< Data science program will be established starting from Spring 2026 enrollment >

# Master's Program Faculty, Graduate School of Engineering, Kitami Institute of Technology

Engineering                                                                                                    Academic Year 2026

| Programs | Research Fields | Faculty | | Research Topics |
|---|---|---|---|---|
| Data Science | Data Science | (Prof.) | URA Sharifu | 3D Printing, Industry 4.0, Remanufacturing, Sustainable Product Development |
| | | (Prof.) | KONISHI Masaaki | Artificial intelligence technology in applied microbiology, biochemical engineering and process engineering. |
| | | (Prof.) | SAWADA Okihiro | Research on probability densities and stochastic partial differential equations from Mathematics and Statistics |
| | | (Prof.) | TOMIYAMA Kazuya | Road Asset Management based on Surface Informatics, Road and Transportation Assessment with Physiopsychological Information based on the Life-centered Design |
| | | (Prof.) | PTASZYNSKI Michal Edmund | Applications of Data Science, Generative AI, and Natural Language Processing to Real-World Problems (Natural Language Processing, Artificial Intelligence, Affective Computing, Cyberbullying and Online Harms Detection, Revitalization of Endangered Languages) |
| | | (Prof.) | HOSHINO Yohei | Application of AI and digital transformation to smart agriculture, application of AI to sports motion analysis and skill analysis, and application and development of other data analysis methods |
| | | (Prof.) | MASUI Hiroshi | Development of bus location system and data analysis based on public transportation open data, optimization of cloud-based collaboration platform using machine learning, utilization and analysis of academic information databases. |
| | | (Prof.) | MASUI Fumito | Tactical analysis and motion analysis in curling using data scienctific approach, development of advanced curling AI based on actual game data, tourism informatics focusing on content tourism using data scienctific apporpach |
| | | (Assoc. Prof.) | YU Yating | Research on mind-body stress assessment and reduction methods, Stress coping design for achieving work-life balance, Research on improving production efficiency in labor-intensive work |
| | | (Assoc. Prof.) | UENISHI Toru | The optimization and efficiency improvement of machine and plant systems, mechanical design, control, and material composition can be achieved through data-driven and image analysis |
| | | (Assoc. Prof.) | KABAYA Yuichi | Mathematics, Topology, persistent homology |
| | | (Assoc. Prof.) | KAWAMURA Takeshi | Research on information data utilization method and implementation using RFID system in ITS and forestry field. |
| | | (Assoc. Prof.) | KIRIHARA Takanobu | Formation and evolution of nearby galaxies by parallel numerical simulations of galaxy mergers and big data analysis. |
| | | (Assoc. Prof.) | KONDO Hiroko | Application of machine learning methods for the analysis of sequence-structure-function relationships in proteins, database construction and web application development |
| | | (Assoc. Prof.) | SHIBUKAWA Genki | Deep learning (various integrals, iterative calculation of series), special functions of matrix variables, symmetric functions |
| | | (Assoc. Prof.) | SHIBUYA Takatoshi | Astronomical image processing using artificial intelligence, Statistical analysis of big data on distant galaxies |
| | | (Assoc. Prof.) | SUGISAKA Jun-ichiro | Development of massively parallel pattern recognition system using light wave diffraction and development of programming language for electromagnetic field analysis and machine learning, |
| | | (Assoc. Prof.) | SUZUKI Ikuo | Emergence of information based on complex systems. |
| | | (Assoc. Prof.) | SONE Hiroyasu | Optical information transmission device using data science technology. |
| | | (Assoc. Prof.) | TAKEKOSHI Tatsuya | Scientific research on radio astronomy using data science approaches, and development of observational data analysis methods |
| | | (Assoc. Prof.) | TATEYAMA Kazutaka | Monitoring and future prediction of ice-covered sea environmental using satellite remote sensing and field observation data, forecasting of outstanding scenery occurrence using environmental data |
| | | (Assoc. Prof.) | NAKAMURA Fumihiko | Research on dynamical systems for the mathematical understanding of dynamic phenomena and its application to real data |
| | | (Assoc. Prof.) | MATSUDA Kazunori | Research on invariants of connected simple graphs using Python programming |
| | | (Assoc. Prof.) | RAVANKAR Abhijeet | Study of autonomous mobile robots, Artificial Intelligence (AI), Deep Learning, Machine Learning, Computer Vision, Robotics & AI in service, automation, and healthcare. |

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|---|---|---|---|---|
| Information and Communication Engineering | Wave Informatics and Communications | (Prof.) | KASHIWA Tatsuya | Numerical analysis of microwave circuits and antennas,Analysis of digital communication systems. |
| | | (Prof.) | HIRAYAMA Koichi | Research on numerical analysis and design of optical and microwave waveguide devices. |
| | | (Prof.) | YOSHIZAWA Shingo | Underwater acoustic communication and localization. |
| | | (Assoc. Prof.) | SUGISAKA Jun-ichiro | Hybrid artificial intelligence using holograms and computers, design of computer-generated hologram, and application of numerical scattering simulation |
| | | (Assoc. Prof.) | TAGUCHI Kenji | Study on biomedical EMC and optimal design of electromagnetic device using numerical simulation |
| | Information Science | (Prof.) | PTASZYNSKI Michal Edmund | Applications of Data Science, Generative AI, and Natural Language Processing to Real-World Problems (Natural Language Processing, Artificial Intelligence, Affective Computing, Cyberbullying and Online Harms Detection, Revitalization of Endangered Languages) |
| | | (Prof.) | MAEDA Yasunari | Knowledge information processing and its applications. |
| | | (Prof.) | MASUI Hiroshi | Development of bus location system and data analysis based on public transportation open data, optimization of cloud-based collaboration platform using machine learning, utilization and analysis of academic information databases. |
| | | (Prof.) | MASUI Fumito | Natural Language Processing and its application, Curling Informatics and Tourism Informatics. |
| | | (Assoc. Prof.) | KAWAMURA Takeshi | Stability analysis and synthesis for control system, Robotics, Intelligent Transport Systems(ITS), and Forest Engineering. |
| | | (Assoc. Prof.) | KIRIHARA Takanobu | Numerical astronomy, Nearby Universe, Formation and evolution of galaxies, Big data analysis for astronomy |
| | Information Optics | (Prof.) | KUROKAWA Kenji | Reliability of optical fiber when exposed to high-power light for ultra high capacity optical communication |
| | | (Prof.) | HARADA Kenji | Natural optical phenomena, information photonics and development of optical educational materials. |
| | | (Prof.) | MIURA Noriaki | Development of image restoration methods. |
| | | (Assoc. Prof.) | SAKAI Daisuke | Holography, Optical property around tranparent medium, Display technique for optical information. |
| | | (Assoc. Prof.) | SHIBUYA Takatoshi | Extragalactic Astronomy, Observational Astronomy, Early Universe, Big Data Analysis, Digital Image Processing, Artificial Intelligence |
| | | (Assoc. Prof.) | SONE Hiroyasu | Optical information processing using optical device. |
| | | (Assoc. Prof.) | TAKEKOSHI Tatsuya | Research on cosmic star formation, and the development of submillimeter instruments and data analysis methods |
| | | (Assoc. Prof.) | HARADA Yasuhiro | Optical instrumentation and manipulation of micro objects based on light scattering phenomena and its application. |
| | Mathematical Science | (Prof.) | SAWADA Okihiro | Theories of Partial Differential Equations |
| | | (Assoc. Prof.) | KABAYA Yuichi | Hyperbolic geometry and topology. |
| | | (Assoc. Prof.) | SHIBUKAWA Genki | Mathematics and numerics of various transformations and expansions, fast Fourier transform, Chebyshev expansion |
| | | (Assoc. Prof.) | NAKAMURA Fumihiko | Ergodic theory and Random dynamical systems |
| | | (Assoc. Prof.) | MATSUDA Kazunori | Commutative ring theory and Combinatorics |

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|---|---|---|---|---|
| Mechanical and Electrical Engineering | Thermal and Fluid Energy Engineering | (Prof.) | HAYASHIDA Kazuhiro | Improvement of engine combustion technology and engine performance under low temperature conditions. |
| | | (Prof.) | MORITA Shinichi | Latent heat storage system, Heat transfer enhancement of fluid including nano-sized dispersoid |
| | | (Assoc. Prof.) | UENISHI Toru | Carbon dioxide capture and recycling technology, Fuel cells, Exhaust gas aftertreatment systems |
| | | (Assoc. Prof.) | TAKAI Kazunori | Flow-Induced Vibration, Fluid-Structure Interactions. |
| | | (Assoc. Prof.) | MITO Yoichi | Analysis of transport mechanisms in fluid turbulence using numerical simulation. |
| | Electrical and Chemical Energy Engineering | (Prof.) | OHNO Tomoya | All solid state Li-ion battery. Ceramis Nano-coating on Nano-particles. |
| | | (Prof.) | OBARA Shinya | Hydrogen energy, Distributed power supply, Microgrid, Gas hydrate power system, Operation planning. |
| | | (Prof.) | TAKEYAMA Mayumi | 3D-Integration, Ultra-power-saving next-generation device |
| | | (Assoc. Prof.) | UMEMURA Atsushi | Design and analysis of wind energy conversion system,Analysis of power system dynamics, Analysis and control of rotating electrical machines. Control of power electronic equipments. |
| | | (Assoc. Prof.) | SAKAGAMI Hirotoshi | Manufacture of turquoise hydrogen and nanocarbon, Study on effective utilization of underutilized energy resources |
| | | (Assoc. Prof.) | SATO Masaru | 2.5D/3D LSI process engineering |
| | | (Assoc. Prof.) | TAKAHASHI Rion | Design and analysis of wind energy conversion system,Analysis of power system dynamics, Analysis and control of rotating electrical machines. |
| | | (Assoc. Prof.) | HIRAI Shigeto | Development and characterization of electrocatalysts for the activation of next generation energy conversion technologies |
| | | (Assoc. Prof.) | YASUI Takashi | Numerical analysis and design of optical waveguide devices. |
| | Design and Manufacturing Systems Engineering | (Prof.) | URA Sharifu | 3D Printing, Industry 4.0, Remanufacturing, Sustainable Product Development |
| | | (Prof.) | YOSHIDA Yutaka | Evaluation of defects in materials using electron microscope |
| | | (Assoc. Prof.) | KAWANO Yoshiki | Development of numerical methods and systems to evaluate mechanical propeties in materials and their application to metals and bones |
| | Computational Intelligence and Biomechanical Systems Engineering | (Prof.) | OKUMURA Takashi | Artificial intelligence in medicine Public health informatics Health crisis management Policy assessment for healthcare information systems |
| | | (Prof.) | HOSHINO Yohei | Study on vibration analysis and control for higher efficiency mechanical systems and application of robot technology |
| | | (Assoc. Prof.) | KAGAYA Katsushi | Cybernetics and biomimetics of organisms as adaptive systems evolved in extreme and real enviromentments |
| | | (Assoc. Prof.) | KANEKIYO Yasumasa | Design and synthesis of stimuli-responsive molecular recognition systems. |
| | | (Assoc. Prof.) | SUZUKI Ikuo | Emergence of information based on complex systems. |
| | | (Assoc. Prof.) | Liangliang YANG | Agricultual machinery, field vehicle type robots, Machine vision and AI in agriculture. |
| | | (Assoc. Prof.) | RAVANKAR Abhijeet | Study of autonomous mobile robots, Artificial Intelligence (AI), Deep Learning, Machine Learning, Computer Vision, Robotics & AI in service, automation, and healthcare. |

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|---|---|---|---|---|
| Civil and Environmental Engineering | Structural Engineering and Structural Materials | (Prof.) | INOUE Masumi | Study on durability and workability of cold weather concrete. |
| | | (Prof.) | CHOI Heesup | Study on behavior prediction and self-healing of cracks in concrete structure. |
| | | (Assoc. Prof.) | SAITO Takehiko | Study on seismic isolation devices and disaster prevention in cold regions. |
| | Geosphere Engineering | (Prof.) | KAWAGUCHI Takayuki | Study on ground behavior in cold regions and ground reinforcement. |
| | | (Prof.) | NAKAMURA Dai | Study on changes in physical properties of rock due to freeze. |
| | | (Prof.) | YAMASHITA Satoshi | Study on deformation and strength characteristics of geomaterials. |
| | | (Assoc. Prof.) | WATANABE Tatsuya | Study on periglacial processes and mass movement. |
| | Mobility Management Engineering | (Prof.) | TAKAHASHI Kiyoshi | Evaluation of transportation project. |
| | | (Prof.) | TOMIYAMA Kazuya | Evaluation of transportation infrastructure based on the Life-centered Design Approach |
| | Hydraulic Engineering | (Prof.) | KOMAI Katsuaki | Modeling on water resources management, water pollution, aquatic ecosysytem, and blue carbon |
| | | (Prof.) | YOSHIKAWA Yasuhiro | Study on flood control, water-utilization and environment of river in cold regions. |
| | | (Assoc. Prof.) | SHIRAI Hidekazu | Study on waves and current flows in estuarine and constal regions. |
| | Glaciology and Gas Hydrate Engineering | (Prof.) | KAMEDA Takao | Clarifying the impact of global warming on the Cryosphere (lake ice, snow depth and etc.), research on curling (analysis of trajectory of a curling stone, clarifying the sweeping mechanism), study on the stalagmites in Hyakujoujiki Cave, Hokkaido, Japan |
| | | (Prof.) | HACHIKUBO Akihiro | Thermal properties of snow, ice and gas hydrate. |
| | | (Prof.) | MINAMI Hirotsugu | Development of analytical methods for the determination of trace elements in material and environmental samples. |
| | | (Assoc. Prof.) | OHNO Hiroshi | Physicochemical properties of ice and gas hydrate |
| | | (Assoc. Prof.) | KIDA Masato | Study on clathrate hydrate-based technologies |
| | | (Assoc. Prof.) | SHIRAKAWA Tatsuo | Changes in snow and ice environments associated with climate change and its impact on transport. |
| | | (Assoc. Prof.) | TATEYAMA Kazutaka | Study on the ice covered seas environment using satellite and in-situ data. |
| | | (Assoc. Prof.) | HORI Akira | Environmental conservation and physical properties of ice in cold regions. |

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|---|---|---|---|---|
| Applied Chemistry | Advanced Materials Chemistry | (Prof.) | MURATA Miki | Synthesis of organoboron and - silicon compounds by transition - metal - catalyzed coupling reactions. |
| | | (Prof.) | WATANABE Shinji | Synthesis of aromatic polyester and polyether. Synthesis of polymer microsphere having mercapto groups. |
| | | (Assoc. Prof.) | KOHARI Yoshihito | Synthesis of biologically active compounds using organocatalysts |
| | | (Assoc. Prof.) | NAMIKOSHI Takeshi | Synthesis of functional polymeric materials by living polymerization. |
| | Advanced Materials Engineering | (Prof.) | OHTSU Naohumi | Development of biofunctional metallic implants for medical application, Analysis of bio/biomaterial interface reaction |
| | | (Prof.) | KAWAMURA Midori | Preparation and application of black metal films, Development of ultra-pure metal film deposition process, High-performance thin-film materials utilizing nanolayers |
| | | (Prof.) | KIM Kyung Ho | Optoelectronic devices based on nanostructures. |
| | | (Prof.) | SHIBATA Hiroyuki | Development of superconducing sensor and its application |
| | | (Assoc. Prof.) | KIBA Takayuki | Development and characterization of metal/semiconductor nanostructured materials and their application to optical devices |
| | Biotechnology and Food Engineering | (Prof.) | ARAI Hirofumi | Suppression of allergy and inflammation by food factors using cell lines. |
| | | (Prof.) | KONISHI Masaaki | Investigation and application for environmental microorganisums, development of bioprocess. |
| | | (Assoc. Prof.) | CHIOU Tai-Ying | Analysis and application of food microorganisms, and development of novel fermented food materials. |
| | | (Assoc. Prof.) | KONDO Hiroko | Computational biophysics and bioinformatics |
| | | (Assoc. Prof.) | FENG Chaohui | Development of an innovative meal added with flavonoids extracted from waste citrus peels and quality evaluation by using non-invasive detection |
| | | (Assoc. Prof.) | YOKAWA Ken | Bioengineering of plant environmental adaptation and metabolism |
| | Resource and Environment Chemistry | (Assoc. Prof.) | SHIMOTORI Yasutaka | Stereoselective synthesis of functional organic compounds and evalutation of their properties. |
| | | (Assoc. Prof.) | HATTORI Kazuyuki | Synthesis and analysis of biomolecules, especially carbohydrates and carbohydrate polymers. |
| | | (Assoc. Prof.) | MIYAZAKI Kensuke | Development of environmentally friendly polymer materials. |
| Management Engineering | Research and Development System | (Prof.) | UCHIJIMA Fumiko | Industry/Academia/Government cooperation, Corporate identity, Public relations |
| | | (Assoc. Prof.) | SAEGUSA Atsuhiro | Intellectual property |
| | Management for Social Implementation | (Assoc. Prof.) | YU Yating | Methods proposed for employee productivity improvement from the viewpoint of industrial engineering |