修士論文題目一覧/List of Master's Thesis

2024年9月修了生/September 2024 Graduates

情報アーキテクチャ分野/Information Architecture

研究室/Laboratory	論文タイトル/Title
藤村 Fujimura	YOLOv8に基づく交通標識検出手法の精度向上 Improving the accuracy of traffic sign detection methods based on YOLOv8
	Deep Learning Method for Product Surface Defect Detection: An Enhanced U-Net Approach
	Optimized YOLOv8 Structure for Smart Factory Safety: Detection of PPE Violations and Safety Risks
	Steel surface defect detection based on Improved Yolov8
	Object detection in adverse weather based on YOLO network model.
	Two-Stage Stochastic Programming in a Disaster Relief Supply Chain based on Data-Driven Scenarios
	Cloud Computing Resource Scheduling based on Sample Average Approximation with Prediction Error
	Active 3D Reconstruction with Neural Radiance Field towards Uncertainty
	Improved NSGA-II for Multi-objective Flexible Job-Shop Scheduling Problems in Sustainable Manufacturing
古月 Furuzuki	Improving Few-Shot Classification via Multimodal Distribution Alignment and Enhanced Distribution Estimation
	RBF Autoencoder Based Models for Nonlinear Regression with Missing Values
	A Study of Neural Network Based Hybrid Approach for High-dimensional Imbalanced Data Classification
	Federated Multi-Label Zero-Shot Learning with Knowledge Graphs
	3D Human Posture Estimation Based on Multi Cross-layer Adaptive Fusion Hypothesis
	Fine-tuning Visual-Language Models with Temporal Pyramid Pooling for Video-Text Retrieval
	A Training-Free Frameworrk for Text-Driven Video Editing
	Dynamic Gate Control Network with Partial Feature Enhancement for Single Image Super-Resolution
	BoostDream: Efficient Refining for High-Quality Text-to-3D Generation from Multi-View Diffusion
岩井原 Iwaihara	Enhancing Emotion Classification through Cascade Classifier with Fine-tuned Large Language Models
	Mapping Wikipedia Categories and Lists to DBpedia Ontology with Large Language Models
	SumLTX-AO : Aspect-Based Summarization on Long Documents
	Finetuning Large Language Models for Keyphrase Generation under Supervised and Unsupervised Scenarios
	Enhancing Encoder-Decoder Models for Extreme Multi-Label Classification with Splitting Label Words
	Evaluating Performance of Large Language Models for Aspect-Based Sentiment Analysis
鎌田 Kamata	Skeleton Motion Based Adaptive Graph Convolutional Networks for Shoplifting Behavior Classification
	K-Space Enhancement Based Sparse Directional Diffusion for Compressed Sensing MRI
	Feature Fusion Networks for Accurate 3D Hand Reconstruction from Monocular Images
	Recurrent Route-Map Based Transformer for Endoscopic Video Super-Resolution
	Quality-Aware Glaucoma Diagnosis Using Diffusion Models With Fundus Structural Feature Integration
	Disaster Damage Detection from Multispectral Satellite Images Using Discriminative Self-Attention
	Breast Cancer Nuclei Detection and Scoring from ER-IHC Stained Images

亀岡 Kameoka	Agricultural environment detection based on Raspberry PI
	immobilized lactate oxidase based sensors for detection of lactate in sweat
	A low-cost, easy-to-manufacture, wearable sweat uric acid sensor based on graphite modified with carbon paste/MWCNTs
	Hollow Dissolving PVA Microneedles: A Novel Approach for Transdermal Vaccine and Bacterial Delivery
	Microneedle pH sensor based on Zinc Oxides: direct, real-time detection of interstitial fluid
	A Wearable Hydrogel Colorimetric Sensor for Non-Invasive Detection of Sweat pH, Glucose and Lactate
	Wearable sensor for sweat glucose concentration detection
	Emotion recognition system for Raspberry Pi using facial images
ルパージュ Lepage	Exhaustive extraction of analogical clusters from word embedding spaces
	Leveraging Knowledge from Translation Memory for Globally and Locally Guiding Neural Machine Translation
	High-Quality Data Augmentation for Low-Resource NMT: Combining a Translation Memory, a GAN Generator, and Filtering
坪川 Tsubokawa	Crosstalk suppression in image fiber bundles by longitudinal random refractive index core array
	Design of PCF-SPR based low refractive index liquid sensors
	Optical conveyor belts for trapping and transporting low and high refractive index particles
伍 Wu	Large Language Model-Enhanced Code Vulnerability Mining and Analysis
	Blockchain-enabled Privacy-Preserving Electroencephalogram Information Sharing
	Zero Knowledge Proof Empowered Trustworthy Bitcoin Payment Scheme with Transaction Protection
	Universal Privacy-Preserving Machine Unlearning Argument in MLaaS Through the Lens of Entropy
	Reliable Transactions Cross Hierarchical Trust Blockchains via Arbitrated Authentication and Reputation Consensus
吉江 Yoshie	Aligning Large Multimodal Model with Self-Generated Instructions
	FinanceGPT-B: A Large Language Model with Multi-Stage Structure for Financial Breakout Detection
	Robot Navigation in Enhanced Dynamic Crowd Environments Based on Relatinoal Graph Learning
	Exploration and improvement of capability boundary of large language model based on O(n) complexity problem
	Efficient lightweight model for speech emotion recognition

生産システム分野/Production Systems

研究室/Laboratory	論文タイトル/Title
橋本 Hashimoto	Indoor multi-task path planning for a wheeled mobile robot based on a hierarchical linear temporal logic approach
	A cane-assisted gait for humanoid robots
	Remote control method for mobile manipulator based on one-handed gesture
	Hybrid GWO-RRT algorithm and optimization for mobile robot path planning
	Cross-plane hopping of biped robots using model predictive control
	Shooting-based MPC for biped humanoid robots to imitate human dances
	Puddle perception with improved YOLOv8 using reflection intensity attention units
	Real-time reflective surface detection and segmentation using deep learning and SLAM algorithms
	Enhanced real-time recognition of broken fences using YOLOv8 neural network
	Integrating optimized A* algorithm with dynamic window approach for enhanced mobile robot path planning
	Enhancing robotic grasping performance on high-genus objects through hole detection and insertion planning
三宅 Miyake	Wireless drug release system from electric contact lenses
	Direct reprogramming based on protein delivery using nanotube stamp
	Eye rotation angle detection systems for augmented reality contact lens application
	Bi-directional electron transfer between bacteria and conducting polymers
	Tear cholesterol sensors on a contact lens
	Molecular delivery technique into bacteria with nanotube stamp
高橋 Takahashi	Transfer learning for bulk RNA-seq deconvolution with application to human cancers
	Evaluation of the effect of Chlorin e6 (Ce6) Radiodynamic Therapy (RDT) and combination of Ce6 Photodynamic Therapy and 5-aminolevulinic acid RDT on glioblastoma cells
	Study on the Combined Treatment of Disulfiram and Cisplatin with Radiotherapy in Colon Cancer: Effects and Signal Pathway Regulation
	Comprehensive Multi-omics Analysis of the Pancreatic Cancer Tumor Microenvironment and Construction of Predictive Models
	Observation of combined treatment of Quercetin and Kaempferol on HCT 116 human colorectal carcinoma cell with potential radio sensitizing effect.
	Research on the influence of the microenvironment on gene expression in cancer cells using bioinformatics techniques
田中 Tanaka	A Walking Promotion System that Combines Virtual Reality with Exercise Assistance to Provide High Motivation and Immersive Experiences
	Robust Emotion Classification with Larger Dataset: Evaluating LSTM, DenseNet, and DNN Using STFT and Wavelet Transforms
	Brunnstrom Stage Evaluation System with Mediapipe-based 3D Real-time Human Motion Reconstruction
立野 Tateno	Estimation Method of Trilateration Using Radical Center for RSSI-based Positioning System
	次元削減の最適化による効率的なプライバシー保護機械学習 Efficient Privacy-Preserving Machine Learning via Adaptive Dimensionality Reduction
植田 Ueda	Mg/Diamond Schottky Diodes: Characterization and High-Temperature Performance
	Reservoir computing using low relaxation time graphene/diamond photomemristors

集積システム分野/Integrated Systems

研究室/Laboratory	論文タイトル/Title
池橋 Ikehashi	A Power-less Bellows-shape Gap Closing Actuator for MEMS Resonators
	A MEMS Stopper Using Electrostatic Repulsive Force
	An Empirical Parasitic Capacitance Model of Island Structures for Silicon-On-Glass Devices
	A Feasibility Study of a Vacuum Pressure Sensor based on a MEMS Resonator with Virtual Spring
	Cooling Time Reduction of Deep Reactive Ion Etching Process for MEMS Gravimeters
	A MEMS Gravimeter with Negative Mechanical and Electrical Springs
	Design of 48MHz Line-shaped Overtone Resonators with Positive and Negative Temperature Coefficient of Frequency
	A High Sensitivity Resonant Accelerometer with Through Silicon Deep RIE Process
池永 Ikenaga	Cross-Spatial Fusion and Dynamic-Range Distribution Based Accelerated Temporal FPGA-GPU Architecture for Ultra-Low Delay Object Pose Estimation
	Candidate Expanded Parallel Matching and 2D-Grid Guided Sparse Point Cloud Filtering for Ultra-Low Delay Camera Pose Estimation
	Inter-Frame Similarity Sampling and Scene-Aware Segmentation Based Action Quality Assessment for Figure Skating Spin
	Learnable Histogram Feature Guided Color Restoration Network Using Feature-Adaptive Convolution Layers for Single-Image Low-Light HDR Reconstruction
碓塚 Kakitsuka	Plasmon-enhanced InGaAs modified uni-traveling-carrier photodiodes integrated with tapered waveguide
	Waveguide-type InGaAs avalanche photodiodes with InAlAs dual multiplication layers
	Single transverse mode vertical cavity surface emitting lasers with oxidized trench for multimode fiber communication systems
	Over 100-GHz directly modulated membrane lasers on silicon using photon-photon resonance
	Low-frequency-chirp membrane electro-absorption modulators on silicon
木村 Kimura	An Approximate Floating-Point Multiplier Based on Hybrid Radix Booth Encoding
	Approximate Multiplier Based on Addition without Carry for Low Significant Bits
	Power-Accuracy Tuning by Quality Evaluation Circuit with Instruction Re-execution
	4-1 Compressor Based Dual Mode Approximate Multiplier for Convolutional Neural Networks
	Dimensional Pruning Based on Masked Low Rank Approximation for Deep Learning on Edge Device
	Approximate Multiply and Accumulate (MAC) Unit with Error Compensate Truncation Multiplier and Approximate Accumulator
	Low-Power Approximate Radix-4 Booth Multiplier Based on Error Compensation Compressors
	Efficient Quantization Methods for Robust CNN Models on FPGA Against Adversarial Attacks
	Efficient LUT Based Exact and Approximate Multipliers for FPGA
	Probability-Based 4:2 Compressor for Efficient Approximate Multiplier Design
牧野 Makino	Accelerating Algorithm of Geometrically Constrained Source Separation and Dereverberation Using Iterative Source Steering
	Light Gated Multi Mini-patch Extractor For Audio Classification
	Transformer-based Virtual Microphone Estimator
	Enhancing Spectrogram for Audio Classification using Time-Frequency Enhancer
	A Computationally Efficient Online Algorithm for Tracking Single Moving Source using Geometrically Constrained Independent Vector Analysis
	Geometrically Constrained Moving Source Extraction based on Constant Separating and Auxiliary Function Technique
	Source Extraction in Moving Speakers' Conditions Using Multiple Geometric Constraints
	Convolutional Beamformer for Joint Source Separation and Dereverberation with Low Latency and Geometrical Constraints
	Masked Modeling Duo Vision Transformer with Multi-Layer Feature Fusion on Respiratory Sound Classification

高畑 Takahata	Optimized design of a multilayer multimode polymer waveguide comprising nonuniform cuboid cores for chip-to-chip optical interconnection
	Analysis on a surface-illuminated Ge/Si PIN photodiode with photon-trapping micro-holes
	Inverse-designed optical coupler for circular-hole silicon topological photonic crystal waveguide
	Design of a photonic full-adder based on silicon micro-ring resonators and Ψ gates
	Lateral Ge/Si waveguide avalanche photodiode with sidewall structure
	Design of a photonic binary 2×2 matrix multiplication circuit based on silicon micro-ring resonators
山﨑 Yamasaki	Multi-simulation design of vascular stents based on 4D printing
	Data-driven topology design for conductor layout problem of electromagnetic interference filter
	Research on multi-level optimization method for tensegrity structure
	Loading force prediction for fish vertebrae based on topology optimization and deep learning
吉増 Yoshimasu	A 38-GHz Stacked-FET Linear Power Amplifier with Novel Phase Linearizer in 45-nm CMOS SOI
	A 14-GHz-Band Low-Supply-Voltage Low Phase-Noise LC-VCO IC with Harmonic Tuned LC Tank in 45-nm CMOS SOI
	A 24-44 GHz High P1dB and Low Insertion Loss SPDT Switch in 45-nm CMOS SOI
	A 38-GHz High Back-Off Efficiency Stacked-FET Power Amplifier with Multi-Level Adaptive Gate Capacitor in 45-nm CMOS SOI
	A 4 GHz-Band Wideband LC-VCO with Switching Capacitors in 45-nm CMOS SOI
	27-GHz-Band Highly Linear Low Noise Amplifier IC with Adaptive Bias in 45-nm CMOS SOI