

Information Architecture	
Laboratory	Title
Fujimura	A Study on Scientific Knowledge Graph Construction and Application
Fujimura	Buffer Cascade in Scheduling Design of Air Intermodal Network
Fujimura	Large-scale Job Shop Scheduling based on Operation Decomposition and Ant Colony Optimization
Fujimura	A Meta-heuristic Based Multi-Agent Model for Dynamic Scheduling in Cloud Manufacturing
Fujimura	GAN-based data augmentation for imbalanced data in classification-based anomaly detection for images
Fujimura	Improvement of Few-shot Named Entity Recognition with Manufacturing Text Using Data Augmentation and Contrastive Learning
Fujimura	An Improved NSGA-II Algorithm for Multi-objective Green Flexible Job Shop Scheduling Problem
Fujimura	The Optimization of Multi-objective FJSP Based on the Hybrid Algorithm
Furuzuki	A Study on Shift Consistency of Convolutional Neural Networks
Furuzuki	Masked Spectrogram Modeling for Music Source Separation
Furuzuki	Object Detection in Aerial Remote Sensing Scenarios
Furuzuki	Robust Generation of Stylizing Portraits via Facial Geometry Priors
Furuzuki	Predictor-Corrector Euler Networks (PCE-Net)
Furuzuki	A Study on Recognition of Badminton Players Swing Based on 3D-CNN and Computer Vision
Furuzuki	A Co-occurrence Matrix-based Multi-View Graph Neural Network for Recommendation
Iwaihara	Extreme Multi-label Text Classification Utilizing Semantic Similarity of Labels and Keyphrase Generation
Iwaihara	Unsupervised Keyphrase Generation by Utilizing Masked Words Prediction and Pseudo-label BART Finetuning
Iwaihara	Topic Trend Prediction by Integrating Semantic Similarity and Temporal Similarity
Iwaihara	Authorship Attribution Based on Pre-Trained Language Model and Capsule Network
Iwaihara	Column Type Detection Based on Pretrained Language Models with Various Column Encodings
Iwaihara	Link Prediction for Wikipedia Articles Based on GCN-Transformer
Iwaihara	Extractive Summarization Utilizing Combination of Keyphrase and Sentence Extractions and BERT Finetuning
Kamata	MR Image Compression Using Hilbert-Scanned Wavelet-Fractal Transform
Kamata	Extended Residual U-Net Based on Attention Res2Net for Liver Tumor Segmentation
Kamata	Near-Infrared Image Colorization With Weighted Distribution Mapping GAN
Kamata	ADHD Classification With Fractal-Based Feature Maps for fMRI
Kamata	MRI Super-Resolution Using Implicit Neural Representation With Dynamic Feature Selection
Kamata	Multiple Mask Enhanced Transformer for Robust Visual Tracking
Lepage	Machine translation based on retrieval of sentences covering the source sentence
Lepage	Extraction of Analogies Between Sentences on the Level of Syntax Using Parse Trees
Lepage	Generation of pastiches based on AMR graphs and synonym replacement
Lepage	A study of re-generating sentences given similar sentences that cover them on the level of form and meaning
Lepage	Generation of pastiche at the paragraph-level for NLP scientific articles
Matsumaru	A transformer-based model for super resolution of anime image
Matsumaru	Human action classification task based on spatial and temporal transformer in videos
Matsumaru	Path planning including obstacle avoidance based on reinforcement learning with human-supervision
Matsumaru	Deep learning based one-class detection system of fake face generated by GAN network
Matsumaru	Night traffic signs detection and its light-weight network design based on YOLOX detector and GhostNet network
Tsubokawa	Study on plasmonic waveguide filters with various resonator structures
Tsubokawa	Evaluation of nanoparticle transportation in dielectric slot-waveguides
Tsubokawa	Study on surface plasmon refractive index sensor used for blood detection
Yoshie	Basketball Free Throw Shooting Pose Estimation and Feedback Generation System
Yoshie	Segmentation and classification of industrial steel defects based on teacher-student network
Yoshie	Research on Surgical Mask and Social Distance Detection Based on Improved YOLOv3
Yoshie	Single image dehazing under non-homogeneous haze scenario
Yoshie	Custom Generation of Chinese Poetry Based on Seq2seq Model
Yoshie	Face recognition with surgical mask by patch fusion method of deep learning
Yoshie	A Study on Animation Style Transfer by Adversarial Generative Network
Yoshie	Research on Pavement Crack Analysis based on Noise Separation and Mask R-CNN
Yoshie	Unsupervised Day-to-Night Road Scene Translation by GAN
Production Systems	
Laboratory	Title
Inuishi	Design of P-channel lateral SOI RC-IGBT for complementary IGBT inverter
Inuishi	New structure design and layout of RC-IGBT for high performance
Inuishi	New backside structure design with multiple cells of vertical IGBTs
Inuishi	Emitter follower type complementary LIGBT on Bulk Si by BCD process
Inuishi	Design of N-channel and P-channel lateral SOI IGBT with simple RESURF process for complementary IGBTs
Lee	Unmanned Aerial Vehicle Path Planning in Mountain Areas
Lee	Real-time Drowsy Detection Method based on Temporal Attention-Causal Dilated Convolution
Lee	A Phased Trajectory Planning Framework for Autonomous Vehicles under Multiple Lanes On-road Condition
Lee	A Multi-target Dynamic Path Planning Algorithm for TSP
Lee	Improved Algorithms for Traffic Participant Detection, Tracking and Collision Prediction based on Monocular YOLOv5
Lee	An Improved RRT Algorithm for AGV Path Planning
Lee	Prediction of Financial Time Series using an Attention-based LSTM Hybrid approach with ARMA-GARCH model
Lee	An Improve USV Path Planning Method Combined RRT and APF Algorithms
Miyake	Wearable and hybrid power sources for smart contact lens
Miyake	Control of photocurrent from thylakoid membrane with proton signals
Miyake	Analytical imaging system for cellular viability after nanotube stamping
Miyake	Intracellular delivery of functional cargo molecules through nanotube ducts
E.Tanaka	A real-time and two-dimensional emotion recognition system based on EEG and HRV using machine learning
E.Tanaka	User intention based control method for a Multi-function exoskeleton
E.Tanaka	Remote Rehabilitation System Based on Openpose and 3D Reconstruction with Normal Monocular Camera
E.Tanaka	Development of a wearable walking assistance system according to emotion and fatigue status
E.Tanaka	Speech-Controlled Human Model for Remote Rehabilitation of Upper Limb based on Neural Network and Unity3D
E.Tanaka	An adjustable fabric mechanism for assistive suits with enhanced comfortableness
Tateno	Improvement of Dynamic Storage Allocator for Real-time Sensing Systems
Tateno	Indoor Visual Positioning Method based on Feature Fingerprinting with Scene Grouped Images
Tateno	Multi-floor Localization Method based on Fingerprinting Algorithm with Pre-clustering
Tateno	Indoor Positioning System Fusing Pedestrian Dead Reckoning and Geomagnetic Fingerprint Map
Tatsumi	The effect of the bonding interface on the reliability and diffusion behavior in Ag-Al and Au-Al ball bonding
Integrated Systems	
Laboratory	Title

Ikehashi	Ultra-low Resonance Frequency MEMS Gravimeter with Off-resonance Closed-loop Control
Ikehashi	Rise Time Minimization of MEMS Capacitance Varying Charge Pump
Ikehashi	A MEMS Resonator with Reduced Thermo-Elastic-Damping Using Virtual Spring
Ikehashi	A Mode-localized Magnetometer with Wide Dynamic Range Enabled by Force-Balance System
Ikehashi	A Ripple-Reduced Voltage Limiter for MEMS Capacitance Varying Charge Pump
Ikenaga	Multi-line Buffer Based Pipeline Architecture with Junction Connectivity and Inflection Point Selection for High Frame Rate and Ultra-Low Delay Contour-Based Corner Detection
Ikenaga	Voxel-based Recovery and Spatial-temporal Correction for Multi-view 3D Pose Reconstruction of Jump Analysis in Figure Skating
Ikenaga	State Detection and Position Reset based Particle Filter Tracking for Large-size and Long-term Full Occlusion
Ikenaga	Triple-level Human Body Structure Modeling Neural Network for Monocular 2D Pose Estimation
Ikenaga	Multi-scale and Bi-path Algorithm based on Image Entropy and CNN for Fast CU Partition in VVC Intra Coding
Ikenaga	Temporal Constraint and Relative Vector Clustering for High Frame Rate and Ultra-low Delay Arbitrary Shape Detection
Kakitsuka	GaN-based spatial transport carrier photodetectors
Kakitsuka	Wire-like active region membrane lasers with anti-phase gratings
Kakitsuka	Nonreciprocal propagation-based membrane optical isolators on silicon platform
Kakitsuka	Single mode membrane lasers using wire-like active regions with spatial hole burning suppression effect
Kimura	Compressed EfficientNet Using Group Pruning Method and BitMap Representation
Kimura	A Compressed CNN Model based on MobileNet V2 with Hetelogeneous Convolution and Quantization
Kimura	Area-Optimized Approximate Radix-8 Booth Multiplier Under Fan-in Constraint of FPGA
Kimura	Accuracy Improved Approximate Logarithmic Multiplier Based on Booth Encoding and Operand Shift
Kimura	KQ-WBC: A Lightweight CNN Based on Kernel-Quantization and Weight-Bit-Compression
Kimura	Acceleration of YOLOv4-tiny on FPGA with Fixed Point Quantization and Layer Fusion
Kimura	A Low-resource FPGA-based CNN Accelerator with Highly-parallel Structure
Kimura	FPGA-Based Carry-Truncated Approximate Multipliers with Error Compensation
Kimura	Model Compression of Compressed MobileNet V3 Using Ghost Pointwise Convolution
Kimura	FPGA based 256-point Multipath Serial Commutator Approximate FFT
Kimura	Low Power Approximate Multiplier Based on Truncation and Compression Technology
Makino	Blind source separation of moving sound sources in reverberant indoor environments
Ohsawa	Influence of Hardware Variabilities on Binarized Neural Network Accelerator's Performance and Effectiveness of Fluctuation-conscious Trainings
Ohsawa	A Current-driven XNOR Binarized Neural Network Based on 8T2MTJ with Resistor-load to Guarantee Linearity
Ohsawa	Binarized Neural Network Accelerator with (+1, -1) Weights and (+1, 0) Activations Based on Differential Read 10T SRAM
Ohsawa	A DNN Accelerator Design with Sample-and-Hold Circuit Based on Two-Stage Switched Capacitor to Realize Pipeline Operation
Ohsawa	Sense Amplifier Design with Dummy Cell Averaging Scheme for Improving High Density 1T1MTJ STT-MRAM Chip Yield by Balancing Bit Yields Between Parallel and Anti-parallel Cells
Ohsawa	Design of Neural Network Accelerator with Each Signed Binary Weight Stored in a Single STT-MTJ
Ohsawa	A Training Method with Compensation Error Minimizing Strategy for Recovering Accuracy Degradation by Parasitic Wire Resistance in Large-Scale DNN Crossbar Arrays
Ohsawa	Design of Off-chip Driver (OCD) Circuit for Neural Network Inference Accelerators Using a Reference Voltage Sweeper
Shinohara	A Compact Fully Compilable True Random Number Generator with a Multi-Edge Ring Oscillator
Shinohara	A Counter-based Muller-C Element with Probability Multiplier and De-autocorrelation for Extended Naive Bayesian Network
Shinohara	Two Stability Reinforcement Solutions of SRAM Physical Unclonable Function: Double Size Transistor and PUF System with on-Chip Masking Memory
Shinohara	A Strong Physical Unclonable Function with 100 Response bits and 100 Challenge bits in Single Challenge Response Pair
Shinohara	A Physical Unclonable Function Bit Cell with Self-test and Masking Functions
Shinohara	An Inverter-based True Random Number Generator with Random Noise Enhanced by Damped Oscillation and Full Oscillation
Shinohara	Extended Naïve Bayesian Inference with Combined Correlations in Evidences
Shinohara	Autocorrelation coefficient measurement circuits for true random number generator healthiness self-test
Shinohara	De-autocorrelation and De-biasing Post-processing Circuits for True Random Number Generators
Takahata	Design of a multilayer multimode waveguide comprising nonuniform cuboid cores in vertical part for chip-to-chip optical interconnection
Takahata	An optical ALU architecture based on silicon microring modulator for reduction in circuit redundancy and power consumption
Takahata	Design of a 3-dimensional photonic crystal capable of wide frequency-range all-angle negative refraction
Takahata	Laser cleaning analysis with a multi-physics model including rust-steel 2-layer fluid flow and plasma shielding effect.
Takahata	Analysis on laser cleaning with a temperature-dependent micro-structural rust model
Yoshimasu	A 38-GHz High Back-Off Efficiency Power Amplifier with an Ultra-Low Power Adaptive Bias Circuit in 45-nm CMOS SOI