

## ACCAS2025 – Program at a glance

**ACCAS2025 - Program at a glance (2025/09/28 - 2025/09/30 @ Centennial Hall Kyushu University School of Medicine, Fukuoka, Japan)**

ACAS2025 - Program at a glance (2025/09/28 - 2025/09/30 @ Centennial Hall Kyushu University School of Medicine, Fukuoka, Japan)															
2025/09/28(Sun)				Date	2025/09/29(Mon)					Date	2025/09/30(Tue)				
Date / Room		Main Hall	Hall 1 & 2	Hall 3	Date / Room		Main Hall	Hall 1 & 2	Hall 3	Conference Room 1	Date / Room		Main Hall	Hall 1 & 2	Hall 3
				8:30 -	Registration starts from 8:30					8:30 -	Registration starts from 8:30				
				9:00 - 9:10	Opening Ceremony					9:00 - 10:35	Oral Session 5		Oral Session 6		
				9:10 - 10:45	Oral Session 1			Oral Session 2	10:35 - 10:50	Coffee Break					
				10:45 - 11:00	Coffee Break					10:50 - 12:25	Oral Session 7		Oral Session 8		
				11:00 - 12:40	Educational Session					12:25 - 14:00		Lunch + Prototype Demo Session			
				12:40 - 14:10		Lunch + Poster Session			14:00 - 14:15		Award Ceremony and Closing				
				14:30 -	Registration starts from 14:30					14:10 - 15:10	Plenary talk				
				15:00 - 17:00		Rising Star Session		15:10 - 15:25	Coffee Break						
								15:25 - 17:00	Oral Session 3			Oral Session 4			
								17:00 - 18:00				Networking Session with drinks	Board Meeting		
				18:00 - 20:00		Banquet									

\* The following sections show the session allocations for selected oral presentations, the poster session, the prototype demonstration session and special sessions.

### Oral Presentations (55)

#### Instruction for Presentation

- Please note that the order of oral presentations within each session will be finalized shortly and announced in the final program for ACCAS 2025.
- Oral presentation time: 10 minutes presentation + 3 minutes Q&A
- Please bring your own PC with presentation.

### Oral Session 1 – Machine Learning and Deep Learning for CAS (7)

**OS1 – 1:** Real-Time Surgical Instrument Segmentation using Efficient Deep Learning

**OS1 – 2:** AI-Driven Autonomous Spatial Registration of Pre-clinical Images to Patient for Bronchoscope Robot

**OS1 – 3:** Markerless Pose Estimation of Continuum Manipulator using Multi-Task Learning and Realistic Synthetic Dataset

**OS1 – 4:** Semantic Segmentation Enhanced Sim-to-Real Image Translation for Surgical Simulation

**OS1 – 5:** Contact-aware Prediction and Motion Switching for Reliable Autonomous Tissue Retraction in Robotic Surgery

**OS1 – 6:** Autonomous Tissue Traction for Surgical Dissection using Deep Reinforcement Learning: A Proof of Concept Study

**OS1 – 7:** Proposal of a Hyperparameter Selection Method for TimeGAN to Generate Training Data for Robotic Needle Insertion

### Oral Session 2 – Surgical Robotics and Instrumentation I (7)

**OS2 – 1:** Design and Control of a Robotic Flexible Endoscope for Automatic Intervention

**OS2 – 2:** Design and Evaluation of a Wireless Robotic System for Fracture Reduction Surgery: Compliance with EMC and Autoclave Sterilization Standards

**OS2 – 3:** Sim2Real Object Detection for Continuum Robots using Isaac Sim

**OS2 – 4:** Comparing Wrist Joint Angle by Armrest Positioning during Simulated Suturing Task in Pediatric Surgery

**OS2 – 5 :** Determining the Necessity of Force Feedback in Robot-Assisted Surgery

**OS2 – 6:** Catheter-based Flexible Ureteroscope for Balanced Omnidirectional Bending using Crossed Wiring

**OS2 – 7:** Development of a Cell Isolation Device for Continuous Brain Tumor Resection Surgery Support System - Optimization of Roller Gap for Efficient Cell Isolation

**Oral Session 3 – Advances in Image Processing and Surgical Visualization (7)**

**OS3 – 1:** Quality-driven Prompt Scoring for Depth-aware Bronchoscopic Lumen Segmentation

**OS3 – 2:** Ultrasound Image-Based 3D Bone Reconstruction and Registration with CT Models

**OS3 – 3:** Color Beyond Layers: Contrastive Dual-Band Endoscopic Imaging with Difference-aware Fusion

**OS3 – 4:** DepthAnythingV2-Based Depth Prediction for Telesurgery

**OS3 – 5:** Stacked Adversarial Learning for Boundary-Aware Segmentation in Corneal Slit Lamp Images

**OS3 – 6:** Two-Step Anatomical Feature Point Estimation of the Mandible using 3D U-Net-Based Initialization and Surface Curvature-Based Non-Rigid Image Registration

**OS3 – 7:** 3D Shape Difference Derived System in Real-time Processing for Evaluating Facial Morphology

**Oral Session 4 – Surgical Robotics and Instrumentation II (6)**

**OS4 – 1:** Diffusion-Prior Contrastive and Physics-Informed for Unpaired Endoscopic Image Restoration

**OS4 – 2:** Motor Command Prediction via Reinforcement-Informed Neural Networks for Flexible Continuum Manipulator

**OS4 – 3:** Investigation of Robotic Forceps Mechanism based on Biomimetics

**OS4 – 4:** Evaluation of Optical Displacement Sensor for Surgical Robotic Forceps in Repeated Grasping

**OS4 – 5:** Omnidirectional Steerable Catheters for ERCP using Non-straight and Crossed Wiring

**OS4 – 6:** Evaluation of Wide-Angle Lens Distortion Impact on Angle Recognition in 3D Endoscopic Images

**Oral Session 5 – Computer-Aided Diagnosis and Imaging (7)**

**OS5 – 1:** MAPS-Net: A Modality-weighted Asymmetric Pseudo Discrete Fusion Segmentation Network for PET/CT

**OS5 – 2:** Stereoscopic Surgical Exoscope for Simultaneous Visualization of Fluorescence and White-Light Images

**OS5 – 3:** Performance Comparison of Fetal Assessment Systems Based on CNN-based Architectures Depending on the Feature Regions of the Input Data

**OS5 – 4:** Pixel-Aware Alert Mapping for Bleeding Localization in Minimally Invasive Procedures

**OS5 – 5:** Surgical Procedure Analysis of Cervical Laminoplasty

**OS5 – 6:** A Mask-Based Conditional Diffusion Model for DISE Image Synthesis and Quality Evaluation

**OS5 – 7:** Image-based Joint Inflammation Estimation for Rheumatoid Arthritis with Virtual Hands

**Oral Session 6 – Surgical Robotics and Instrumentation III(7)**

**OS6 – 1:** An MRI-guided Prostate Biopsy Device with a Compliant Constant-Force Mechanism: Design and Preliminary Testing

**OS6 – 2:** Design of a Surgical Forceps with Force and Hardness Sensing Capability for MIS

**OS6 – 3:** Design of a Patient Positioning Robotic System for Orthopedic Surgery

**OS6 – 4:** Design and Evaluation of multi-Material Compliant Joint for Endoluminal Surgery

**OS6 – 5:** Improvement of a Stiffness Tunable Mechanism by Asymmetrical Beam Structure

**OS6 – 6:** Design and Evaluation of a Compact Catheter Robot System for Cardiovascular interventions

**OS6 – 7:** A Single Scale Doesn't Fit All: Adaptive Motion Scaling for Efficient and Precise Teleoperation

**Oral Session 7 – Navigation and Simulation in Computer-Assisted Surgery (7)**

**OS7 – 1:** Resolving Disorientation in Robotic Kidney Access through Visual Guidance: A User Study

**OS7 – 2:** Assistive System for Pre-operative Wire-Localization for Microcalcifications Breast Lesion under Mammogram Guidance

**OS7 – 3:** Integrated Point Tracking by Combining Optical Flow with Keypoint-based Tracking

**OS7 – 4:** Face-skull Modeling for Craniomaxillofacial Surgical Planning via A Progressive Shape Transform Network

**OS7 – 5:** Leader-follower Registration for Intuitive Control in Robot-assisted Endoscopic Surgery

**OS7 – 6:** Enhancing Augmented Reality Surgical Navigation with High-Fidelity Airway Segmentation

**OS7 – 7:** Contactless Hand Gesture Control for Intraoperative Flap Harvesting in Breast Reconstruction

**Oral Session 8 – Emerging Technologies and Clinical Applications of CAS (7)**

**OS8 – 1:** Evaluation of a Wireless Robotic System for Fracture Reduction in a Cadaver Model

**OS8 – 2:** Mitigating Hysteresis using Vibration Excitation on Tendon-Sheath Mechanism

**OS8 – 3:** Confocal Laser Endomicroscopy for Artificial Intelligence-Assisted Diagnosis of Intestinal Metaplasia

**OS8 – 4:** Reinforcement Learning for Autonomous Robotic Cutting using Virtual Reality Simulation

**OS8 – 5:** Multi-Scale Vessel Segmentation Framework with Orthogonal Convolution for Safer Endoscopic Submucosal Dissection

**OS8 – 6:** Endoscopic Tissue Deformation Recovery-Driven Surgery Support System for Visual Distraction Removal and Dissection Planning

**OS8 – 7:** Bone Marrow Aspiration Training System using a Pediatric Foot Model

**Poster Session (16)**

**Instruction for Poster Presentation**

- 1 Onsite presentation at poster area
- 2 Poster size (A0, Width 841 mm x Height 1,190 mm)
- 3 A 3-minute podium presentation will be given at the beginning of the session. Please prepare your slide(s) and upload them to the following URL by 26th September.
- 4 [https://archive.iii.kyushu-u.ac.jp/public/oppiA11J9CD\\_eRZXNTtZ8SbSemXOK9hOBqxkrUBSYf43](https://archive.iii.kyushu-u.ac.jp/public/oppiA11J9CD_eRZXNTtZ8SbSemXOK9hOBqxkrUBSYf43)
- 5 Please save your file using the format: Title\_PresenterName.pptx

**List of Posters (16)**

**P1 -** YOLOv11-Based Liver Deformation Prediction from Monocular Images: A Preclinical Study using Augmented Reality on 3D-Printed Models

**P2 -** Computer-Aided Diagnosis using the Large-Scale Visual Language Models in Screening of Digestive Endoscopy Confocal Laser Endomicroscopy for Artificial Intelligence-Assisted Diagnosis of Intestinal Metaplasia

**P3 -** Design and Experimental Evaluation of an Assistive Arm for Laparoscopic Surgery

**P4 -** Development of a System for Searching for the Same Section in Prostate Biopsy

**P5 -** Evaluation of Automated Segmentation of Interstitial Lung Abnormality Patterns in CT Images using Deep Learning

**P6 -** Feature-Guided Segmentation of Cranium Anatomy for Point Cloud Registration using Mask2Former

**P7 -** Surgical Tool Detection in Open Surgery using Temporal Information

**P8 -** Does Real-time Force Feedback Matter? A Pilot Study with Robot-assisted fURS

**P9 -** Development of a Magnetically Actuated Guidewire for Minimally Invasive Robotic Interventions

**P10 -** Analysis of Multimodal Sensory Signals using New Auto-Stopping Drill Model

**P11 -** Expanding Mechanism for Anchoring in Continuum Robots for Medical Applications

**P12 -** Optical Coherence Tomography As A Non-Invasive Tool For Accurate Cortical Surface Reconstruction

- P13** - Reducing Tissue Damage in Cylindrical Cutter-Based Extraction for Minimally Invasive Autopsy
- P14** - Biomechanical Evaluation of Polymer-Based Lumbar Disc Replacements using Advanced Infill Geometries.
- P15** - AR-Enhanced Surgical Robot Setup: Interactive Preoperative Guidance at the LIROS Innovation Hub
- P16** - A Surgical Navigation System for Fracture Reduction Integrating 3D Slicer and ROS2

### Prototype Demo Session (5)

#### Instruction for Presentation at the Demo Session

- 6 Onsite presentation at demonstration area
- 7 A 3-minute podium presentation will be given at the beginning of the session. Please prepare your slide(s) and upload them to the following URL by 26th September.
- 8 <https://archive.iii.kyushu-u.ac.jp/public/ip5hAQKJtADk0RkJNdHSCQ46rWTXc5QnNCi9BMZKvu2j>
- 9 Please save your file using the format: Title\_PresenterName.pptx

### List of Presentation (5)

- PD1** - Adaptive MR Smart Classroom for Children with Developmental Disorders: using Biosignal Monitoring and Haptic Feedback.
- PD2** - A Wire-Reduced Mechanism for Distal Rolling and Grasping using Torque Coils in Continuum Manipulators
- PD3** - Thin and Long Flexible Manipulators for Endoscopic Submucosal Dissection
- PD4** - RONAVis: A Robotic and Navigation System for Efficient, Accurate, and Safe Long Bone Fracture Management
- PD5** - SMOVE : A Hand Rehabilitation Robot

### Special Sessions (3)

#### Plenary talk

Prof. Yoko Yamanishi, Kyushu University

Title: Emergent functions of electrically induced bubbles

### Educational Session (5)

- ES1** - Digital Healthcare 2025 : Age of Generative AI – Prof. Koon Ha Rha
- ES2** - Light Field 3D Display for Medical Visualization - Assistant Prof. Tianqi Huang
- ES3** - Shaping Robotics Education: Curriculum Innovation and Hands-On Learning - Associate Prof. CHUI Chee Kong
- ES4** - Advancing Patient Care through Medical Robotics in Surgery, Rehabilitation, and Hospital Services - Prof. Jackrit Suthakorn
- ES5** - Multi-Agent Orchestration for Advanced AIs and Its Applications in Emergency Rooms - Prof. Yoshikazu Nakajima

### Rising Star Session (5)

- RS1** - Flexible Endoscopic Robots and Surgical Task Automation - Assistant Prof. Minh Hwang
- RS2** - Driving Next-Generation Robotic Surgery for Future Sustainable and Value-Driven Care in Singapore - Associate Prof. Chua Chin Heng Matthew

**RS3** - SurgSim: Bridging Surgical Simulation and Innovation – A Journey from Research to Impact - Dr. Nantida Nillahoot

**RS4** - Bridging Human and Machine Intelligence for Safer Surgical Environments - Assistant Prof. D.S.V. Bandara

**RS5** - Research on Autonomous Robotic Bone Drilling Methods for Deep Irregular Bone Tissues - Associate Prof. Liang Li