Institute of Advanced Industrial Science and Technology)	Sensor Network, Data Mining, Adaptive Algorithm, and the Applications to Structural Health Monitoring.
	YOSHIDA Eiichi (National Institute of Advanced Industrial Science and Technology)	Humanoid Robotics and its Application, Motion Planning and Optimization for Robots, Human Modeling and Simulation, Human-Centered Product Design.
	YODA Ikushi (National Institute of Advanced Industrial Science and Technology)	Intelligent Human Sensing by Computer Vision and Pattern Recognition, Gesture Interface, Video Surveillance, Media Art.
	KAMIMURA Akiya (National Institute of Advanced Industrial Science and Technology)	Modular Robot System, Decentralized Ad Hoc Wireless Network, Self-Organization System, and Infrastructure and Disaster Investigation Robot System.



Field of Research	Faculty	Detailed Description of Research Field
Visiting Professor of Cooperative Graduate School	KONDOH Shinsuke (National Institute of Advanced Industrial Science and Technology)	Development of Design Tools and Methodologies for Sustainable Design, Life Cycle Design, and Environmentally Conscious Design.
	HAMASAKI Masahiro (National Institute of Advanced Industrial Science and Technology)	Online Community System, Social Media Analysis, Web Mining, Semantic Web.
	MATSUMOTO Yoshio (National Institute of Advanced Industrial Science and Technology)	Service Robotics (Assistive Robotics and Rehabilitation Robotics), Evaluation, Real-Time Vision, Human-Robot Interaction, Android.

(Note)

Applicants cannot choose faculty members written in square brackets as a prospective supervisor directly, but, can choose them with the cooperation of faculty members who are not written in square brackets.

Applicants should contact an advisor whose research fields match to their interest in prior to the application.

[Contact Information]

e-mail : entexam@iit.tsukuba.ac.jp

Web : <http://www.iit.tsukuba.ac.jp/english/>

## Master's Program in Engineering Mechanics and Energy

Field of Research	Faculty	Detailed Description of Research Field
Solid Mechanics and Material Science	KAWAI Masamichi	Modeling and experiments for deformation and strength of fiberreinforced composite materials in aerospace structures and for inelastic and damage behavior of refractory metals in hightemperature components.
	KAMEDA Toshihiro	Computational mechanics which covers inverse analysis to obtain mechanical behavior of inelastic and/or inhomogeneous material, and finite element method based on stress-strain relationship database.
	△HORI Sankei	Major studies are machine tools, machining, and measurement method using an ultrasonic technique. For example, measurement of the cutting edge position of micro-tool.
	MATSUDA Akihiro	Study on development of design tool for sportswear and sports equipment using computational mechanics. Aging estimation of rubberlike material for electric power industry.
	MATSUDA Tetsuya	Study of multi-scale simulation techniques. Property evaluation of solid materials that exhibit microscopic internal structures using homogenization theory / finite element method based computational mechanics.
	【SHINTAKU Yuichi】	Numerical and experimental study on fracture mechanism of materials, development of crack propagation analysis using enhanced finite element method (FEM) such as finite cover method and s-version FEM, and strength evaluation on engineering product by its application.
Structure, Disaster Mitigation and Reliability Engineering	ISOBE Daigoro	Numerical and experimental studies on impact and collapse problems of structures, Parallel control of robotic mechanisms considering dynamics and structural strength, Application of computational mechanics and structural engineering essence to robotics.
	KANAKUBO Toshiyuki	Studies on structural performance of seismic, isolated or controlled structures. Development of high performance structural materials and new techniques for buildings and infrastructures.
	SAKAI Yuki	Studies on relationship between characteristics of strong ground motions and damage to structures and its application to earthquake damage mitigation.
	MATSUSHIMA Takashi	Mechanics of granular materials. Mechanics of liquefaction and debris flow. Mechanics of long-term geological formation. Mechanics of planetary surface processes.

Field of Research	Faculty	Detailed Description of Research Field
Structure, Disaster Mitigation and Reliability Engineering	SHOJI Gaku	Earthquake engineering and structural dynamics. Clarification on nonlinear seismic response of network systems subjected to extreme ground motions, development of seismic retrofit technologies, structural reliability and risk management for seismic design procedure.
	YASOJIMA Akira	Studies on performance evaluation and seismic evaluation technology of reinforced concrete buildings with focuses on maintenance and life extension
	ASAI Takehiko	Smart structural vibration control and self-powered control systems with energy harvesting technologies.
	【TANAKA Seizo】	Studies on development of numerical simulation methods for natural disaster prevention and reduction with high performance computing technologies
	【YAMAMOTO Kyosuke】	Studies on “Partial Safety Factor Method” , “Efficiency of Updraft Tower Power Generator” and “Structure Health Monitoring based on Vibration Analysis” for civil structures.
Fluid and Environmental Engineering	KYOTOH Harumichi	Micro-bubble generating devise: Curtain coating; Soil Contaminant removal by wet sorting.
	TAKEWAKA Satoshi	Field survey, numerical computations and remote sensing on coastal environments.
	SHIRAKAWA Naoki	River basin management with engineering and socioeconomic approaches. Environmental flow, environmental economics, decision making process.
	【KANAGAWA Tetsuya】	Theoretical basic studies on physical fluid mechanics: Bubble dynamics and Nonlinear acoustics.
Energy and Thermal Engineering	ABE Yutaka	Research on thermal hydraulic behavior and development of its application for active control of energy systems.
	ISHIDA Masayoshi	Development of high voltage insulation technique at high temperatures and high output generation systems using fuel cells are being studied to improve efficiency on energy conversion and transmission, and also ultra long HVDC.
	NISHIOKA Makihito	Based on reactive gasdynamics and aerothermochemistry, stabilities of fundamental laminar flames, formation mechanisms and reduction methods of pollutants such as NOx in flames are studied.
	MONJI Hideaki	Basic study and its application on dispersed two-phase flow; Drag force acting on a car in a line arrangement, High speed microbubble flow.
	AKI Hirohisa	Power and energy systems: studies on demand-side oriented energy systems and development of integrated-distributed energy management systems.

Field of Research	Faculty	Detailed Description of Research Field
Energy and Thermal Engineering	KANEKO Akiko	Study on fluid mechanism of multiphase flow based on the energy and environmental issue.
	FUJINO Takayasu	Research on application of magnetohydrodynamics and plasmadynamics to energy and aerospace engineering.
	YOKOTA Shigeru	Advanced space propulsion systems, such as electric propulsion or laser propulsion.
	【SHIMAMURA Kohei】	Aerospace and aeronautical engineering in terms of advanced energy technology: 1.Space propulsion (Laser propulsion) 2.Wireless power transmission for a flight object via magnetic coupling resonance.
	【TAKAHASHI Toru】	Research and development on predictive design techniques for power conversion circuits.
	【NAKAYAMA Tomonori】	Research and development on high efficiency energy storage/conversion/transportation system applied superconductivity and hydrogen technologies.
Visiting Professors of Cooperative Graduate School	ZHOU Haoshen (National Institute of Advanced Industrial Science and Technology)	Research on electrode active materials and electrolytes for energy storage technology.
	SUGITA Hiroyuki (Japan Aerospace Exploration Agency)	Research on active thermal control devices and efficient space cryocoolers for innovative spacecrafts.
	HARADA Yoshihisa (National Institute of Advanced Industrial Science and Technology)	Research and development of materials reliability performance based on damage evaluation for structural and processing components such as electric power plants or transportation.
	MATSUMOTO Satoshi (Japan Aerospace Exploration Agency)	Study on thermo-fluid phenomena utilizing the International Space Station, Non-linear dynamics of levitating drop.
	YOSHIDA Hiroyuki (Japan Atomic Energy Agency)	Research and development of large scale multi-phase computational fluid dynamics methods for thermal design and severe accident analysis of nuclear reactor.
	OHASHI Hirofumi (Japan Atomic Energy Agency)	Research and development on High Temperature Gascooled Reactor (HTGR) and thermochemical water splitting IS process to produce hydrogen using hightemperature nuclear heat from HTGR.
	SAKAKITA Hajime (National Institute of Advanced Industrial Science and Technology)	Research on medical, aerospace, energy and environmental applications using plasma technologies.

Field of Research	Faculty	Detailed Description of Research Field
Visiting Professors of Cooperative Graduate School	DENDA Masatoshi (The Public Works Research Institute)	Field survey, remote sensing analyses and numerical simulations on problems of river environments.
	MIZUTANI Tadahito (Japan Aerospace Exploration Agency)	Research on smart structures and structural health monitoring both for spacecraft and space transportation vehicles utilizing precise measurement technologies (e.g. fiber optic sensors).

△: Appointed until 31 March 2019

(Note)

Applicants cannot choose faculty members written in square brackets as a prospective supervisor directly, but, can choose them with the cooperation of faculty members who are not written in square brackets.

Applicants should contact an advisor whose research fields match to their interest in prior to the application.

[Contact Information]

e-mail : entexam@kz.tsukuba.ac.jp

Web : <http://www.kz.tsukuba.ac.jp/EME/e/index.html>