

Information Architecture	
Laboratory	Title
Fujimura	Research and Application of Chinese Medical Question Answering System based on RoBERTa and Knowledge Graph
Fujimura	Forecasting of sensor data in chemical factory by Transformer-based model
Fujimura	Preprocessed CSI-Enhanced Human Detection via PNN on Raspberry Pi
Fujimura	Research on Flexible Job Shop Scheduling Problem based on Multi-Agent System
Fujimura	A Method of Malicious Transaction Detection for Cryptocurrency Based on SA-XGBoost Algorithm
Fujimura	Chinese style clothing design assistant system based on fine-tuned diffusion models
Fujimura	Object Detection for Fruit Volume Estimation of Cabbage by UAV-Based Images
Fujimura	Data-driven Optimization for Energy-Saving Scheduling Problem with Decision Awareness
Fujimura	Improved LSTM-based DRL approach for Dynamic Job-Shop Scheduling Problem
Fujimura	A Memetic Algorithm for Multimodal Edge Server Placement
Fujimura	ADMM-based Distributed Algorithm for Energy Management in Multi-microgrid System
Furuzuki	Mask-wearing compliance detection based on improved YOLOv5
Furuzuki	Improving Bug Localization with GGNN and Cross Attention Mechanism
Furuzuki	A Study of Collaborative Filtering Recommender System Based on Graph Neural Networks
Furuzuki	A Study of Graph Neural Network Based Recommendation System with Global Search
Furuzuki	Multi-scale Detection with Attention Mechanism for High-resolution Images
Furuzuki	An Improved CenterNet for Oriented Face Detection
Iwaihara	Alignment of Wikipedia Categories and Lists with DBpedia Ontology: Leveraging Semantic, Lexical, and Hierarchical Features
Iwaihara	Fine-Grained Column Type Annotation Using Multiple Knowledge Graphs
Iwaihara	LG-XMC: Semantic-Guided Label Generation for Extreme Multi-Label Classification using Generative Models
Iwaihara	Enhancing Keyphrase Generation by BART Finetuning with Splitting and Shuffling
Iwaihara	Efficient Summarization of Long Documents Using Hybrid Extractive-Abstractive Method
Iwaihara	Author Attribution Based on POS Sensitivity Analysis and Improved Multi-Layer Capsule Networks over Pre-Trained Language Models
Iwaihara	Detection of Emotion-Related Passages in GoEmotions Dataset for Fine-Grained Emotions
Iwaihara	Composite Retrieval with Indirect Linker for Hybrid Open Domain Question Answering
Iwaihara	Soft and Hard Prompting for Document Classification with Only Label Names
Kamata	Skin Lesion Classification Based on Involution Neural Networks With Triplet++ Attention Generator
Kamata	ADHD Classification Based on fMRI Spatial-Temporal Features Using Multifractal Dimensions
Kamata	DMN Brain Connectivity-Based Hypergraph Convolution Networks with Attention for AD/MCI Classification
Kamata	Mask Refined Deep Fusion Network With Dynamic Memory for Robust RGBT Visual Tracking
Kamata	Lossy Image Compression Based on Multi-Scan Fusion Strategy
Kamata	Visual Question Answering Based on MRF Hypergraph Transformer
Lepage	Data Augmentation for English-Japanese Neural Machine Translation Via Middle Sentence Generation
Lepage	Example-Based Machine Translation with a Multi-Sentence Construction Transformer Architecture
Lepage	Data augmentation for machine translation using the notion of middle sentences
Lepage	Improving sentence embedding quality with sentence relationships from word analogies
Lepage	A Dual Reinforcement Method for Data Augmentation using Middle Sentences for Machine Translation
Lepage	An embedding-to-embedding method based on an autoencoder architecture for solving sentence analogies
Lepage	Generating synthetic bitext by predicting the sentence related to two other sentences
Lepage	Batch Mixup Data Augmentation for Neural Machine Translation

Information Architecture	
Laboratory	Title
Matsumaru	Stereo Matching Network Based on Atrous Convolution and Feature Pyramid Network.
Matsumaru	An End-to-End Air Writing Recognition Method Based on Transformer.
Matsumaru	Clustered Hand Keypoints Detection Based Sentence-level Sign Language Recognition using Transformer.
Tsubokawa	Study on optical fiber probe configuration for non-contact angle measurement
Tsubokawa	Study on tunable photonic nanojets obtained by the graded-index dielectric microparticles
Tsubokawa	Study on SPP refractive index sensor for high altitude meteorological detection
Tsubokawa	Study on nanoparticle transport in a bowtie fiber by controlling optical wavelength
Tsubokawa	Bidirectional transport of nanoparticles by micro capillaries with bowtie cores
Tsubokawa	Optical trapping force and torque on dielectric helical particles in Gaussian profile optical tweezers
Wu	Privacy Enhanced Zero-Trust Defense against Poisoning Attack in Swarm Learning
Wu	Federated Learning based Context Aware Selective Differential Privacy and Its Application
Wu	Blockchain and Homomorphic Encryption Empowered Secure Knowledge Graph Trading
Wu	Collaborative-Filtering Privacy-Preserving Edge Computation Offloading for Internet of Vehicles
Wu	Sensitive Image Data Privacy Preserving for Selective Directional Regions
Wu	Blockchain and NFT Empowered Cross-Trading Artificial Intelligence Model Copyright Protection
Wu	Digital Twin based Safety Fuzzing Test Approach for Autonomous Vehicles
Wu	GPU-CPU Accelerated Efficient Wireless Federated Learning with Embedding LDPC Coding
Wu	Privacy Enhanced Decentralized Federated Learning for GNN-based Molecule Drug Discovery
Yoshie	Text-to-image generation algorithm based on nested supervised Generative Adversarial Network
Yoshie	Solving Garbage Occlusion in Classification with Self-Constructing Database: YOLOv7 and Attention Mechanism
Yoshie	Efficient Single-Image Super-Resolution Reconstruction Algorithm Based on Transformer and MobileNet Hybrid Model
Yoshie	Mask Based Image Composition using Denoising Diffusion Model
Yoshie	Semi-Supervised Few-Shot Learning for Photo Enhancement: An Illumination Estimation Approach Using Color Histograms
Yoshie	Unified Approach for Semantic Segmentation, Instance Segmentation and Orientation Estimation on RGB-D Indoor Scenes
Yoshie	Research on Target Following and Crowd Navigation for Robot based on Relational Graph Learning
Yoshie	Research on image defogging method and application in traffic object detection
Yoshie	Camouflaged object segmentation based on distracted mining and boundary information
Yoshie	ESNet: Edge-Supervised Convolutional Neural Network for RGB-D Salient Object Detection

Production Systems	
Laboratory	Title
Inuishi	Design and analysis of new complementary lateral SOI RC-IGBT with simple procee
Inuishi	Novel frontside and backside design of snapback free N-channel vertical Trench type RC-IGBT
Inuishi	Design of lateral complementary trench type IGBT on SOI with simple process by new RESURF structure
Inuishi	New structure design of lateral complementary RC-IGBT on bulk Si for high voltage ICs
Lee	SRN: Multi-Target Path Planning Algorithm based on Multi-Task Neural Networks
Lee	Optimal Servo Decoupling Control with Kalman Filter for Binary Power Plant
Lee	Improved Self-Learning Cubature Kalman Filter Algorithm
Lee	Improved YOLO-Based Traffic Flow Monitoring Framework and Optimization of Traffic Signal Control
Lee	Satellite Image-Based Ship Detection, Map Modeling and Navigation for Unmanned Ships
Lee	Improved Jump Point Search Algorithm for AGV in Partially Known Environment
Lee	Financial Time Series Forecasting based on ARMA-LSTM and Multi-Modality Transformer Model
Miyake	Parity-time-symmetric wireless power transfer system for smart contact lenses
Miyake	Enzymatic power generation on an electric face mask and its application to bacterial sterilization
Miyake	Efficient interfacing of electropolymerized PEDOT-redox polymer electrodes with microbial biocatalysts
Miyake	Wearable, stretchable, wireless strain sensors for intraocular pressure measurement
Miyake	Real-time and electrochemical detection of inflammation-related biomarker
Miyake	Electromagnetic control of macromolecule delivery into adhesive cells through nanotube membranes
Takahashi	Research on the radiosensitivity of cordycepin to HT-29 colorectal cancer cells
Takahashi	Study of the vascular protective effect of 5-ALA as a radioprotective agent
Takahashi	Effect of Combination of Photodynamic Therapy and Radiation at Different Dose-rates on Colon Cancer Cell Line
Takahashi	Assessing of Integration of Ionizing Radiation with Curcumin-PDT on Cervical Carcinoma HeLa-luc Cell Treatment
Takahashi	Comparison of Gene Expression between Proton Beam and X-ray for Cancers and Relative further analysis
Takahashi	Research on radio-sensitization effect and potential PDT-sensitization effect of evodiamine against melanoma and breast cancer
Takahashi	Quantitative analysis of gene sequence of human and mouse syngeneic tumor cells co-cultured at different concentrations
Tanaka	Development of a 3-DOF Kinematic-Biological Matched Hip Joint Structure for Lower Limb Exoskeleton
Tanaka	Development of a Walking Assistance System Considering the Use of Mixed Reality
Tanaka	Trajectory Training with MediaPipe-based Single Camera Motion Capture System
Tanaka	Development of a Passive Assistive suit that Interlocks the Knees, Back, and Arms with a belt
Tanaka	A 3D-Printed Crawler Type Colonoscopy Device by Using a Soft Gear Transmission System
Tateno	Development of an FAQ Chatbot System for Supporting International Students in Japan Based on Corpus Expansion with GPT-2
Tateno	RGB-D Image based 3D SLAM using Direct Sparse Odometry Lite
Tateno	Indoor Localization with Data Augmentation Using Generative Adversarial Networks
Tateno	Dual-Frequency Fusion for Improved Indoor Positioning Using WiFi 2.4GHz and 5GHz

Integrated Systems	
Laboratory	Title
Ikehashi	Suppression of Thermoelastic Damping in MEMS Resonators Using a Virtual Spring and its Structural Dependence
Ikehashi	A MEMS Charge Pump with Junction-FET for Vibration Energy Harvester
Ikehashi	A Vertical Mode MEMS Gravimeter with Earth Gravity Cancellation Mechanism
Ikenaga	History Guided Pyramid Spatial-Temporal Neural Network with Displacement Based Refinement for Head Pose Prediction
Ikenaga	Window Shifted Big Kernel Depthwise Attention based Low-complexity MobileViT
Ikenaga	Intra-Frame Skeleton Constraints Modeling and Grouping Based Stacked Residual Graph Convolution Network for 3D Human Motion Prediction
Ikenaga	Scan and Inheritance Architecture with Top and Bottom Apex Detection for High Frame Rate and Ultra-low Delay Corner Detection
Ikenaga	ROI-Extraction and Pipelined Observation Based Particle Filter for High Frame Rate and Ultra-low Delay Multiple Object Tracking
Ikenaga	Progressive Spatial Weighting and Temporal Aggregation Based Multi-Stage Regression for Video-Based Head Pose Estimation
Kakitsuka	Topological photonic crystal optical isolators on III-V/Si platform
Kakitsuka	Plasmon-enhanced waveguide-type InGaAs-based uni-traveling-carrier photodiodes
Kakitsuka	Frequency-chirp controlled directly modulated membrane lasers
Kakitsuka	Ge/Si avalanche photodiodes with dual multiplication layers for sub-terahertz wave generation systems
Kakitsuka	Narrow linewidth wire-like active region membrane distributed reflector lasers with detuned loading effect
Kakitsuka	Single-photodiode image classification systems with random speckle pattern generation in a silicon multi-mode waveguide
Kakitsuka	Modulation-efficiency-enhanced membrane electro-absorption modulators with tensile-strained InGaAsP quantum wells
Kimura	An 8-point Approximate DCT Design with Optimized Signed Digit Encoding
Kimura	Prime Factorization Based on Multiple Quantum Annealings on Partial Constraints with Analytical Variable Reduction
Kimura	Design and Combination of Efficient 4-2 Approximate Compressors for Low-Power Multipliers
Kimura	Approximate Multiplier Based on Novel 4:2 and 5:2 Compressors
Kimura	Accuracy Improvement of Logarithmic Multipliers Based on Three-segment Linear Fitting
Kimura	Improved SAT-based Exact Synthesis of Onehot-Inverter Graphs Using Topology Information
Kimura	Approximate Multiplier Based on Positive and Negative Error Compensation Compressors
Kimura	A Hardware-Efficient Approximate Multiplier Combining Inexact Same-weight N:2 Compressors and Remapping Logic with Error Recovery
Kimura	Multi-size DCT Circuits Based on Approximate CSD Encoding
Kimura	Hardware-efficient Error Compensation Mechanisms for Approximate Logarithmic Multiplier
Kimura	An FPGA-based Accelerator for YOLOv4-tiny Object Detection with an Improved Loop Tiling Method

Integrated Systems	
Laboratory	Title
Makino	Moving Blind Source Extraction in Reverberant Indoor Environments
Makino	Knowledge Distillation using Mask-based Relationship for Speech Enhancement Model with U-net Architectures
Makino	Investigating the Impact of Patching Methods on the Use of Transformer-based Image Classification Models for Audio Classification
Makino	Deep Complex-valued Neural Network-Based Beamforming for Multi-channel Speech Separation
Ohsawa	Recovery of Accuracy Degradation due to Operational Amplifiers' Offset Voltages in Neural Network by Hardware-conscious Training Program
Ohsawa	Linear and Read Disturb-free 6TSRAM Based Neural Network Applied to Handwritten Digit Recognition
Ohsawa	Compensation Technique of Operational Amplifiers' Offset Voltages in Neural Network for Recovering Accuracy Degradation due to Threshold Voltage Fluctuation in MOSFETs
Ohsawa	High Throughput Deep Neural Network Utilizing Floating Gate Transistors as Parameter Memory
Ohsawa	Compensation Technique of Threshold Voltage Unbalance in Clamped Bit-Line Sense Amplifier for Improving High-Density STT-MRAM Chip Yield
Ohsawa	Highly Stable 4-Level Quantized Neural Network Inference Accelerator Utilizing SRAM Cells as Weight Memory
Ohsawa	Binarized Neural Network Inference Accelerator Using 6T SRAMs with Segmented Bit-Lines for Improving Linearity and Read Disturb
Ohsawa	Circuit Techniques of Controlling Bit-Line Voltages for Achieving a 25.0 TOPS/W Binarized Neural Network with Pipeline Architecture
Ohsawa	A Highly Energy Efficient Deep Neural Network Design Based on a Novel On-Bitline Current Subtraction Scheme
Shinohara	A Normalized Evidence Correlation Coefficient Method for Stochastic Computing of Extended Naive Bayesian Network
Shinohara	A Modeling Attack Resilient Sponge Structure Strong PUF with Scalable Challenge Response Pairs
Shinohara	Markov Chain based De-autocorrelation Circuits for Post-processing of True Random Number Generator
Shinohara	A Single-Inverter-based True Random Number Generator with Enhanced Random Noise by Damped Oscillation
Shinohara	A Correlation-Based Weighting Algorithm for Extended Naive Bayesian Inference
Shinohara	A Physically Unclonable Function Based on a 773F2 Bit Cell with Selectable Cascaded NMOS Pairs
Takahata	Analysis of laser cleaning based on a fluid-flow model with plasma shielding effect and thermal radiation
Takahata	Nonlinear-amplifying-loop-mirror-based mode-locked fiber laser with wide wavelength tuning range and high pulse energy
Takahata	Design of a compact Mach-Zehnder modulator based on silicon topological photonic crystal
Takahata	Silicon micro-ring modulator with lateral-zigzag interleaved PN-junction structure for high modulation efficiency
Takahata	Modified Ge/Si surface-illuminated uni-travelling-carrier photodiode with photon-trapping micro-holes
Takahata	Double-layer-graphene-based double-ring modulator for improvement in extinction ratio and modulation bandwidth
Takahata	Avalanche photodiode with triple-mesa mushroom structure for reduction in edge electric field
Yoshimasu	DGS Based Slow-Wave Microstrip Transmission Line in a 45-nm CMOS SOI Technology
Yoshimasu	A 38-GHz Sub-harmonic Up-conversion Mixer with Post-distortion Harmonic Cancellation Technique and Adaptive Bias in 45-nm CMOS SOI
Yoshimasu	A 14 GHz-Band Ultra-Low-Power LC-VCO With Novel Feedback Circuit in 45-nm CMOS SOI
Yoshimasu	A 76-81 GHz High P1dB and Low Insertion Loss SPDT Switch in 45-nm CMOS SOI
Yoshimasu	A 38-GHz High Back-Off PAE Stacked-FET Power Amplifier With Adaptively Controlled Gate Capacitor in 45-nm CMOS SOI
Yoshimasu	A 22-29 GHz High Linearity Low Noise Amplifier With Adaptive Bias Circuit in 45-nm CMOS SOI
Yoshimasu	A 13-GHz Band Wideband LC-VCO With a Single Voltage-Controlled Novel Varactor in 45-nm CMOS SOI
Yoshimasu	A 38-GHz 4-Stacked FET Power Amplifier with Novel Phase Linearizer in 45-nm CMOS SOI