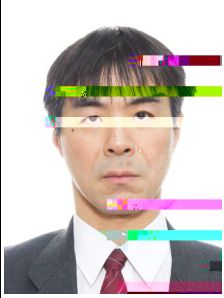
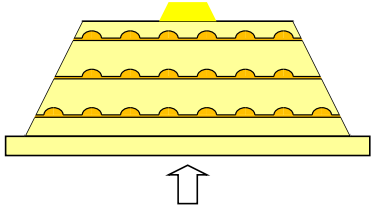






## Professor Information / 教員情報

(Graduate School of Engineering / 工学研究科)

Name 氏名	Ryuichi Katayama	Title 職位	Professor	
Major 専門分野	Applied optics, Quantum optical engineering			
Master's Program 修士課程	Information Electronics			
Doctor's Program 博士課程	Material Science and Production Engineering			
e-mail	r-katayama@fit.ac.jp	URL		
Research introduction 研究紹介	<p>Novel functional optical devices for high-performance optical systems (Joint research with companies)</p> <ul style="list-style-type: none"> <li>● Example 1 High-brightness projectors using solid-state light sources (High-efficiency optics by control of polarization and intensity distribution of light using photonic crystals)</li> <li>● Example 2 High-density heat-assisted magnetic recording (Formation of high-efficiency nano-light spot with plasmonic optical antenna using quantum dots)</li> </ul> 			
Publication list 論文リスト	<p>34 original papers with review including the followings</p> <ul style="list-style-type: none"> <li>● Ryuichi Katayama et al., "Simulation on Near-Field Light Generated by a Semiconductor Ring Resonator with a Metal Nano-Antenna for Heat-Assisted Magnetic Recording", Jpn., J., Appl., Phys., Vol. 58, No. SK, SKKB01 (2019).</li> <li>● Ryuichi Katayama, "Influence of Aberrations in Microholographic Recording", Opt. Eng., Vol. 54, No. 11, 117104 (2015).</li> <li>● Ryuichi Katayama et al., "Enhancement of Near-Field Light Generated by Metal Nanodot on Semiconductor Substrate for Heat-Assisted Magnetic Recording Heat Source", Jpn. J. Appl. Phys., Vol. 54, No. 9S, 09MG01 (2015).</li> <li>● Ryuichi Katayama, "Effect of Recording Beam Offsets in Microholographic Memory", Opt. Rev., Vol. 21, No. 5, pp. 687-693 (2014).</li> <li>● Ryuichi Katayama, "Simulation on Near-Field Light Generated by Metal Nano-Dot on GaAs Substrate for Heat Source of Heat-Assisted Magnetic Recording", Opt. Rev., Vol. 21, No. 5, pp. 568-575 (2014).</li> </ul>			
Other academic activities その他の学術活動	<ul style="list-style-type: none"> <li>● 2 book chapters, 18 conference proceedings, 75 presentations at international conferences (including 6 invited talks), 95 presentations at domestic conferences (including 1 invited talk), and 30 miscellaneous</li> <li>● 137 granted patents (75 Japan, 48 US, 12 Europe, and 2 China)</li> <li>● Chair and committee member for several international and domestic conferences, and editor and reviewer for several academic journals</li> </ul>			
Remark 備考	<ul style="list-style-type: none"> <li>● Received D.E. degree from the University of Tokyo in 1999</li> <li>● Experience for 27 years in research and development in NEC Corporation</li> </ul>			

## Professor Information / 教員情報

(Graduate School of Engineering / 工学研究科)

Name 氏名	Fumihiko Maeda	Title 職位	Professor
Major 専門分野	Surface, interface and thin films physics		
Master's Program 修士課程	Information Electronics		
Doctor's Program 博士課程	Material Science and Production Engineering		
e-mail	f-maeda@fit.ac.jp	URL	www.fit.ac.jp/~f-maeda/
Research introduction 研究紹介	<p>Graphene is a plane sheet with the thickness of one atomic layer in which carbon atoms forms honeycomb lattice networks. For the graphene, its excellent electrical properties had been theoretically predicted and about fifteen years ago, researches in UK succeeded to form this graphene and revealed the excellent electric properties. After this finding, many researchers noticed that the excellent electrical properties of the graphene caused by its thickness with an atomic layer. Then, the other atomic-layers of layered materials were fabricated and their interesting properties have been revealed. Now, researches in the world looked at these materials for the industrial application and their study has been accelerated explosively. One challenge for these materials is the establishment of the fabrication method for large scale and high quality atomic sheets to fit mass-production process.</p> <p>On the basis of this background of the atomic layer of layered materials, such as graphene, we have the following research project.</p> <ol style="list-style-type: none"> <li>1. Establishing a new low-cost growth method to form high quality and large-area graphene.</li> <li>2. Sensor application of the graphene especially utilizing graphene nanofin.</li> <li>3. Fabrication of devices, which are removed from layered material substrate and attached to the other semiconductor substrates.</li> </ol>		
Publication list 論文リスト	<p>104 original papers with review including the followings.</p> <ol style="list-style-type: none"> <li>1. F. Maeda, et al.: Very Gradual and Anomalous Oxidation at the Interface of Hydrogen-Intercalated Graphene/4H-SiC(0001), The Journal of Physical Chemistry C, 121, 26389-26396 (2017).</li> <li>2. F. Maeda, et al.: Core-level photoelectron spectroscopy study of interface structure of hydrogen-intercalated graphene on n-type 4H-SiC(0001), Physical Review B 88, 85422 (2013)</li> <li>3. F. Maeda, et al.: Molecular beam epitaxial growth of graphene using cracked ethylene -Advantage over ethanol in growth, Diamond and Related Materials 34, 84-88 (2013).</li> <li>4. F. Maeda, et al.: Molecular beam epitaxial growth of graphene and ridge-structure networks of graphene, Journal of Physics D: Applied Physics 44, 435305 (2011).</li> <li>5. F. Maeda, et al.: Growth of few-layer graphene by gas-source molecular beam epitaxy using cracked ethanol, Physica Status Solidi B 247, 916-920 (2010).</li> </ol>		
Other academic activities / その他の学術活動	1. Committee member of The Japan Society of Vacuum and Surface Science Kyushu Chapter		
Remark / 備考	1. Experience for 27 years of research and development in NTT R&D center		

Professor Information / 教員情報  
(Graduate School of Engineering / 工学研究科)

Name 氏名	Cunwei Lu 盧存偉	Title 職位	Professor
Major 専門分野	3-D Image measurement and pattern recognition		
Master's Program 修士課程	Information Electronics		
Doctor's Program 博士課程	Intelligent Information System Engineering		
e-mail	lu@fit.ac.jp	URL	www.fit.ac.jp/~lu
Research introduction 研究紹介	<p>(1) 3-D Camera(An Optimal 3-D Image Measurement system) and 3-D printer We measure the surface 3-D form and space 3-D coordinates of an object from one sheet digital photograph by use of optimal pattern light projection technique. The measurement result can be applied to broad fields, such as form measurement, quality control, and facial recognition, and can be applied also to 3D printer.</p> <p>(2) Image measurement and quality control of automobile body</p> <p>(3) Research about the measurement and the prediction of tsunami</p> <p>(4) Application of AI technology for 3D image</p>		
Publication / patent list 論文/特許リスト	<p>(1) C. Lu, L. Xiang: Optimal Intensity-Modulation Projection Technique for Three-Dimensional Shape Measurement, Applied Optics-IP, Vol.42, No.23, pp.4649-4657, August 2003.</p> <p>(2) C. Lu and G. Cho, 3-D Image Measurement by Combination of Monochrome-Projection Color-Analysis and OIMP Technique, Transactions of The Institute of Systems, Control and Information Engineers Vol.19, No.6, pp.233-240, 2006</p> <p>(3) C. Lu, H. Kamitomo, K. Sun, K. Tsujino, G. Cho: 3D Camera: Development and Applications of a 3D Image Measurement System, The transactions of the Institute of Electrical Engineers of Japan. C, pp.320-328, Vol.131, No.2, 2011</p> <p>(4) C. Lu and K. Tsujino, Automatic Measurement System Development of Crack and Dent for Used Car Body Panels, IEICE Trans. Inf.&amp; Syst. (Japanese Edition), Vol.J101-D, No.1, pp.124-134, 2018 *****</p> <p>(1) About 3-D camera, Japan: No.4883517,USA: US7,583,391 B2,China: ZL200580039510.9</p> <p>(2) 3-D image measurement for move object, Japan: No.4986679, China: 101646919B</p> <p>(3) Image measurement for automobile, Japan: No. 6099115, China: ZL201210417628.2</p>		
Other academic activities / その他の学術活動	<p>(1) Research about the measurement and the prediction of tsunami</p> <p>(2) 3-D facial recognition technique and its application for crime prevention system</p> <p>(3) 3-D shape measurement technique for high-temperature and large-size forging</p>		
Remark / 備考	<p>(1) Industry-university cooperation Research</p> <ul style="list-style-type: none"> <li>• Image measurement and quality control of automobile body</li> <li>• Form measurement and quality control of forge object</li> <li>• 3-D image measurement of the form and size for a building</li> </ul> <p>(2) Equipment: 3-D Camera, Multiple- spectrum Camera, 3-D Microscope, etc.</p> <p>(3) Scholarship: -420 8.-471.3.2f J2015 6270548.12 70q/GS0 gs J20062Tc 0 Tf62705----1 4</p>		


Professor Information / 教員情報

(Graduate School of Engineering / 工学研究科)

Name 氏名	Tadayuki AKAGI	Title 職位	Professor	
Major 専門分野	Investigation of mechanisms for the self-renewal ability of pluripotent stem cells			
Master'(n)- 修士課程	Life, Environment and Applied Chemistry			

## Professor Information / 教員情報

(Graduate School of Engineering / 工学研究科)

Name	Mikito Kitayama	Title	Professor	
Major	Materials Science (Ceramics)			
Master's Program	Life, Environment and Applied Chemistry			
Doctor's Program	Material Science and Production Engineering			
e-mail	kitayama@fit.ac.jp	URL	www.fit.ac.jp/~kitayama	
Research topics	<ol style="list-style-type: none"> <li>1. Ceramic filter (ceramic membrane and bio-filter)</li> <li>2. High thermal conductivity Si<sub>3</sub>N<sub>4</sub> ceramics</li> <li>3. Water treatment by the AOP (advanced oxidation process) using solid-state catalysts</li> <li>4. Solar fuel (water split by visible light)</li> <li>5. Dye-sensitized solar cell</li> </ol>			
Recent Publications	<ul style="list-style-type: none"> <li>• R. Shiraishi, Y. Ohta and <u>M. Kitayama</u>, "Development of Porous Silicon Nitride with Tailor-made Pore Structure for Bio-Filter: III. Control of Micro-pore," <i>J. MMIJ</i>, <b>128</b> [4,5] 173-77 (2012).</li> <li>• A. Kusuda <u>M. Kitayama</u> and Y. Ohta, "Catalytic Activities of Zeolite Compounds for Decomposing Aqueous Ozone," <i>J. Environ. Sci.</i>, (Suppl.) S141-145 (2013).</li> <li>• W. Ueta, Y. Ohta and <u>M. Kitayama</u>, "Development of Porous Silicon Nitride with Tailor-made Pore Structure for Bio-Filter: IV. Evaluation of permeability and bio-compatibility," <b>129</b> [5] 165-170 (2013).</li> <li>• W. Ueta, Y. Ohta and <u>M. Kitayama</u>, "Development of Porous Silicon Nitride with Tailor-made Pore Structure for Bio-Filter: V. Verification of the microbe consortium formation," <b>130</b> [6] 225-230 (2014).</li> </ul>			
Other academic activities	<p>Member of American Ceramics Society, Ceramic Society of Japan, Japan Institute of Metal, Mining and Materials Processing Institute of Japan Head of Kyushu Branch, Corrosion Engineering of Japan</p>			
Remark				

## Professor Information / 教員情報

(Graduate School of Engineering / 工学研究科)

Name 氏名	Junko Kuwahara	Title 職位	Professor	
Major 専門分野	Synthesis and Characterization of Soft Matter, Surfactants, Peptides and Biopolymers			
Master's Program 修士課程	Life, Environment and Applied Chemistry			
Doctor's Program 博士課程				
e-mail	j-kuwahara@fit.ac.jp	URL		


We are investigating a method of efficiently extracting gelatin and collagen by physical stimulation such as crushing and heating without using chemicals by acid and base as much as possible.

Research introduction  
研究紹介




## Professor Information / 教員情報

(Graduate School of Engineering / 工学研究科)

Name 氏名	Xing-Zheng Wu	Title 職位	Professor	
Major 専門分野	Analytical Chemistry, Environmental Analysis			
Master's Program 修士課程	Life, Environment and Applied Chemistry			
Doctor's Program 博士課程	Material Science and Production Engineering			
e-mail	wu@fit.ac.jp	URL		
Research introduction 研究紹介	<p>The following research projects are carrying out in my Lab.</p> <ol style="list-style-type: none"> <li>1) Preparation of functional Au nanoparticle and its novel application.</li> <li>2) Development of novel analytical methods for plants by making use of optical beam deflection and fluorescence</li> <li>3) Capillary electrophoresis and its application in determination of sugar and study of protein-protein interaction.</li> <li>4) Chemiluminescence methods for studying environmental and biochemical samples.</li> </ol>			
Publication list 論文リスト	<ol style="list-style-type: none"> <li>1. Improvements on the Fluorescence Quenching/Deflection Method for Real-time in situ Simultaneous Monitoring of Dissolved Oxygen and Material Movement-induced Beam Deflection in the Vicinity of an Aquatic Plant , Xing-Zheng WU, and Luwei HUANG, Anal. Sci., 34, 1335-1337 (2018).</li> <li>2. Real-time in-situ simultaneous monitoring of dissolved oxygen and materials movements at vicinities of an aquatic plant by fluorescence quenching/deflection with an improved calculation method Luwei Huang, Xing-Zheng Wu, SDRP Journal of Plant Science, 2 (2), 1-7 (2017).</li> <li>3. Real-time in-situ Simultaneous Monitoring of Dissolved Oxygen and Materials Movements at a Vicinity of Micrometers from an Aquatic Plant by Combining Deflection of a Probe Beam and Fluorescence Quenching Xing-Zheng Wu,* Xiaoyan Wu, and Tomomi Inoue, Anal. Sci., 33, 351-355 (2017)..</li> <li>4. Comparative studies on effects of acid solutions on aquatic plants by beam deflection and absorbance spectroscopy methods Xing-Zheng Wu, Liangjiao Nie, and Tomomi Inoue, Anal. Sci., 31, 837-840 (2015).</li> <li>5. Real-time Noninvasive Monitoring of UV Light-induced Cell Death by the Deflection of a Probe Beam</li> </ol>			
Other academic activities / その他の学術活動				

## Professor Information / 教員情報

(Graduate School of Engineering / 工学研究科)

Name 氏名	Kiyoshi Matsuyama	Title 職位	Associate Professor	
Major 専門分野	Chemical Engineering			
Master's Program 修士課程	Life, Environment and Applied Chemistry			
Doctor's Program 博士課程				
e-mail	matsuyama@fit.a c.jp	URL	www.fit.ac.jp/~matsuyam a	
Research introduction 研究紹介	<p>The objectives of our study were to develop the formation process of micro- and nano-scale porous and particle materials using supercritical fluid technology. In the addition to reducing organic solvent emissions, supercritical fluids offer a number of specific physical, chemical, toxicological advantages as alternative solvents for the production of advanced materials.</p> <ol style="list-style-type: none"> <li>1)Development of advanced nanoparticulate and porous materials using supercritical fluids</li> <li>2)Particle design of drug and supplement substance using supercritical fluids</li> <li>3)Extraction bioactive compounds from plants using supercritical fluids</li> <li>4)Thermodynamic modeling for chemical engineering</li> </ol>			
Publication list 論文リスト	<ol style="list-style-type: none"> <li>1)I.Ushiki, <u>K.Matsuyama</u>, R.L.Smith, Sustainable approaches for materials engineering with supercritical carbon dioxide, in: G. Szekely, A. Livingston(Eds.), Sustainable Nanoscale Engineering, Elsevier, Amsterdam, 2020, pp.395–414.</li> <li>2)<u>K.Matsuyama</u>, Supercritical fluid processing for metal–organic frameworks, porous coordination polymers, and covalent organic frameworks, <i>The Journal of Supercritical Fluid</i>, 134, 197–203(2018) invited review</li> <li>3)<u>K.Matsuyama</u>, M.Motomura, T.Kato, T.Okuyama, H.Muto, Catalytically active Pt nanoparticles immobilized inside the pores of metal organic framework using supercritical CO<sub>2</sub> solutions, <i>Microporous and Mesoporous Materials</i>, 225, 26-32(2016)</li> <li>4)<u>K.Matsuyama</u>, N.Hayashi, M.Yokomizo, T.Kato, K.Ohara, T.Okuyama, Supercritical carbon dioxide-assisted drug loading and release from biocompatible porous metal-organic frameworks, <i>Journal of Materials Chemistry B</i>, 2, 7551-7558(2014)</li> </ol>			
Other academic activities / その他の学術活動	<p>Editorial board member of <i>The Journal of Supercritical Fluids</i> (Elsevier)  <i>Plant Production Science</i> (Taylor &amp; Francis) Best Paper Award (2018)  <i>The Journal of Supercritical Fluids</i> (Elsevier) Editor-in-Chief's Featured Article Award(2015)</p>			
Remark / 備考	Our research group collaborate with companies such as Samsung Electronics, Toyota motor, Toyo Ink, Daicel etc.			

Professor Information / 教員情報

(Graduate School of Engineering / 工学研究科)

Name 氏名	Shijie Zhu	Title 職位	Professor	
Major 専門分野	Mechanical Behavior of Materials			
Master's Program 修士課程	Intelligent Mechanical Engineering			
Doctor's Program 博士課程	Material Science and Production Engineering			


## Professor Information / 教員情報

(Graduate School of Engineering / 工学研究科)

Name 氏名	Masayoshi Inoue	Title 職位	Professor	
Major 専門分野	Applied superconductivity for energy & environmental engineering			
Master's Program 修士課程	Electrical Engineering			
Doctor's Program 博士課程	Material Science and Production Engineering			
e-mail	ms-inoue@fit.ac.jp	URL	www.fit.ac.jp/~ms-inoue	
Research introduction 研究紹介	<p>1. Investigation of electro-magnetic properties in high-temperature superconducting materials. High-temperature superconducting materials, especially superconducting wires are very attractive for energy and environmental engineering because of those low energy loss and high current density. However, more high electro-magnetic properties are required for practical applications. We are investigating 1) current-voltage properties in a wide range of temperature and magnetic field, 2) critical current distributions by using scanning Hall-probe microscopy, 3) microstructures by using X-ray CT and several microscopes such as SEM and TEM.</p> <p>2. Engineering design of superconducting power applications Based on the above mentioned electro-magnetic properties, we design superconducting power applications such as Superconducting Fault Current Limiters (SFCL), Superconducting motor/generator, Superconducting cable and analyze the efficiency in individual operation and electric power grid.</p>			
Publication list 論文リスト	<ol style="list-style-type: none"> <li>1. "Enhancement of In-Field Critical Current Density of BaZrO<sub>3</sub>-Added (Y, Gd) BCO-Coated Conductors by Using a Multi-Coating TFA-MOD Method", IEEE Trans. on Applied Superconductivity (28) 2018</li> <li>2. "Study of Growth Process for YBa<sub>2</sub>Cu<sub>3</sub>O<sub>y</sub> Coated Conductors with BaZrO<sub>3</sub> Flux Pinning Centers by Monitoring Electrical Conductivity", IEEE Trans. on Applied Superconductivity (28) 2018</li> <li>3. "Current Capacity of Cu-Sheathed Multifilamentary Coated Conductors Under the Influence of Spatial Variation of Local Critical Currents in Each Filament", IEEE Trans. on Applied Superconductivity (28) 2018</li> <li>4. "Comparison between Bi-2223 tape and RE-123 coated conductor from the view point of current transport properties influencing thermal stability", Cryogenics (80) 2016</li> <li>5. "Three-Dimensional Analysis of MgB<sub>2</sub> Wire by use of X-ray Micro-Tomography", IEEE Trans. on Applied Superconductivity (26) 2016</li> </ol>			
Other academic activities / その他の学術活動	<ul style="list-style-type: none"> <li>• Vice Chairman of Planning committee, the Cryogenic and Superconductivity Society of Japan</li> <li>• General Secretary of Superconductor Division, the Japan Society of Applied Physics</li> <li>• Council member of Kyushu-branch, the Institute of Electrical Engineering of Japan</li> </ul>			
Remark / 備考				

## Professor Information / 教員情報

(Graduate School of Engineering / 工学研究科)

Name 氏名	Kazuhiro Ohyama	Title 職位	Professor	
Major 専門分野	Power electronics and motor control			
Master's Program 修士課程	Electrical Engineering			
Doctor's Program 博士課程	Electrical Engineering			
e-mail	ohyama@fit.ac.jp	URL	<a href="http://www.fit.ac.jp/">http://www.fit.ac.jp/</a>	
Research introduction 研究紹介	<ol style="list-style-type: none"> <li>1. This project develops a high efficient switched reluctance motor (SRM) and its inverter including control system to achieve the practical realization of high efficient SRM drive system for electric vehicle.</li> <li>2. Developments of sensorless switched reluctance motor (SRM) drives for electric vehicle are urgent issue to exploit robust feature of SRM. Therefore, this project develops sensorless SRM drives.</li> <li>3. This project converts a car using petrol engine to an electric vehicle. The electric vehicle employs the high efficient SRM drive system which is developed in the previous projects.</li> <li>4. Low cost power generation, reliability improvement, and environmental enhancement are urgent issues for developments of wind power generation systems. Therefore, this project proposes the wind generation system using the switched reluctance generator and capacitor-less AC-AC converter which brings solutions to the above-mentioned urgent issues.</li> <li>5. This project develops a generator and power converter for a hydraulic power generation system using flutter phenomena. This hydraulic power generation system will make efficient use of the hydraulic power of agricultural water passages.</li> <li>6. This project develops generation devices using dielectric elastomers. Mainly high voltage power converter and stepdown converter are treated to realize the high-efficiency power generation. The developed generation device will be applied to a wave-activated generation system in the final phase of this project.</li> <li>7. This project develops a flexible linear actuator (FLA) using a wire and coils which can have a motion like a muscle. The FLA will be applied to tendon-driven robots.</li> <li>8. Sensorless induction motor drives are widely used for electric vehicles, rolling plants, and general-purpose inverters. However, the sensorless induction motor drive systems do not have enough performance in very low speed and regenerating operation regions. Therefore, this project develops a novel control method to improve the performance of very low speed.</li> <li>9. This project proposes stability analysis and design methods of sensorless induction motor drive system which is used for electric vehicles, rolling plants, and general-purpose inverters.</li> </ol>			
Publication list 論文リスト	See following web pages <a href="https://researchmap.jp/read0191922/?lang=english">https://researchmap.jp/read0191922/?lang=english</a> <a href="https://www.fit.ac.jp/research/search/profile/edit_lang_division/E/id/57">https://www.fit.ac.jp/research/search/profile/edit_lang_division/E/id/57</a>			
Other academic activities / その他の学術活動	Members of IEEJ and IEEE Collaborative research with Meiwa Manufacturing Co.			
Remark / 備考				

## Professor Information / 教員情報

(Graduate School of Engineering / 工学研究科)


Name 氏名	Jiro Kitagawa	Title 職位	Professor
Major 専門分野	Magnetic and superconducting materials		
Master's Program 修士課程	Electrical Engineering		
Doctor's Program 博士課程	Electrical Engineering		
e-mail	j-kitagawa@fit.ac.jp	URL	<a href="http://www.fit.ac.jp/~j-kitagawa/">http://www.fit.ac.jp/~j-kitagawa/</a>
Research introduction 研究紹介	<p>1. Development of new magnetic materials Magnetic materials are widely used as permanent magnets or high permittivity materials in motor, transformer, hard disk, magnetic sensor, medical equipment and so on. Furthermore, magnetic materials play important roles in finding of novel phenomena. Our group is carrying out new-materials research on magnetic compounds, aiming at breaking new ground in applied and fundamental sciences.</p> <p>2. Materials research on new superconductors Superconductors are attractive from the basic and the practical view point. We are now carrying out the materials research on new superconductors based on the idea of microstructure or high-entropy alloys.</p> <p>In our group, we made a sample by arc melting or solid state reaction technique. After that we investigate the structure by an X-ray diffractometer and perform the metallographic examination by a FE-SEM. We measure the magnetic and transport properties by home-made system and VSM.</p>		

1. "New high-entropy alloy superconductor Hfba<sub>21.005</sub> Tc 0.005 Tw 0.446 0 0 11.04 62

Publication list  
論文リスト



## Professor Information / 教員情報

(Graduate School of Engineering / 工学研究科)

Name 氏名	Daisuke Tashima	Title 職位	Professor
Major 専門分野	Super capacitor, magnesium air fuel cell, battery		
Master's Program 修士課程	Electrical Engineering		
Doctor's Program 博士課程	Energy System Engineering		
e-mail	tashima@fit.ac.jp	URL	<a href="https://www.fit.ac.jp/~tashima/e_index.html">https://www.fit.ac.jp/~tashima/e_index.html</a>
Research introduction 研究紹介	<p>Studies on the use of electric double-layer capacitors (EDLCs) for use as energy storage devices are underway in Japan and other countries. EDLCs are a type of physical battery, and hence have attracted significant attention from the viewpoint of preventing global warming and satisfying the growing demand for energy. EDLCs, which contain activated carbon as the primary constituent, have a markedly longer life than normal batteries and have excellent discharge characteristics. In this research, we pay attention to carbon materials used for an electrode of a capacitor and develop a high-efficiency capacitor using new carbon materials from organic waste (Japanese distilled liquor waste, Food waste, Marine plastic). In addition, we study a new method to improve power density and energy density for magnesium air fuel cells (MAFCs). We are also studying MAFC and EDLC hybrid vehicle as shown in this Fig.</p>  <p>Research book published: _____, A. Samantara: "Supercapacitors for the Next Generation", IntechOpen, 2022</p>		
Publication list 論文リスト	<ol style="list-style-type: none"> <li>1. T. Omori, M. Nakanishi and _____, "High-Temperature Degradation Tests on Electric Double-Layer Capacitors: The Effect of Residual Voltage on Degradation", <i>Materials</i>, Vol.14, No.6, pp.1520/1-1520/10, March 2021</li> <li>2. _____, M. Hirano, S. Kitazaki, T. Eguchi, S. Kumagai, "Solution-plasma treatment of activated carbon from shochu distillery waste for electrochemical capacitors", <i>Materials Chemistry and Physics</i>, Vol.254, 123523, November 2020</li> <li>3. T. Eguchi, _____, M. Fukuma, S. Kumagai, "Activated carbon derived from Japanese distilled liquor waste: Application as the electrode active material of electric double-layer capacitors", <i>Journal of Cleaner Production</i>, Vol.259, 120822 June 2020</li> </ol> <p>total journals: _____, total international conferences: _____</p>		
Other academic activities / その他の学術活動	Journal reviewer: <i>Electrochemistry</i> , <i>Electrochimica acta</i> , <i>Journal of Physics and Chemistry of Solids</i> , <i>Journal of Solid State Electrochemistry</i> , <i>Materials Chemistry and Physics</i> , <i>Microporous &amp; Mesoporous Materials</i>		
Remark / 備考	Equipment: vacuum glove box(for making supercapacitor), battery charge-discharge tester, electrochemical measurement system		

## Professor Information / 教員情報

(Graduate School of Engineering / 工学研究科)

Name 氏名	Satoshi Kitazaki	Title 職位	Associate Professor	
Major 専門分野	Development of safe plasma devices for medical and agricultural field			
Master's Program 修士課程	Electrical Engineering			
Doctor's Program 博士課程				
e-mail	kitazaki@fit.ac.jp	URL	www.fit.ac.jp/~kitazaki	
Research introduction 研究紹介	<p>We have researched discharge plasmas for life science innovation.</p> <ol style="list-style-type: none"> <li>(1) Investigation of growth promotion of plants using discharge plasma irradiation.</li> <li>(2) Development of safety plasma irradiation devices for medical field.</li> <li>(3) Investigation of interaction between plasma and liquid using absorption spectroscopy method.</li> </ol> 			
Publication list 論文リスト	<ol style="list-style-type: none"> <li>(1) S. Kitazaki, A. Tanaka, N. Hayashi: Sterilization of narrow tube inner surface using discharge plasma, ozone and UV light irradiation, Vacuum, 110, pp. 217–220 2014/12</li> <li>(2) S. Kitazaki, T. Sarinont, K. Koga, N. Hayashi, M. Shiratani: Plasma induced long-term growth enhancement of Raphanus sativus L. using combinatorial atmospheric air dielectric barrier discharge plasmas, Current Applied Physics, 14, pp. S149-S153 2014/7</li> <li>(3) S. Kitazaki, K. Koga, M. Shiratani, N. Hayashi: Growth Control of Dry Yeast Using Scalable Atmospheric Pressure Dielectric Barrier Discharge Plasma Irradiation, Japanese Journal of Applied Physics, 51, pp. 11PJ02-1 - 4 2012/11</li> <li>(4) S. Kitazaki, K. Koga, M. Shiratani, N. Hayashi: Growth Enhancement of Radish Sprouts Induced by Low Pressure O<sub>2</sub> RF Discharge Plasma Irradiation, Japanese Journal of Applied Physics, 51, pp. 01AE01-1 - 4 2012/1</li> <li>(5) N. Hayashi, A. Nakahigashi, M. Goto, S. Kitazaki, K. Koga, M. Shiratani: Redox Characteristics of Thiol Compounds Using Radicals Produced by Water Vapor Radio Frequency Discharge, Japanese Journal of Applied Physics, 50, pp. 08JF04-1 - 5 2011/8</li> </ol>			
Other academic activities / その他の学術活動	<ol style="list-style-type: none"> <li>(1) Investigation of electrical discharge in mechanical oil to clarify electrical pitting mechanism.</li> <li>(2) Development of low breakdown voltage discharge electrode.</li> </ol>			
Remark / 備考	We have been doing collaboration research with Kyushu university.			



Professor Information  
(Graduate School of Engineering)

Name	Kyoichi Suzuki	Title	Associate Professor
Major	Semiconductor nanostructures		
Master's Program	Electrical Engineering		
e-mail	k-suzuki@fit.ac.jp	URL	
Research introduction	<p>As semiconductor devices develop and become highly integrated, the quantum mechanical properties, rather than the quantity of the electrons, mainly dominate their characteristics. As a result, the conductance quantization has been observed, such as quantum Hall effect and quantum point contact. In addition, recently, the materials, which have a topologically-different insulating state inside, called topological insulators, have been found. In the topological insulators, the inside insulating state and the outside one could not be connected due to their different topology. As a result, dissipation less, quantized transport is expected at the boundary.</p> <p>We have investigated electronic transport in semiconductor nanostructures and topological insulators. Particularly, we are now devoting to realize a topological insulating state in semiconductor heterostructures. For example, the usual semiconductor quantum well has a trivial insulating state when the Fermi level is in the band gap of the well layer. In contrast, by applying a large electric field, the conduction and valence bands overlap in energy. Due to the hybridization of the wavefunctions for both bands, the topologically insulating state should be realized artificially.</p>		

## Publication list

Gate-controlled Semimetal-Topological Insulator Transition in an InAs/GaSb Heterostructure, K. Suzuki *et al.*, Phys. Rev. B , 245309 (2015).

Edge Channel Transport in InAs/GaSb Topological Insulating Phase, K. Suzuki *et al.*, Phys. Rev. B , 235311 (2013).

Imaging of Interference between Incident and Reflected Electron Waves at an InAs/GaSb Heterointerface by Low-Temperature Scanning Tunneling Spectroscopy, K. Suzuki *et al.*, Jpn. J. Appl. Phys. , 2618 (2007). [Jpn. Soc. Appl. Phys. Paper Award 2008]

Spatial Imaging of Two-Dimensional Electronic States in Semiconductor Quantum Wells, Tf(878 .5 (EM.3 (8878 .5 (Eki0 Tc 0 T0.05 Tw 4.326 0TJ/TT II (ap) d01 80 r T

## Professor Information / 教員情報

(Graduate School of Engineering / 工学研究科)

Name 氏名	Masahiro Nakanishi	Title 職位	Asistant Professor
Major 専門分野	Soft Matter Physics		
Master's Program 修士課程	Soft Matter Physics		
Doctor's Program 博士課程	Soft Matter Physics		
e-mail	m-nakanishi@fit.ac.jp	URL	<a href="http://www.fit.ac.jp/research/search/profile/edit_lang_division/E/id/222">http://www.fit.ac.jp/research/search/profile/edit_lang_division/E/id/222</a>
Research introduction 研究紹介	<p>(i) Electrical Properties of Composite Materials Mixing several materials is practically important method to make materials which have both properties together. For example metal conductors are typically hard while insulating plastics are soft and bendable. Then mixing metals into plastics yields conducting soft materials. If the fraction of the minority component is far less than 1, electric property of the composite can be straightforwardly calculated by mean-field approach such as Maxwell-Wagner theory. As the fraction increases, this approach breaks down and correlation between particles plays central roll on the electrical properties of the composite. My group studies the electrical properties of conductor/insulator composites by broadband dielectric spectroscopy and seeks a route to go beyond the mean-field approach of composite materials.</p> <p>(ii) Molecular Dynamics of Soft Condensed Matter By means of broadband dielectric spectroscopy in the range from <math>\mu\text{Hz}</math> to sub THz, we study molecular dynamics of hydrated proteins, ice, ionic solutions, and their glass transition phenomena.</p>		

N. Yamamoto, S. Ito, M. Nakanishi, E. Chatani, K. Inoue, H. Kandori, K. Tominaga, *J. Phys. Chem. B*, 1367 (2018), "Effect of Temperature and Hydration Level on Purple Membrane Dynamics Studied Using B 29.8f.6 (na)-1 .44 0.48

Publication list  
論文リスト

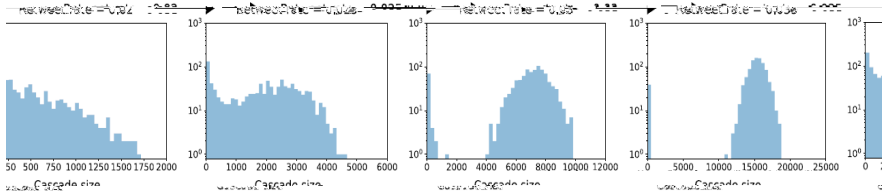

## Professor Information / 教員情報

(Graduate School of Engineering / 工学研究科)

Name 氏名	Makio Ishihara	Title 職位	Professor	
Major 専門分野	Human Computer Interaction			
Master's Program 修士課程	Information Engineering			
Doctor's Program 博士課程	-			
e-mail	m-ishihara@fit.ac.jp		www.fit.ac.jp/~m-ishihara/Lab	
Research introduction 研究紹介	<p>The research field of Human Computer Interaction focuses on how people use computers and discusses what makes them use computers intuitively, naturally, and comfortably. It is also known as User Interface.</p> <p>In my laboratory, the students take various approaches to answer the question using Head-Mounted Displays, Data-gloves, 3D Displays, HoloLens, Tobii Eye Tracker, Leap Motion, CAVE, Vicon Motion Tracker, AR techniques etc. The range of my research includes getting-lost problem, mixed reality, real-world oriented user interface, pointing interface, gamification, spatial Interface and the details of these topics are introduced on the laboratory homepage: <a href="http://www.fit.ac.jp/~m-ishihara/Lab/">http://www.fit.ac.jp/~m-ishihara/Lab/</a></p> <div style="display: flex; justify-content: space-around; align-items: center;">  <p style="text-align: center;">OpenGL + AR</p> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 10px;">    </div> <p style="text-align: center; margin-top: 5px;"> <b>Programming learning system    Evacuation training system    Texture creating system</b> </p>			
Publication list 論文リスト	<p>[1] M. Ishihara and R. Kawashima, Multi-Distance Function Trilateration over k-NN Fingerprinting for Indoor Positioning and Its Evaluation, <i>IEICE Trans.</i>, vol. e103-d, no. 5, pp. 1055-1066, 2020</p> <p>[2] Y. Mako and M. Ishihara, A long-arrow mouse cursor for sense of ownership and its evaluations, <i>IEICE Trans.</i>, vol. j102-d, no.12, pp. 812-821, 2019.</p> <p>[3] Y. Ishihara and M. Ishihara, Preliminary study on angular properties of spatial awareness of human in virtual space, <i>Proc. of the 24th ACM Symposium on Virtual Reality Software and Technology (VRST '18)</i>, 113, Nov. 2018</p> <p>[4] Y. Mako and M. Ishihara, Long arrow mouse cursor and its properties on SoO, <i>International Journal of Affective Engineering</i>, vol. 17, no. 4, pp. 221-225, 2018.</p> <p>[5] M. Ishihara and Y. Ishihara, Impact of viewing distance on task performance and its properties, <i>IEICE Trans.</i>, vol. e101-d, no. 10, pp. 2530-2533, 2018.</p> <p>[6] M. Ishihara and Y. Ishihara, A shadow cursor for calibrating screen coordinates of tabletop displays and its evaluation, <i>IEICE Trans.</i>, vol. e100-d no. 6, pp. 1271-1279, 2017.</p>			
Other academic activities / その他の学術活動				
Remark / 備考				


## Professor Information / 教員情報

(Graduate School of Engineering / 工学研究科)

Name 氏名	Kazumasa OIDA	Title 職位	Professor
Major 専門分野	Studies on security, social network, and blockchain technologies		
Master's Program 修士課程	Computer Science and Engineering		
Doctor's Program 博士課程	Intelligent Information System Engineering		
e-mail	oida@fit.ac.jp	URL	<a href="http://www.fit.ac.jp/~oida/index.html">http://www.fit.ac.jp/~oida/index.html</a>
Research introduction 研究紹介	<p>1. Malware analysis and detection We have been monitoring two smishing malware families, XLoader and FakeSpy, currently prevalent in Japan to mitigate damage caused by them.</p> <p>2. IP traceback over Tor We are conducting research to track attackers in order to deter crimes that exploit the anonymous network Tor.</p> <p>3. Bi-polarization in cascade size distributions We have been engaged in demonstrating the bi-polarization phenomenon by means of simulation studies and mathematically rigid formalization.</p>  <p style="text-align: center;">Bi-polarization at high retweet rates</p> <p>4. Secure UAV auto-pilot systems We are developing malware-free UAV auto-pilot software with a collision avoidance mechanism.</p>  <p style="text-align: center;">Botnet monitoring</p>		
Publication list 論文リスト	<ul style="list-style-type: none"> <li>✓ K. Oida, "Bi-polarization in cascade size distributions," IEEE Access, 9, 72867-72880, 2021.</li> <li>✓ Y. Pei, and K. Oida. "Tracing Website Attackers by Analyzing Onion Routers' Log Files," IEEE Access, 8, 133190-133203, 2020.</li> <li>✓ K. Oida and K. Okubo, "Adopter community formation accelerated by repeaters of product advertisement campaigns," IEEE Trans. Computational Social Systems, 6, 1, 56-72, 2019.</li> <li>✓ K. Oida, "Impact of network density on cascade size and community growth," Applied Network Science, 4.1, 29, 2019.</li> </ul>		
Other academic activities / その他の学術活動	Collaboration with Fukuoka Prefectural Police Headquarters on malware, Emotet, Tor analysis, etc. starting in 2019. Collaboration with the University of Toronto on the development of secure auto-pilot software.		
Remark /備考			

## Professor Information / 教員情報

(Graduate School of Engineering / 工学研究科)

Name 氏名	Takayoshi Shoudai	Title 職位	Professor	
Major 専門分野	Algorithmic Graph Theory and Machine Learning			
Master's Program 修士課程	Mathematics			
Doctor's Program 博士課程	Information Systems			
e-mail	shodai@fit.ac.jp	URL	<a href="https://gslt.cs.fit.ac.jp">https://gslt.cs.fit.ac.jp</a>	
Research introduction 研究紹介	<p>Recently, due to the rapid growth of available data, there are growing expectations and desires for discovering interesting and useful patterns which are hidden in datasets. Particularly, many researchers are interested in knowledge discovery from data having structures such as sequences, trees, or graphs. Graph-structured data widely appears in various practical fields. For example, HTML and XML texts can be expressed by ordered trees and chemical compounds can be expressed by graphs whose vertices and edges correspond to atoms and bonds between atoms respectively. For such graph data, graph mining and learning techniques for finding their characteristic structures will be useful for many practical applications.</p> <p>Our main research projects are as follows. (1) Design and analysis of efficient graph pattern learning algorithms for new and interesting graph pattern classes: A graph pattern is a graph-structured pattern with internal variables that represents a characteristic common structure in graph-structured data. (2) Development of graph generation models based on graph grammars: Our object is to design algorithms for mining interesting patterns in dynamic graphs. In addition, we are now studying graph neural networks (GNNs) in data mining and machine learning fields.</p>			
Publication list 論文リスト	<ol style="list-style-type: none"> <li>1. T. Shoudai, T. Miyahara, T. Uchida, S. Matsumoto, and Y. Suzuki, An Efficient Pattern Matching Algorithm for Unordered Term Tree Patterns of Bounded Dimension. IEICE Trans. Fundamentals, Vol.E 101-A, No. 9, pp.1344-1354, 2018.</li> <li>2. T. Shoudai, Y. Yoshimura, Y. Suzuki, T. Uchida, and T. Miyahara, Polynomial Time Learnability of Graph Pattern Languages Defined by Cographs. IEICE Trans. Inf. &amp; Syst., Vol.E101-D, No. 3, pp.582-592, 2018.</li> <li>3. T. Shoudai and T. Yamada, A Polynomial Time Pattern Matching Algorithm on Graph Patterns of Bounded Treewidth, IEICE Trans. Fundamentals, Vol.E100-A, No. 9, pp.1764-1772, 2017.</li> <li>4. T. Shoudai, S. Matsumoto, Y. Suzuki, Distributional Learning of Regular Formal Graph System of Bounded Degree, Proc. ILP2016, Springer, Lecture Notes in Artificial Intelligence, Vol.10326, pp.68-80, 2017.</li> </ol>			
Other academic activities / その他の学術活動	<p>The International Conferences on Inductive Logic Programming (ILP), A Member of Program Committee, 2004, 2006-2008, 2010-2018.</p> <p>The Best Paper Award, IIAI International Conference on Advanced Applied Informatics (IIAI AAI 2013)</p> <p>Certificate of Merit for the 2009 IAENG International Conference on Computer Science, International MultiConference of Engineers and Computer Scientists</p>			
Remark / 備考				

Professor Information / 教員情報

(Graduate School of Engineering / 工学研究科)

Name 氏名	Makoto FUKUMOTO	Title 職位	Professor	
Major 専門分野	Affective Computing, Soft Computing			


## Professor Information / 教員情報

(Graduate School of Engineering / 工学研究科)

	Hiroyuki Yamauchi	Title 職位	Professor
Major 専門分野	Ultra Low Energy Machine Learning for IoT-Edge AI Computing in AI Everywhere Era		
Master's Program 修士課程	Computer Science and Engineering		
Doctor's Program 博士課程	Intelligent Information System Engineering		
e-mail	yamauchi@fit.ac.jp	URL	www.fit.ac.jp/~yamauchi

## Professor Information / 教員情報

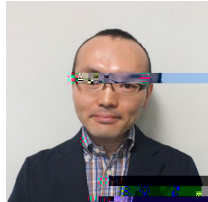
(Graduate School of Engineering / 工学研究科)

Name 氏名	Koji Toda	Title 職位	Associate Professor	
Major 専門分野	Software Engineering			
Master's Program 修士課程	Engineering			
Doctor's Program 博士課程	Engineering			
e-mail	toda@fit.ac.jp	URL	www.fit.ac.jp/~toda/	
Research introduction 研究紹介	<p>My research area is effort estimation for software project management in software engineering.</p> <p>In large project, schedule and cost management is indispensable, and estimation of the total development effort is the basis of such management. Therefore, high accuracy effort estimation (small difference between estimated and actual effort) is needed.</p> <p>So, my research main topic is statistical model based estimation and software development data analysis using statistics as sub topic.</p>			
Publication list 論文リスト	<p>Yukasa Murakami, Masateru Tsunoda, and Koji Toda, "An Empirical Evaluation of the Tobit Model on Software Defect Prediction," In Proc. of Applied Computing and Information Technology (ACIT 2016), pp.196-201, December 2016.</p> <p>Kwabena E. Bennin, Koji Toda, Yasutaka Kamei, Jacky Keung, Akito Monden and Naoyasu Ubayashi, "Empirical evaluation of cross-release effort-aware defect prediction models," In IEEE International Conference on Software Quality, Reliability and Security (QRS) pp.214-221 2016.</p> <p>Masateru Tsunoda, Koji Toda, Kyohei Fushida, Yasutaka Kamei, Meiyappan Nagappan, and Naoyasu Ubayashi, "Revisiting Software Development Effort Estimation Based on Early Phase Development Activities," In Proc. of Working Conference on Mining Software Repositories (MSR 2013), pp.429-438, May 2013.</p>			
Other academic activities / その他の学術活動	<p>Program committee member:</p> <p>3rd IEEE/ACIS Int'l Conf. on Big Data, Cloud Comp., and Data Science Eng. (BCD), 2017-2018</p> <p>4th Int'l Conf. on Applied Comp. &amp; Information Technology (ACIT 2016)</p>			
Remark / 備考				



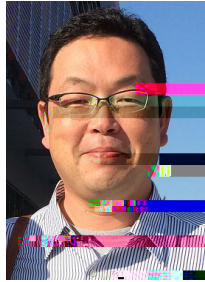
## Professor Information / 教員情報

(Graduate School of Engineering / 工学研究科)

Name 氏名	Yutaka Yamaguti	Title 職位	Assistant Professor	
Major 専門分野	Computational Neuroscience/ Complex systems			
Master's Program 修士課程	Computer Science and Engineering			
Doctor's Program 博士課程				
e-mail	y-yamaguchi@fit.ac.jp	URL	www.fit.ac.jp/~y-yamaguchi	
Research introduction 研究紹介	<p>Computational neuroscience is the theoretical study of the brain used to understand the principles and mechanism of information processing of the nervous systems. The progress of this research area has influenced the developments of artificial intelligence. We study computational neuroscience from the viewpoint of complex system study, such as theory of non-linear dynamical systems.</p> <p>Recent research topics are</p> <ul style="list-style-type: none"> <li>- Neural network model of functional differentiation in the brain</li> <li>- Analysis of brain signals</li> <li>- Computational modeling of hippocampus</li> <li>- Applications of reservoir computing</li> <li>- Pattern formation in tribology.</li> </ul>			
Publication list 論文リスト	<p>Ichiro Tsuda, Yutaka Yamaguti, Hiroshi Watanabe, Self-Organization with Constraints—A Mathematical Model for Functional Differentiation, <i>Entropy</i>, 18(3), 74 (2016)</p> <p>Yutaka Yamaguti, Ichiro Tsuda, Mathematical Modeling for Evolution of Heterogeneous Modules in the Brain, <i>Neural Networks</i>, 62, 3-10 (2015)</p> <p>Yutaka Yamaguti, Ichiro Tsuda, Yoichiro Takahashi, Information flow in heterogeneously interacting systems, <i>Cognitive Neurodynamics</i>, 8(1), pp 17-26 (2014)</p> <p>Hiromichi Tsukada, Yutaka Yamaguti, Ichiro Tsuda, Transitory memory retrieval in a biologically plausible neural network model, <i>Cognitive Neurodynamics</i>, 7:(5), pp. 409-416 (2013)</p> <p>Yutaka Yamaguti, Shigeru Kuroda, Yasuhiro Fukushima, Minoru Tsukada, and Ichiro Tsuda, A Mathematical Model for Cantor Coding in the Hippocampus, <i>Neural Networks</i> 24, 43-53 (2011)</p>			
Other academic activities / その他の学術活動				
Remark / 備考				


## Professor Information / 教員情報

(Graduate School of Engineering / 工学研究科)

Name 氏名	Hiroshi Maeda	Title 職位	Professor	
Major 専門分野	Numerical analysis techniques for propagation of electromagnetic wave			
Master's Program 修士課程	Communication and Information Networking			
Doctor's Program 博士課程	Intelligent Information System Engineering			
e-mail	hiroshi@fit.ac.jp	URL	<a href="http://www.fit.ac.jp/research/search/research/edit_lang_division/E/id/87">http://www.fit.ac.jp/research/search/research/edit_lang_division/E/id/87</a>	
Research introduction 研究紹介	<p>(1) Development of numerical analysis technique for composite media with large gap of material constants</p> <p>(2) Design and application of photonic crystal and periodic structure for signal processing in optical wave/microwave</p> <p>(3) Experimental study of photonic crystal and periodic structures in microwave frequency range</p>			
Publication list 論文リスト	<p>H. Maeda, "Numerical Technique for Electromagnetic Field Computation Including High Contrast Composite Material", as Chapter 3 of book entitled "Optical Communications", pp.41-54, edited by Narottam Das, InTech Open Access Publisher, ISBN 978-953-51-0784-2(2012 Oct.).</p> <p>(1) H. Maeda, "Simulation of Soliton Propagation in Slab Waveguide by Frequency Dependent FDTD Method", International Journal of Computer Systems Science and Engineering, Vol.25, No.2, pp.9-16(2010, Mar.)</p> <p>(2) Y. Zhang, H. Terashima, H. Maeda, "Study on X-Shaped Photonic Crystal Waveguide in 2D Triangular Lattice for WDM System", Journal of Mobile Multimedia, Vol.8, No.2, pp.105-113(2012, June)</p> <p>(3) H. Maeda, "Four-branching waveguide in 2D photonic crystal structure for WDM system", Journal of Space-Based and Situated Computing, Vol.3, No.4, pp.227-233(2013, Dec.)</p> <p>(4) H. Maeda, H. Chen, K. Tomiura, K. Yasumoto, "Numerical and experimental study on confinement in Y-shaped post wall branching waveguide", Journal of Mobile Information Systems, Vol.10, No.2, pp.217-228(2014, March)</p> <p>(4) H. Chen, Y. Bao, J. Jin, H. Maeda, "Propagation Constant Measurement in Two Dimensional Post Array Waveguide with Triangular Lattice by Metallic Pillars", Proc. of MAPWC-2014, pp.357-361 (2014, Nov.)</p> <p>(5) J. Jin, Y. Bao, H. Chen, H. Maeda, "Numerical Analysis of Y-shaped Branch Waveguide in Photonic Crystal Structures and Its Application", Proc. of MAPWC-2014, pp.362-365 (2014, Nov.)</p> <p>(6) Y. Bao, H. Chen, J. Jin, H. Maeda, "Experimental Study on Crank-shaped Waveguide in 2D Post Array", Proc. of MAPWC-2014, pp.366-370 (2014, Nov)</p> <p>(7) H. Maeda, Y. Bao, "Numerical Analysis of Cavities in Photonic Crystal Waveguide for Filtering", Proc. of BWCCA-2015, to be published, (2015, Nov.)</p> <p>(8) Y. Bao, H. Maeda, N. Nakashima, "Studies on Filtering Characteristics of X-shaped Photonic Crystal Waveguide in Two-Dimensional Triangular Lattice by Microwave Model", Proc. of ISAP-2015, to be published, (2015, Nov.)</p>			
Other academic activities / その他の学術活動	Member of OSA, IEICE (電子情報通信学会)Japan, and JSAP(応用物理学会)			
Remark / 備考	KAKENHI No. 15K06043, Grant-in-Aid for Scientific Research (C) by Japan Society for the Promotion of Science (JSPS) in 2015-2017.			

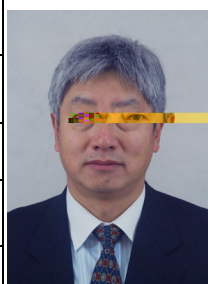
## Professor Information / 教員情報

(Graduate School of Engineering / 工学研究科)

Name 氏名	Shuichi INOKUCHI	Title 職位	Professor	
Major 専門分野	Theory and application of discrete transition systems in computer science			
Master's Program 修士課程	Systems Management Engineering			
Doctor's Program 博士課程	—			
e-mail	inokuchi@fit.ac.jp	URL	www.fit.ac.jp/~inokuchi	
Research introduction 研究紹介	<p>(1) Mathematical Analysis of Discrete Transition Systems. I am interested in and researching properties of cellular automata on algebraic systems such as groups and monoids. In particular, we analyze the reversibility and continuity of the global transition function of cellular automata and the properties related to composition of cellular automata using relation theory, topological space theory, mathematical logic, and so on.</p> <p>(2) Application of Cellular automata and Discrete Transition Systems.</p> <ul style="list-style-type: none"> <li>● Simulation of natural and social phenomena</li> <li>● Generation of similar patterns of natural and artificial ones</li> </ul>			
Publication list 論文リスト	<p>(1) Commutativity of Composition of some n-Dimensional Cellular Automata on Monoids, International Journal of Networking and Computing, Vol.12, No.1, pp.188-203(2022)</p> <p>(2) Reversibility of CA-150 with Symmetry Local Structure, Bulletin of Informatics and Cybernetics, Vol.53, No.5, pp.1-7(2021)</p> <p>(3) Propositional Logic and Cellular Automata on Monoids, Journal of Cellular Automata, Vol.12, No.1-2, pp.27-45(2017)</p> <p>(4) Cellular Automata Associated with <math>\ast</math>-Algebras, IEICE Transactions on Information and Systems, E99.D, 3, pp.588-597(2016)</p> <p>(5) A Formulation of Composition for Cellular Automata on Groups, IEICE transactions on Information and Systems, E97.D, 3, pp.448-454 (2014).</p>			
Other academic activities / その他の学術活動				
Remark / 備考				

## Professor Information / M(\_

(Graduate School of Engineering / 工学研究科)

Name 氏名	SONG, Yu	Title 職位	Professor	
Major 専門分野	Operations Research			
Master's Program 修士課程	System Management			
Doctor's Program 博士課程	Intelligent Information System Engineering			
e-mail	song@fit.ac.jp	URL	www.fit.ac.jp/~song	
Research introduction 研究紹介	<p>Main research interest lies in the field of operations research and its application in business and social science for decision-making. Especially the following topics:</p> <ul style="list-style-type: none"> <li>● Staff scheduling Problem</li> <li>● Numerical Analysis and Optimization</li> <li>● Supply Chain Management</li> <li>● Quantitative Finance</li> </ul>			
Publication list 論文リスト	<ul style="list-style-type: none"> <li>✓ C. Wang and Y. Song, "An optimization model for vehicle routing in urban cold chain logistics", <i>International Journal of Modeling and Optimization</i>, Vol. 12, pp. 76-81, 2022.</li> <li>✓ C. Li and Y. Song, "Predicting Direction of Individual Stock Price Movement Using a Hybrid Model", <i>Journal of Economics, Business and Management</i>, Vol. 7, pp. 60-64, 2019.</li> <li>✓ M. Qiu and Y. Song, "Predicting the Direction of Stock Market Index Movement Using an Optimized Artificial Neural Network Model", <i>PLoS ONE</i>, Vol. 11, No. 5, pp 1-11, 2016.</li> <li>✓ J. Pi, Y. Song, S. Yang and F. Ju, "A Study of Influence upon Inflation Posed by Volatility of Housing Price", <i>Journal of Advanced Computational Intelligence and Intelligent Informatics</i>, Vol. 20, 2016.</li> <li>✓ M. Qiu, Y. Song and F. Akagi, "Application of Artificial Neural Network for the Prediction of Stock Market Returns: The Case of the Japanese Stock Market", <i>Chaos, Solitons &amp; Fractals</i>, Vol. 85, pp. 1-7, 2016.</li> <li>✓ Y. Song and M. Hasama, "Some Observations on Resource Allocation in Assembly-like Queueing Networks via Simulation Approach", <i>International Journal of Materials, Mechanics and Manufacturing</i>, Vol. 2, 146-149, 2014.</li> <li>✓ Y. Song, "The Optimal Service Policies in an M/G/1 Queue with Consecutive Vacations", <i>International Journal of Modeling and Optimization</i>, Vol. 4, 100-103, 2014.</li> </ul>			
Other academic activities / その他の学術活動				
Remark / 備考				

## Professor Information / 教員情報

(Graduate School of Engineering / 工学研究科)

Name 氏名	Takuya Tajima	Title 職位	Professor
Major 専門分野	Industrial Engineering and Sensor Application		
Master's Program 修士課程	Systems Management Engineering一		
Doctor's Program 博士課程	Electrical Engineering and Computer Science		
e-mail	t-tajima @fit.ac.jp	URL	www.fit.ac.jp/~t-tajima

(1) Attribute Classification Method for Pedestrians Using Plantar Pressure Value


This study aims to develop and improve an attribute classification method for pedestrians using plantar pressure value. Now, many retail businesses use some methods for collecting customers' information. However, these methods have some problems. One of the problems is instability for collecting data of customers' information. The member'

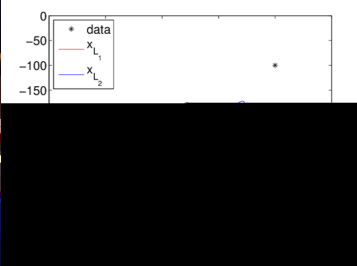
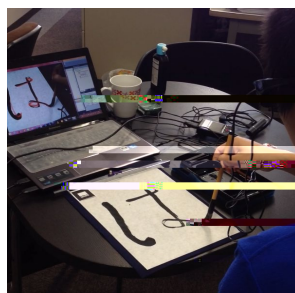
Research introduction

研究紹介

## Professor Information / 教員情報

(Graduate School of Engineering / 工学研究科)

Name 氏名	Hiroyuki Fujioka	Title 職位	Professor	
Major 専門分野	Control Theory and Its Applications to Information Technology			
Master's Program 修士課程	Systems Management Engineering			
Doctor's Program 博士課程	Intelligent Information System Engineering			
e-mail	fujioka@fit.ac.jp	URL	www.fit.ac.jp/~fujioka	
Research introduction 研究紹介	<p>In our laboratory, we mainly have studied problems of optimally designing curves and surfaces. Such a basic problem is to design a curve (or surface) that passes through or near the given points, while the curve is smooth as much as possible. For such problems, we have developed effective design methods as well as the computational algorithms from mathematical and control theoretic viewpoints.</p> <p>Moreover, we have applied the design method of curves and surfaces to various applications in the field of information technology. Such applications include the construction of cursive characters (left fig), human calligraphic learning using augment reality (AR) (middle fig) and data compression of digital font which have been used in many electronic device e.g. tablet pc (right fig), etc.</p>			
Publication list 論文リスト	<ul style="list-style-type: none"> <li>● H. Fujioka, H. Kano, and C. F. Martin Constrained Smoothing and Interpolating Spline Surfaces using Normalized Uniform B-splines, appeared to Communications in Information and Systems.</li> <li>● H. Fujioka and H. Kano Compression of Digital-Ink with Pen Slip Using Optimal L1 Smoothing Splines, to be published in the Proceedings of 44th ISICIE International Symposium on Stochastic Systems Theory and Its Applications, Okinawa, Japan, Nov. 1-2, 2013.</li> <li>● H. Fujioka, H. Kano, H. Nakata and H. Shinoda Constructing and Reconstructing Characters, Words and Sentences by Synthesizing Writing Motions, IEEE Trans. Systems, Man and Cybernetics, Part A, Vol.36, No.4, pp.661-670, 2006.</li> </ul>			
Other academic activities / その他の学術活動	<ul style="list-style-type: none"> <li>● Grants-in-Aid for Scientific Research for Young Researchers (B), Apr. 2013-Mar.2016</li> <li>● Joint Research with a Japanese company, project was on trajectory planning of large-size robot, Sept. 2010-Aug.2013</li> </ul>			
Remark / 備考	<p>We now have 3 master course students (2 Japanese + 1 Thailand persons). From this September, a Thailand master course student will be come in. Moreover, an undergraduate Chinese student in our lab is going to master course from April, 2015.</p>			



## Professor Information / 教員情報

(Graduate School of Engineering / 工学研究科)

Name 氏名	Kulla Elis	Title 職位	Associate Professor	
Major 専門分野	IoT-based Data Forwarding, Collection and Applications			
Master's Program 修士課程	Systems Management Engineering			
Doctor's Program 博士課程	- Intelligent Information System Engineering			
e-mail	kulla@fit.ac.jp	URL	www.fit.ac.jp/~kulla/	

Research introduction  
研究紹介

My research is focused on wireless sensor networks (WSN) in terrestrial environment and delay-tolerant networks (DTN) in underwater environment. Recent network applications, such as IoT, connected cars, and MaaS generate, collect, and process a larger amount of data (Big Data). By combining a lightweight and power-saving protocol such as MQTT (Message Queuing Telemetry Transport), we can forward these data to entities which can consume them in real-time (IoT), or save them for future analysis and intelligent model training.

Specifically, we are considering the following topics in my laboratory.

- (1) Implementing an experimental environment for wireless multi-hop communication, where we can develop and evaluate different protocols
- (2) Develop a publish / subscription system for large-scale IoT data, using MQTT protocol.
- (3) Develop a combined Mobility as a Service (MaaS), blockchain integrator system that can manage transactions, identity and smart contracts

1. Elis Kulla, Makoto Ikeda, Tetsuya Oda, Leonard Barolli, Fatos Xhafa and Aleksander Biberaj, "Experimental results from a MANET testbed in outdoor bridge environment considering BATMAN routing protocol", Computing, Vol. 95, No. 10-11, pp. 1073-1086, May 2012.
2. E. Kulla, "Evaluating the effect of static components in MANET by simulations", Journal of High Speed Networks, Vol. 21, No. 4, pp. 273-284,

Publication list  
論文リスト



## Professor Information / 教員情報

(Graduate School of Engineering / 工学研究科)

Name 氏名	Minoru Kobayashi	Title 職位	Associate Professor
Major 専門分野	Production Management and Industrial Engineering		
Master's Program 修士課程	Systems Management Engineering		
Doctor's Program 博士課程			
e-mail	kobayashi@fit.ac.jp	URL	www.fit.ac.jp/~kobayashi/
Research introduction 研究紹介	<p>Our laboratory have studied problems related to production management and/or business management especially production scheduling.</p> <p>Present main research interest is accelerating of computation for the Lagrangian Decomposition and Coordination Method for a Multi-Item Multi-Process Dynamic Lot size Scheduling Problem.</p> <p>Key words: large scale optimization, LDC method, mathematical programming, business informatics, data analysis, management engineering</p>		

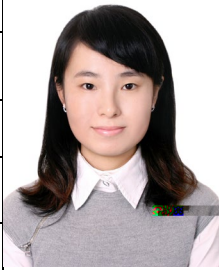
Publication list  
論文リスト

- [1] Kenji Muramatsu, Aditya Warman, Minoru Kobayashi, A Near-Optimal Solution Method of Multi-Item Multi-Process Dynamic Lot Size Scheduling Problem, JSME Int. J. Ser. C-Mech. Syst. Mach. Elem. Manuf., Vol. 46, No. 1, pp.46-53, March 2003.
- [2] Minoru Kobayashi, Kenji Muramatsu, An Extension of Job Shop Scheduling Problem, Journal of Japan Industrial Management Association, Vol. 56, No. 4, pp.246-255, October 2005.
- [3] Minoru Kobayashi, Kenji Muramatsu, A Scheduling Benchmarking Problem that Reflects Today's Production Environments, Journal of Japan Industrial Management Association, Vol. 64, No. 3, pp. 409-419, October 2013.
- [4] Minoru Kobayashi, Suppression of Oscillations in Solution on Lagrangian Decomposition and Coordination Method -A Case of a Multi-Item Single-Process Unrelated Multi-Machine Dynamic Lot Size Scheduling Problem-, International Journal of Japan Society fo (t)2.9 8 (.9 (t)t6.9 ()3.8 (o)7.8 (89 T)-4 (an /)-4n -1.1



## Professor Information / 教員情報

(Graduate School of Engineering / 工学研究科)

Name 氏名	Jing Fu	Title 職位	Associate Professor	
Major 専門分野	Game Theory and Operations Research			
Master's Program 修士課程	System Management			
Doctor's Program 博士課程	N/A			
e-mail	j.fu@fit.ac.jp	URL		
Research introduction 研究紹介	<p>Main research interest lies in the field of game theory and operations research together with its application in economics and social science. Especially the following topics:</p> <ul style="list-style-type: none"> <li>z Discounted Stochastic Game</li> <li>z Network Formation Game</li> <li>z Systemic Risk</li> <li>z Data Envelopment Analysis (Game)</li> </ul>			
Publication list 論文リスト	<ol style="list-style-type: none"> <li>1. Fu, J., F. Page and J-P Zigrand (Forthcoming). "Layered networks, equilibrium dynamics, and stable coalitions", <i>Dynamic Games and Applications</i>.</li> <li>2. Fu, J., H. Fujii and Y. Song (2022). "Existence of pure Nash equilibria in 2-player information diffusion games with strict public preferences". <i>Central European Journal of Operations Research</i>.</li> <li>3. Fujii, H., J. Fu and R. Kobayashi (2021). "A proposal for hometown tax strategy by data envelopment analysis – case study of the hometown tax in K City-". <i>Journal of Japan Industrial Management Association</i>, vol. 71, pp. 149-172.</li> <li>4. Page, F. and J. Fu (2020). "K-Correspondences, USCOS, and fixed point problems arising in discounted stochastic games". <i>Fixed Point Theory and Applications</i>, vol. 2020, No. 14, 28 pages.</li> <li>5. Fu, J., F. Page and J-P Zigrand (2019). "Spheres of influence, tipping points, and endogenous systemic risk in dynamic network formation games". <i>Proceedings of Asian Conference of Management Science &amp; Applications</i>, vol. 2019, pp. 34-46.</li> <li>6. Fu, J. (2018). "Two-stage Data Envelopment Analysis with undesirable intermediate measures: an application to air quality improvement in China". <i>Central European Journal of Operations Research</i>, vol. 26(4), pp. 861-885.</li> <li>7. Fu, J. (2017). "Information pooling game in multi-portfolio optimization". <i>Contributions to Game Theory and Management</i>, vol. 10, pp. 27-41.</li> </ol>			
Other academic activities / その他の学術活動	Research Associates in Systemic Risk Centre, London School of Economics and Political Science			
Remark / 備考				

## Professor Information / 教員情報

(Graduate School of Engineering / 工学研究科)

Name 氏名	Hiroshi Takenouchi	Title 職位	Assistant Professor
Major 専門分野	Affective information processing		
Master's Program 修士課程	Systems Management Engineering		
Doctor's Program 博士課程			
e-mail	h-takenouchi@fit.ac.jp	URL	<a href="http://www.fit.ac.jp/~h-takenouchi/e_index.html">http://www.fit.ac.jp/~h-takenouchi/e_index.html</a>

We develop systems that enables people to enrich their daily life by analyzing and understanding human Affective (Kansei, 感性) information. Our

Research introduction  
研究紹介