

Information Architecture

Laboratory	Title
Fujimura	Improved Wolf Pack Algorithm for Solving Vehicle Routing Problem with Time Window in Cold Chain Logistics Distribution
Fujimura	Traffic Signal Control based on Deep Reinforcement Learning
Fujimura	Image Generation for Fashion Image Editing with GAN
Fujimura	Field Fire Smoke Detection Algorithm Based on Video Characteristic and Convolutional Neural Networks
Fujimura	Drowsiness Detection Based on Facial Behavior Analysis
Fujimura	Steel Surface Defect Detection with a Region-based Convolutional Network
Fujimura	Clothing Retrieval based on Clothing Label and Vision Feature
Fujimura	Spatiotemporal Sequence Forecasting of Typhoon Images
Fujimura	Customers' behavior classification of using the coupons in Online-to-offline retailing
Fujimura	Research on Hand Gesture Recognition based on Depth Camera
Furuzuki	SVM Based One-class Anomaly Detection with a Quasi-linear Kernel in Realistic Settings
Furuzuki	Single-View 3D-Object Reconstruction with Projection Loss
Furuzuki	SAN: Sampling Adversarial Networks for Zero-Shot Learning
Furuzuki	Video Object Detection with Squeezed GRU and Information Entropy Attention
Furuzuki	An Aspect-Based Co-Attention Model for Recommendation Task
Furuzuki	Denoised-FPN: Robustness of Object Detector against Unseen Noise through Adversarial Training
Furuzuki	Classification of Music into Human Emotional Moods Using Graph Based Semi-supervised Learning
Furuzuki	Relation Classification with Multi-level Features
Furuzuki	Survival Analysis of Brain Metastases Using Deep Learning Method
Iwaihara	Contribution of Improved Character Embedding and Latent Posting Styles to Authorship Attribution of Short Texts
Iwaihara	Weakly Supervised Long Document Classification by Utilizing a Mixed Neural Summarization Model
Iwaihara	Predicting Articles to be Edited Based on Temporal Graph Embedding
Iwaihara	Translating Embeddings for Knowledge Graph Completion Utilizing Type Correlations
Iwaihara	Click Count Prediction Utilizing Link Graph Embedding
Iwaihara	Utilizing BERT Pretrained Models with Various Fine-tuning Methods for Subjectivity Detection.
Kamata	Data Augmentation for Ancient Characters via Semi-MixFontGAN
Kamata	Stain-Refinement and Boundary-Enhancement Weight Maps for Multi-organ Nuclei Segmentation
Kamata	Variation Guiding Feature Attention for Metric Learning
Kamata	Coarse to Fine Approach for Multi-Organ Segmentation in Head and Neck CT Images
Kamata	Combined CNN-based Denoising for Highly-Compressed Images and Videos
Kamata	Diabetic Retinopathy Grading based on Lesion Correlation Graph
Koyanagi	Optimizing the Cache Replacement Policy of Redis
Koyanagi	Study on Traffic Controlling in SDN for Data Center
Koyanagi	Research on Density-Based Spatial Clustering Algorithm with Fast Approximate Nearest Neighbor Query Technology
Koyanagi	Fine-Grained Recovery Mechanism on Apache Flink

Koyanagi	Research on Secure data sharing in IoT based on Blockchain
Lepage	Analogical potential: learning from the differences between differences
Matsumaru	Recognition of Dynamic Gesture of Hand by Combination of YOLO V3 and Improved LRCN Model for Operation of a Robotic Arm.
J. Tanaka	Real-World AR Pet: An Emotional Supporter and Home Guide
J. Tanaka	Using Multiple Kinds of Markers and Hand Gesture to Enhance User Interactions in Marker-Based AR System
J. Tanaka	A Mixed Reality Shopping System Providing Hand Scale Preview and Gesture Interaction
J. Tanaka	Interactive Personalized Human Avatar and Its Application to Work Incentive Systems
J. Tanaka	Food-tracker: A food recording system based on real-time food recognition and meal intake detection
J. Tanaka	MagicABC: A Parent-Child Tool to Modify Preschoolers' Pronunciation With Augmented Reality
Tsubokawa	Study on a submicron-scale broadband polarization splitter
Tsubokawa	Study on a refractive index sensor using slot-waveguide ring resonators
Tsubokawa	Cost analysis for the migration/upgrade of the Senegalese GPON network toward NGOA networks
Yoshie	Real-time Lane Detection Based on Encoder-Decoder Convolutional Neural Network
Yoshie	DualBox: Generating BBox Pair with Strong Correspondence via Occlusion Pattern Clustering and Proposal Refinement
Yoshie	Attention Mechanism for Neural Dependency Parsing
Yoshie	An Approach to Weighted and Verifiable Secret Sharing Scheme for Storage System with Simple Access Structure and Varying Storage Space
Yoshie	Alternative Adversarial Sampling Attack on Text and Sentiment Classification
Yoshie	Analysis on the Usage of Topic Model with Background Knowledge inside Discussion Activity in Industrial Engineering Context

Production Systems

Laboratory	Title
Inuishi	Study on process and device structure design of a p type SOI LIGBT for improving performance and forward blocking voltage
Inuishi	Process and device structure design for an emitter common complementary LIGBT inverter on bulk Si
Inuishi	Study on process and device structure design of a p type SOI LDMOS for performance improvement
Inuishi	Study on a simple resurf structure design of an n type LDMOS on bulk Si using a p-top and an n-top layer
Inuishi	Comparative study on structure design between SiC and Si power devices
Inuishi	Study on the frontside and backside structure and the layout design of a RC-IGBT with Schottky diodes
Inuishi	Study on buffer design and local lifetime control for a RC-IGBT with hydrogen implantation
Inujima	Driver Drowsiness Detection using Neural Network
Inujima	Motion Prediction of Traffic Vehicle based on HMM
Inujima	Optimal Engine Emission Control in Different Speed Operating Environment
Inujima	Road Area Detection Based On Machine Learning Method
Inujima	Lidar Enhanced Visual SLAM
Inujima	Pedestrian Trajectory Prediction Based on Deep Learning Method
Inujima	Local Mapping and Localization Method Based on Tightly Coupled 3D Lidar and IMU
Inujima	Major Road Mark Detection In Intelligent Vehicle Control System
Inujima	Traffic Sign Recognition System Based on Improved DSSD Network
Inujima	Anomaly Detection of Bridge Using Machine Learning
Lee	An Improved Path Planning Algorithm with Path Smoothing in Partially Known Environment
Lee	PSO-PIDNN Control of Quadrotor with Path Tracking
Lee	Parking Space Detection and Dynamic Map Path Planning for Multiple Vehicles
Lee	Drowsy Driving Detection by Multi-Source Data Fusion Using Long Short-Term Memory
Lee	A New Cube-RRT Algorithm for Path Planning of Quadrotor
Lee	Drowsy Driving Detection using Back-Propagation Neural Network with Particle Swarm Optimization
Miyake	Intracellular cargo delivery through electrochemical metal-organic hybrid nanogate
Miyake	Electrochemical control of proton flow at a biotransducer / lipid bilayer interface
Miyake	A bioabsorbable wireless battery for smart contact lens
Miyake	Enzyme-coated carbon nanotube fibers and their application for wearable power sources
Murata	Inventory Scheduling for Loss Control of Perishable Food with Uncertain Demand
Murata	Genetic Algorithm for Robust Multi Objective Scheduling and Order Scheduling with Uncertain Daily Production Quantity
Murata	Multi-objective Demand Responding Micro Grid Operation with Uncertain Renewable Energy and Load Demand
Murata	Facility configuration planning in closed-loop supply chain under fuzziness of demand and production capacity
Ogai	A Strong Robust Lane Detection System based on LaneNet for Autonomous Driving
Ogai	Pedestrian Detection And Trajectory Prediction based on Modified LSTM
Ogai	An Automatic Motion Planning Algorithm Based on Improved RRT
Ogai	Overtaking with Improved Q-learning based on Autoware.

Ogai	Driver Fatigue Detection System Based on Blinking and Yawning
Ogai	Object Detection by Feature Pyramid Networks in narrow street
Shimizu	Deblurring of NIR transillumination images by deep learning
Shimizu	Experimental verification of scattering estimation from backscattered light for noninvasive evaluation of blood turbidity
Shimizu	Depth estimation of blood vessels in 2D NIR transillumination images using machine learning
Shimizu	Development of real-time system for NIR functional transillumination imaging
Shimizu	Simulation of light propagation in human body for noninvasive measurement of blood turbidity
Shimizu	Attempt for trans-illumination imaging along irregular-shape surface
Shimizu	Noninvasive optical measurement of blood turbidity in capillary
E. Tanaka	Development of Smart Shoes for Safe and Healthy Walking
E. Tanaka	Easy Setup Multifunctional Gear Detection System with a Laser Sensor
E. Tanaka	Development of a Wearable Chair with Foldable Mechanism
E. Tanaka	Study of Current Emotion and Muscle Fatigue Evaluation Method for a Walking Assistive Device
E. Tanaka	Development of the Motion-Prediction System Based on Logistic Regression for an Upper-Limb Assistive Device
Tateno	Indoor Localization Method Based on Integration of RSSI and Inertial Sensor
Tateno	Improvement of Multi-lateration Methods Using RSSI for Outdoor Positioning System
Tateno	Development of Human Activity Detection Using Low Resolution Infrared Array Sensor
Tateno	Drowsiness Detection System Based on Heart Rate Variability Analysis Using Convolutional Neural Network
Tateno	Development of User-Independent Sign Language Motion Recognition System Based on Electromyography Signal
Tatsumi	Study on the reliability of interconnections formed by nickel micro-electroplating bonding(NMPB)
Tatsumi	PD Characteristic on various surfaces treated by different discharge methods in epoxy-based nanocomposite

Integrated Systems

Laboratory	Title
Ikenaga	Local Spatio-Temporal Propagation and Constraint Based Model Generation for 1ms Foreground Detection System
Ikenaga	Texture and Exposure Awareness based Refill for HDRI Reconstruction of Saturated and Occluded Areas
Ikenaga	Differential Sampling based Descriptor and View Voting Constraint in Template Matching for Table Tennis Racket Orientation Detection
Ikenaga	Multi-level Weight Backwards Pre-analysis and Flexible QP Mapping based Intra-frame Rate-distortion Optimization for Screen Content Coding
Ikenaga	Highly-Parallel Hardwired Deep CNN using Condensed Binarization and Hetero Complementation for 1ms Dual-Hand Tracking
Ikenaga	Particle Reselection and State Re-search for 1ms Tracking System in Factory Automation
Ikenaga	Multi-view 3D Human Pose Reconstruction Based on Spatial Confidence Point Group for Jump Analysis in Figure Skating
Ikenaga	Bottom-up Checking and Rate-distortion Ratio based Fast InterIMV Mode in Versatile Video Coding
Ikenaga	Spatial Vector Matching and Composite Temporal Constraints Based Multi-Person 3D Pose Reconstruction in Volleyball Games
Ikenaga	Self-Supervision and Spatial-Sequential Attention Based Loss for Multi-Person Pose Estimation
Kimura	Optimizing Binarized Neural Network Architecture with Scaling Factor onto Embedded FPGA Platforms
Kimura	Seven-valued Convolutional Neural Network for FPGA-based Acceleration
Kimura	Fanout-oriented Cut-based Logic Synthesis for RRAM-based In-memory Computing Using XOR-Majority Graphs
Kimura	Accuracy-configurable Low-power Approximate Floating Point Multiplier based on Mantissa Bit Segmentation
Kimura	A Weighted Tree Combination Method for FPGA-based Random Forests to Improve Accuracy
Kimura	A CUDA-based Random Forests using Weight Boosting
Ohsawa	Effect of MTJ Switching on Stability of 4T2MTJ Cell
Ohsawa	ReRAM crossbar array design for artificial neural network with on-chip training function based on backpropagation algorithm
Ohsawa	Co-design in Artificial Neural Network using Emerging Memory Crossbar Array
Ohsawa	A Sneak Current Compensation Scheme in 2D/3D-Horizontal ReRAM Crossbar Array
Ohsawa	Research on write time of 6T2MTJ STT-MRAM with background write scheme
Ohsawa	A Study on Reducing the Impact of Wire Resistance in a Neural Network Based on ReRAM Crossbar Array
Ohsawa	Effect and limitation of multi-pair dummy cell average read scheme for high-density emerging memories
Ohsawa	A compact and low power neuromorphic design based on analog voltage driven 1T1C DRAM
Ohsawa	Hardware-Software co-optimization in artificial neural-networks based on ReRAM crossbar array
Shinohara	A Cascaded-Transistor-Latch-based True Random Number Generator with V_{SS} Biasing for High Yield
Shinohara	An 8T CMOS SRAM Strong PUF with Low Bit Error Rate Utilizing Hot Carrier Injection
Shinohara	Machine Learning Resilience Analysis and Design of LUT based Strong PUF with 100 Input Bits
Takahata	A Compact Silicon Electro-Optic Modulator based-on Indium-Tin-Oxide Integrated Directional Coupler with Subwavelength Gratings
Takahata	Vertical Optical Waveguide Comprising Nonuniform Square-base Cuboid Cores for Multilayer Chip-to-Chip Interconnection
Takahata	Analysis on Laser Cleaning Based-on a Multi-physics Model for Rust Removal on Steel Surface.
Takahata	Design of a Silicon Photonic Integrated Circuit based-on Direct Logic for CNN Computing
Watanabe	HCP: History-based Congestion Prediction Algorithm for NoC
Watanabe	A Fault-tolerant Hamiltonian-based Odd-Even Routing Algorithm for Network-on-Chip
Watanabe	A Local Congestion-avoid Routing Algorithm for Network-on-Chip

Watanabe	A Fault-tolerant Routing Algorithm for NoC based on Turn Model and XY Routing
Yoshimasu	A 28-GHz-Band High Linearity Up-Conversion Sub-Harmonic Mixer with Adaptive Bias in 56-nm SOI CMOS Technology
Yoshimasu	A 28-GHz-band high back-off efficiency 4-stacked FET power amplifier IC in 40-nm SOI CMOS technology
Yoshimasu	A 28-GHz-band Highly Linear Low Noise Amplifier IC with Adaptive Bias in 40-nm SOI CMOS
Yoshimasu	A 14-GHz-Band Low Power LC-VCO IC Using an AC-to-DC Feedback Loop in 40-nm SOI CMOS
Yoshimasu	A Wideband LC VCO IC With Novel Varactor Bank in 40-nm SOI CMOS Technology
Yoshimasu	A 28-GHz-band Doherty Power Amplifier IC with An Adaptive Bias Circuit for Auxiliary Path in 56-nm SOI CMOS
Yoshimasu	A 28-GHz High Linearity Sub-harmonic Down-conversion Mixer with Novel Source Injection Technique and Adaptive Bias in 56-nm SOI CMOS
Yoshimasu	A 28-GHz High Gain High Isolation Up-conversion Sub-harmonic Mixer with Derivative Superposition Technique in 56-nm SOI CMOS
Yoshimasu	A Wideband LC-VCO IC with an Inversion-MOS based novel varactor in 40-nm SOI CMOS
Yoshimasu	A 28-GHz Highly Linear Low Noise Amplifier with Transformer Feedback in 40-nm SOI CMOS