



Joint Congress of IFCARS, ISCAS, CAR, CMI, CAD-AI, IPCAI

CARS 2022 Final Program

**CARS 2022 Computer Assisted Radiology and Surgery
36th International Congress and Exhibition
June 7 - 11, 2022
Toranomom Hills Forum Congress Center, Tokyo, Japan
<https://www.cars-int.org>**

Tuesday, June 7, 2022

8:45 Welcome to CARS 2022

President: Yoshihiko Muragaki, MD, PhD (JP)



36th International Congress and Exhibition on Computer Assisted Radiology (CAR)

Chair: Ulrich Bick, MD (DE)

Tuesday, June 7, 2022

9:00-10:00 Medical Imaging

Session Chairs:

Deep Clustering of Skin Cancer from Mass Spectrometry Imaging

R. Ellis, T. Mainguy, B. Everitt, R. Theriault, K. Y. M. Ren, Queen's Univ., Kingston, ON (CA) [CAR-LE-28]

Deep extracted features to support Content-Based Image Retrieval systems in the diagnosis of Covid-19 and Interstitial diseases

M. Bedo, L. Lima, M. Koenigkam-Santos, A. Traina, P. Azevedo-Marques, Univ. of São Paulo, Ribeirão Preto Medical School; Fluminense Federal Univ. (BR) [CAR-LE-54]

Deep learning based radiological longitudinal volumetric evaluation of brain metastases after Stereotactic Radiosurgery

L. Joskowicz, A. Offenbacher, L. Kahanov, I. Ramirez, Y. Shoshan, The Hebrew Univ. of Jerusalem, Hadassah Univ. Medical Center, Jerusalem (IL) [CAR-LE-67]

Fusion of high resolution manometry and cinematography in the diagnosis of dysphagia

A. Jell, L. Bernhard, D. Wilhelm, H. Feußner, Klinikum rechts der Isar der TUM, München (DE) [CAR-LE-105]

Bone radiomics using Ultra-High Resolution CT: effects of imaging chain on texture biomarkers of bone quality

G. Shi, Y. Tai, F. Quevedo Gonzalez, R. Breighner, J. Siewerdsen, W. Zbijewski, Johns Hopkins Univ., Baltimore; Hospital for Special Surgery, New York (US) [CAR-LE-138]

Tuesday, June 7, 2022

10:00-11:00 Imaging Informatics – Segmentation (1)

Automated Breast Density Assessment using B-mode Ultrasound Computed Tomography

S. Fukagawa, Y. Jinnai, K. Madhawa, T. Azuma, M. Suzuki, N. Tomii, S. Akashi-Tanaka, T. Doi, Lily MedTech, Bunkyo City; The Univ. of Tokyo; Showa Univ., Tokyo; Shonan Memorial Hospital, Kanagawa (JP) [CAR-LE-22-00088]

A Skeleton Context-Aware 3D Fully Convolutional Network for Abdominal Artery Segmentation

R. Zhu, M. Oda, T. Kitasaka, K. Misawa, M. Fujiwara, K. Mori, Nagoya Univ.; Aichi Institute of Technology, Toyota; Aichi Cancer Center Hospital, Nagoya (JP) [CAR-LE-22-00091]

Class-wise Confidence-aware Active Learning for Laparoscopic Images Segmentation

J. Qiu, K. Mori, M. Oda, Y. Hayashi, T. Kitasaka, Nagoya Univ.; Aichi Institute of Technology, Toyota (JP) [CAR-LE-22-00095]

TriMix: Semi-Supervised Medical Image Segmentation with Mixed-Perturbation-based Regularization

Z. Zheng, Y. Hayashi, M. Oda, T. Kitasaka, K. Mori, Nagoya Univ.; Aichi Institute of Technology, Toyota (JP) [CAR-LE-22-00103]

Development of whole-leg musculoskeletal segmentation system by integrating multiple individually labeled CT image databases

Y. Masaki, Y. Otake, M. Soufi, K. Uemura, M. Takao, T. Miyamoto, Y. Tanaka, N. Sugano, Y. Sato, Nara Institute of Science and Technology, Ikoma (JP) [CAR-LE-123]

Tuesday, June 7, 2022

11:30-12:00 Imaging Informatics - Advanced Processing

Reattachable fiducial skin marker for automatic multimodality registration

B.J. Mittmann, A. Seitel, G. Echner, W. Johnen, R. Gnirs, L. Maier-Hein, A.M. Franz, Technische Hochschule Ulm; German Cancer Research Center, Heidelberg (DE) [CAR-LE-22-00025]

Feature-based CBCT Self-Calibration for Arbitrary Trajectories

C. Tönnies, T. Russ, L.R. Schad, F. Zöllner, Heidelberg Univ., Medical Faculty Mannheim (DE) [CAR-LE-22-00033]

MR-CT Multi-Atlas Registration Guided by Fully Automated Brain Structure Segmentation with CNNs

S. Walluscheck, L. Canalini, H. Strohm, J. Klein, S. Heldmann, Fraunhofer-Institut für Digitale Medizin MEVIS, Luebeck; Fraunhofer-Institute for Digital Medicine MEVIS, Bremen (DE) [CAR-LE-22-00056]

Tuesday, June 7, 2022

13:00-14:00 Imaging Informatics – Reconstruction

Blind super resolution of lung CT scans using Wiener deconvolution

S. Bhardwaj, K. Inai, H. Kimura, S. Kido, A. Shimizu, Tokyo Univ. of Agriculture and Technology, Koganei; Univ. of Fukui, Osaka Univ. (JP) [CAR-LE-40]

Synthesis of digitally reconstructed radiograph from x-ray image for estimation of bone mineral density

Y. Gu, Y. Otake, K. Uemura, S. Mazon, M. Takao, N. Sugano, Y. Sato, Nara Institute of Science and Technology, Ikoma-shi, Nara (JP) [CAR-LE-84]

3D bronchus anatomical structure measurement on real bronchoscopic images based on depth images estimated by deep neural network

C. Wang, Y. Hayashi, M. Oda, T. Kitasaka, H. Takabatake, M. Mori, H. Honma, K. Mori, Nagoya Univ.; Aichi Institute of Technology; Sapporo Minami-Sanjo Hosp.; Sapporo-Kosei General Hosp.; Seamen's Insurance Hokkaido Healthcare Center, Sapporo (JP) [CAR-LE-130]

Fully convolutional neural network with weighted frequency domain loss for reducing streak artifact in sparse-view CT

T. Okamoto, H. Haneishi, Chiba Univ., Chiba (JP) [CAR-LE-135]

Tuesday, June 7, 2022

14:00-17:00 Imaging Informatics – Segmentation (2)

Body fat compartments segmentation on abdominal T1w MRI using CNN

I. Vernikouskaya, H. P. Müller, D. Felbel, J. Kassubek, V. Rasche, Ulm Univ. Medical Center (DE) [CAR-LE-5]

A novel curriculum based paradigm for self-training deep learning networks for brain glioma segmentation

A. Liew, C. C. Lee, B. L. Lan, M. Tan, Monash Univ. Malaysia; Sunway Medical Centre, Selangor (MY) [CAR-LE-48]

Renal tumor segmentation by retraining GAN trained to transform contrast of CT images

R. Tanimoto, K. Mori, H. Takeya, Univ. of Tsukuba, Tsukuba (JP) [CAR-LE-51]

Slices prioritization for segmentation correction in fetal body MRI scans based on previous corrections data

B. Specktor Fadida, D. Link Sourani, L. Ben Sira, D. Ben Bashat, L. Joskowicz, The Hebrew Univ. of Jerusalem; Tel Aviv Sourasky Medical Center (IL) [CAR-LE-55]

Extraction of mediastinal great vessels from non-contrast CT images using 3D U-Net and its application to CTEPH

H. Suzuki, Y. Kawata, M. Matsuhiro, T. Sugiura, N. Tanabe, M. Kusumoto, M. Kaneko, N. Niki, The Univ. of Tokushima; Chiba Univ.; National Cancer Center Hosp.; Tokyo Health Service Association; Medical Science Institute Inc., Tokushima (JP) [CAR-LE-113]

Two-stage convolutional neural network-based approach for improved segmentation of basal ganglia on MR images

T. Sugino, T. Kin, N. Saito, Y. Nakajima, Tokyo Medical and Dental Univ.; The Univ. of Tokyo Graduate School of Medicine (JP) [CAR-LE-114]

Evaluation of automated musculoskeletal segmentation for muscle volume quantification in upright and supine CT imaging

T. Hakotani, M. Hashimoto, Y. Otake, Y. Yamada, M. Yamada, Y. Yokoyama, M. Soufi, K. Uemura, M. Takao, N. Sugano, Y. Sato, M. Jinzaki, Nara Institute of Science and Technology; Keio Univ., School of Medicine, Tokyo; Osaka Univ. (JP) [CAR-LE-139]

Tackling the Class Imbalance Problem of Deep Learning Based Head and Neck Organ Segmentation

E. Tappeiner, M. Welk, R. Schubert, UMIT - Private Univ. for Health Sciences, Medical Informatics and Technology GmbH, Hall in Tirol (AT) [CAR-LE-22-00004]

Real-time Automatic Tumor Segmentation for Ultrasound-Guided Breast-Conserving Surgery Navigation

J. Rudan, Z. Hu, P.V. Nasute Fauerbach, C. Yeung, T. Ungi, C.J. Engel, P. Mousavi, G. Fichtinger, D. Jabs, Queen's Univ., Kingston, ON (CA) [CAR-LE-22-00038]

Threshold Field Painting Saves the Time for Segmentation of Minute Arteries, N. Shono, T. Igarashi, T. Kin, T. Saito, N. Saito, The Univ. of Tokyo (JP) [CAR-LE-22-00045]

Ensemble uncertainty as a criterion for dataset expansion in distinct bone segmentation from upper-body CT images

E. Schnider, A. Huck, M. Toranelli, G. Rauter, A. Zam, M. Müller-Gerbl, P.C. Cattin, Univ. of Basel, Allschwil (CH) [CAR-LE-22-00065]

Improved distinct bone segmentation from upper-body CT using binary-prediction-enhanced multi-class inference.

E. Schnider, A. Huck, M. Toranelli, G. Rauter, M. Müller-Gerbl, P.C. Cattin, Univ. of Basel, Allschwil (CH) [CAR-LE-22-00067]

Fibre tract segmentation for intraoperative diffusion MRI in neurosurgical patients using tract-specific orientation atlas and tumour deformation modelling.

F. Young, K. Aquilina, C. Clark, J. Clayden, Univ. College London; Great Ormond St. Hosp. Children, London (GB) [CAR-LE-22-00071]

Automatic segmentation of prostate and extraprostatic structure in MRI to predict needle deflection in percutaneous prostate intervention

S. Kobayashi, F. King, N. Hata, Kyushu Univ. Hospital, Fukuoka (JP); Brigham and Women's Hospital, Boston, MA (US) [CAR-LE-22-00078]

Tuesday, June 7, 2022

14:00-17:00 CAR/CARS Poster Session 1

Dataset containing RF signals of the Doppler twinkling artifact

D. Leonov, M. Kodenko, A. Nasibullina, N. Kulberg, Moscow Radiology; Federal Research Center "Computer Science and Control" of Russian Academy of Sciences, Moscow (RU) [CAR-LP-PO-11]

Automated segmentation of contrast-enhancing brain tumor using only post-contrast t1-weighted

N. Kashiwagi, C. Avare, R. Shiroishi, Canon Medical Systems Corporation, Otawara, Osaka Univ. Graduate School of Medicine, Suita (JP), Avicenna.AI, Research and Development, La Ciotat (FR) [CAR-PO-13]

Prediction of deep myometrial invasion of uterine endometrial cancer on MRI using Vision Transformer

Y. Kurata, M. Nishio, Y. Matsumoto, S. Otani, Y. Moribata, Y. Himoto, A. Kido, M. Mandai, Y. Nakamoto, Kyoto Univ. Graduate School of Medicine (JP) [CAR-PO-20]

A Study on Construction of Organ Coverage Avoidance Method of Acoustic Shadows for Automatic Ultrasound Diagnosis

M. Matsuyama, N. Koizumi, Y. Nishiyama, Y. Watanabe, J. Zhou, S. Yagasaki, T. Fujibayashi, M. Yamada, T. Ishikawa, R. Tsumura, K. Yoshinaka, N. Matsumoto, H. Tsukihara, K. Numata, The Univ. of Electro-Communications (UEC), Tokyo; National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba (JP) [CAR-PO-27]

Segmentation of bones from head CBCT using federated learning with clinician-in-the-loop

X. Xu, H. H. Deng, T. Kuang, P. Yan, J. J. Xia, Rensselaer Polytechnic Institute, Troy; Houston Methodist Hospital (US) [CAR-PO-30]

Skeletal muscle segmentation by simultaneous learning of particular superficial back muscles using 2D U-Net in torso CT images

M. Kawamoto, N. Kamiya, X. Zhou, H. Kato, T. Hara, H. Fujita, Aichi Prefectural Univ., Nagakute; Gifu Univ.; Tokai National Higher Education and Research System, Nagoya (JP) [CAR-PO-33]

Extraction of respiratory bronchioles and alveolar ducts from micro-CT volumes with distance-based tubular structure filter

T. Shiina, H. Oda, T. Zheng, S. Nakamura, Y. Hayashi, M. Oda, K. Mori, Nagoya Univ.; National Institute of Informatics, Tokyo (JP) [CAR-PO-49]

Higher resolution of CT images by deep learning using GAN

R. Takara, Y. Taguchi, S. Ito, S. Kuga, M. Takeda, K. Yoshida, M. Nakajima, Chuoh College of Medical Technology, Tokyo (JP) [CAR-PO-65]

Adaptive noise reduction scheme for dedicated breast positron emission tomography using multiple convolutional neural networks

M. Tsukijima, A. Teramoto, K. Saito, H. Fujita, Fujita Health Univ., Toyoake; East Nagoya Image Diagnosis Center; Gifu Univ. (JP) [CAR-PO-71]

Artificial chest X-ray image creation with simulated lung nodules by Glow algorithm

S. Hanaoka, Y. Nomura, N. Hayashi, H. Shibata, T. Nakao, T. Takenaga, O. Abe, The Univ. of Tokyo Hospital; Chiba Univ. (JP) [CAR-PO-77]

2D+3D registration in deformation-adaptive super-resolution for medical images

T. Zheng, H. Oda, T. Hu, Y. Hayashi, S. Nakamura, M. Mori, H. Takabatake, H. Natori, M. Oda, K. Mori, Nagoya Univ.; Sapporo-Kosei General Hospital; National Institute of Informatics (JP) [CAR-PO-85]

AI-assisted RoI extraction and DVH calculation tool for Geant4-based radiotherapy simulation

A. Kimura, Ashikaga Univ. (JP) [CAR-PO-89]

Effect of a deep learning-based reconstruction method for pulmonary nodule volumetry analysis in low-dose computed tomography

S. Watanabe, K. Sakaguchi, S. Kitaguchi, Kindai Univ. Hospital, Osaka (JP) [CAR-PO-90]

A Benchmark for the evaluation of computational methods for bronchoscopic navigation

J. Borrego-Carazo, C. Sanchez, D. Castells-Rufas, J. Carrabina, D. Gil, Computer Vision Center, Cerdanyola del Vallès; Universitat Autònoma de Barcelona (ES) [CAR-PO-106]

Image-based Algorithm for Automated Insertion of CT-guided Biopsy Needle: Proof of Concept

L. Kini, P. Hadar, B. Haas, Univ. of California, San Francisco (US) [CAR-PO-111]

Wednesday, June 8, 2022

9:00-9:30 CAR/CARS Poster Session 2

CNN-based automated segmentation of deep vessels in non-contrast-enhanced CT images: Validation on multi-institutional databases

Y. Chen, S. Mazon, K. Uemura, Y. Otake, M. Takao, S. Iwakoshi, T. Tanaka, N. Sugano, Y. Sato, Nara Institute of Science and Technology, Ikoma; Osaka Univ.; Nara Medical Univ. (JP) [CAR-PO-128]

Intestinal obstruction point finding assistance based on intestinal luminal area segmentation

H. Oda, Y. Hayashi, T. Kitasaka, A. Takimoto, A. Hinoki, H. Uchida, K. Suzuki, M. Oda, K. Mori, H. Oda, Y. Hayashi, T. Kitasaka, A. Takimoto, A. Hinoki, H. Uchida, K. Suzuki, M. Oda, K. Mori, Nagoya Univ.; Aichi Inst. of Technology; Aichi Medical Univ.; National Institute of Informatics, Tokyo (JP) [CAR-PO-133]

A Study on Deep Learning for Automatic Diagnosis and Treatment Robots Automatic Diagnosis and Treatment Robot

N. Koizumi, T. Fujibayashi, Y. Nishiyama, Y. Watanabe, J. Zhou, M. Matsuyama, M. Yamada, R. Tsumura, K.

Yoshinaka, N. Matsumoto, H. Tsukihara, K. Numata, The Univ. of Electro-Communications; Waseda Univ.; Nihon Univ. School, Tokyo; The Univ. of Tokyo; National Inst. of Advanced Industrial Science and Technology, Ibaraki; Yokohama City Univ. Medical Center (JP) [CAR-PO-22-00039]

Motion Artifact Correction for Ultrasound Computed Tomography

Y. Tanaka, Y. Jinnai, T. Azuma, S. Akashi-Tanaka, T. Doi, Lily MedTech, Bunkyo City; The Univ. of Tokyo; Showa Univ., Tokyo; Shonan Memorial Hospital, Kanagawa (JP) [CAR-PO-22-00090]

Double U-Net CycleGAN for 3D MR to CT Image Synthesis

B. Sun, S. Jia, X. Jiang, F. Jia, Chinese Academy of Sciences, Shenzhen; Hejian People's Hospital, Cangzhou; Tongliao City Hospital (CN) [CARS-PO-22-00087]

Development of Cerebral Endovascular Treatment Remote Control System in Smart Cyber Operating Theater

T. Ishikawa, K. Yamaguchi, T. Funatsu, Y. Moteki, Y. Muragaki, T. Kawamata, Tokyo Women's Medical Univ., Tokyo (JP) [CARS-PO-83]

Usage of a graph database for the selection of sterile items in the OR

C. Müller, L. Bernhard, D. Wilhelm, Klinikum rechts der Isar der TUM, Munich (DE) [CARS-PO-22-00031]

Design and validation of a phantom for transcranial ultrasonography

D. Leonov, M. Kodenko, D. Leichenko, A. Nasibullina, N. Kulberg, Moscow Radiology (RU) [CARS-PO-22-00023]

Correlation of Gluteal Muscle Atrophy and Fatty Degeneration with Health-Related Quality of Life Measures in Patients with Unilateral Hip Osteoarthritis – AI-based Volumetric Analysis

M. Iwasa, M. Takao, Y. Otake, K. Uemura, M. Soufi, H. Hamada, Y. Sato, N. Sugano, Osaka Univ. Graduate School of Medicine; Nara Institute of Science and Technology (JP) [CARS-PO-22-00107]

Wednesday, June 8, 2022

9:30-10:35 Virtual and Augmented Reality

UltrARsound: In-situ visualisation of live ultrasound images using HoloLens 2

F. von Haxthausen, R. Moreta-Martinez, A. Pose-Díez-de-la-Lastra, J. Pascau, F. Ernst, Univ. Lübeck (DE); Univ. Carlos III de Madrid, Leganés (ES) [CAR-LE-22-00022]

Augmented Reality Visualization of Automated Path Planning for Percutaneous Interventions: A Phantom Study

L. Schwenderling, F. Heinrich, C. Hansen, Otto-von-Guericke Univ. Magdeburg (DE) [CAR-LE-22-00068]

Mevislab-OpenVR interface for medical application prototyping of virtual reality medical applications

S. De Buck, A. Van De Bruaene, W. Budts, P. Suetens, Catholic Univ. Leuven (BE) [CAR-LE-22-00073]

Four-dimensional reconstruction method of carotid artery ultrasound from 2D freehand sonography

H. Liang, G. Ning, S. Dai, L. Ma, J. Luo, X. Zhang, H. Liao, Tsinghua Univ. School of Medicine; Tsinghua Univ., Beijing (CN) [CAR-LE-22-00083]

A deformable image-based registration approach to obtain shape correspondence for statistical shape modeling of finger bones

A. Lange, S. Heldmann, J. H. Moltz, L. Walczak, C. Engel, M. Detering, A. Rörich, F. Güttler, S. Yarar-Schlickewei, J. Georgii, Fraunhofer MEVIS, Lübeck; Charité - Universitätsmedizin Berlin; Jena Univ. Hospital – Friedrich Schiller Univ.; Universitätsklinikum Hamburg-Eppendorf (DE) [CAR-LE-99]

Age prediction from pelvis bone shape using large-scale CT database based on geometric deep learning

B. Zhang, Y. Otake, S. Mazon, K. Uemura, M. Takao, K. Aida, S. Satoh, M. Hashimoto, T. Akashi, N. Sugano, Y. Sato, Nara Institute of Science and Technology, Ikoma; Osaka Univ.; National Institute of Informatics, Tokyo; Keio Univ. (JP) [CAR-LE-126]

Wednesday, June 8, 2022

10:45-12:00 Image Guided Interventions

Automatic Intraoperative Iceball Segmentation during MRI-guided Focal Cryoablation for Prostate Cancer

I. Gangavaram, P. Moreira, J. Tokuda, K. Tuncali, C. Tempany, Brigham and Women's Hospital, Watchung (US) [CAR-LE-107]

Compensation of deformable motion for vascular interventional cone-beam CT with a vessel-targeted approach

A. Lu, W. Zbijewski, M. Unberath, J. Siewerdsen, C. Weiss, A. Sisniega, Johns Hopkins School of Medicine, Baltimore (US) [CAR-LE-109]

Landmark Tracking in 4D Ultrasound using Generalized Representation Learning

D. Wulff, J. Hagenah, F. Ernst, Univ. of Lübeck (DE); Univ. of Oxford (GB) [CAR-LE-22-00059]

Image-based recognition of Surgical Instruments by means of Convolutional Neural Networks

J. Lehr, K. Kelterborn, C. Briesse, M. Schlueter, O. Kroeger, J. Krueger, Fraunhofer-Institut für Produktionsanlagen und Konstruktionstechnik IPK; Charité CFM Facility Management GmbH, Berlin; TU Berlin (DE) [CAR-LE-22-00063]

Learning-Based Autonomous Vascular Guidewire Navigation without Human Demonstration in the Venous System of a Porcine Liver

L. Karstensen, J. Ritter, J. Hatzl, T. Pätz, J. Langejürgen, C. Uhl, F. Mathis-Ullrich, Fraunhofer-Institut für Produktionstechnik und Automatisierung IPA, Mannheim; Univ. Hospital Heidelberg; Fraunhofer Institute for Digital Medicine MEVIS, Bremen; Karlsruhe Institute of Technology (DE) [CAR-LE-22-00064]

AI-based Optimization for US Guided Radiation Therapy of the Prostate

S. Gerlach, T. Hofmann, C. Fürweger, A. Schlaefer, Hamburg Univ. of Technology; Europäisches Radiochirurgie Zentrum München (DE) [CAR-LE-22-00070]

Attention Guided Self-supervised Monocular Depth Estimation Based on Joint Depth-pose Loss for Laparoscopic Images

W. Li, Y. Hayashi, M. Oda, T. Kitasaka, K. Misawa, K. Mori, Nagoya Univ.; Aichi Institute of Technology, Toyota; Aichi Cancer Center Hospital, Nagoya (JP) [CAR-LE-22-00100]

Thursday, June 9, 2022

17:00-18:30 6th ISCAS / CAD-AI / IFCARS Joint Symposium on Multidisciplinary Computational Anatomy (MCA)

Session Chairs: Makoto Hashizume, MD (JP), Hiroyuki Yoshida, PhD (US), Heinz U. Lemke, PhD (DE)

Construction of a 3D organ model using a robot, Visual SLAM, and deep learning

T. Ishikawa, N. Koizumi, Y. Nishiyama, Z. Ziayi, Y. Watanabe, T. Fujibayashi, M. Matsuyama, M. Yamada, R. Tsumura, K. Yoshinaka, H. Tsukihara, K. Numata, The Univ. of Electro-Communications, Tokyo; National Institute of Advanced Industrial Science and Technology, Tsukuba; Yokohama City Univ. Medical Center (JP) [CARS/MCA-LE-36]

More accurate cerebral aneurysm clipping using preoperative ultra-high-resolution computed tomography and computational fluid dynamic analysis

H. Kimura, K. Hayashi, Y. Fujimoto, S. Osaki, A. Tomiyama, T. Sasayama, Kobe Univ. Graduate School of Medicine, Kobe (JP) [CARS/MCA-LE-52]

Development and validation of a method for automated 3D thorax model generation and surface-electrode positioning based on handheld video-footage

N. Dussel, R. Fuchs, A.W. Reske, T. Neumuth, Leipzig Univ.; Univ. Hospital of Heidelberg (DE) [CARS/MCA-LE-21-00633]

Characterization of blood-mimicking fluids for echocardiography imaging of ventricular septal defects

S. Amouri, G. Tibamoso Pedraza, I. Navarro, M.-J. Raboisson, C. Lapierre, J. Miró, L. Duong, École de Technologie Supérieure; CHU Sainte-Justine Hospital, Montréal, QC (CA) [CARS/MCA-LE-22-00020]

Tissue damage force estimation in porcine small intestine from its elasticity

K. Yamamoto, K. Hara, E. Kobayashi, Y. Akagi, I. Sakuma, The Univ. of Tokyo; Tokyo Women's Medical Univ. (JP) [CARS/MCA-LE-22-00030]

Comparison of Rhinomanometric and Computational Fluid Dynamic Assessment of Nasal Resistance with Respect to Measurement Accuracy

N. Schmidt, J. Brüning, H. Behrbohm, L. Goubergrits, T. Hildebrandt, Charité - Universitätsmedizin Berlin; Park-Klinik Weißensee, Berlin (DE); Medgate Health Center, Zürich (CH) [CARS/MCA-LE-22-00032]

Systematic Analysis of Volumetric Ultrasound for Markerless 4D Motion Tracking

J. Sprenger, M. Bengs, S. Gerlach, M. Neidhardt, A. Schlaefer, Hamburg Univ. of Technology (DE) [CARS/MCA-LE-22-00072]

Friday, June 10, 2022

9:00-11:00 Cardiovascular

Respiratory motion detection in X-Ray fluoroscopy using CNN

I. Vernikouskaya, D. Bertsche, W. Rottbauer, V. Rasche, Ulm Univ. Medical Center (DE) [CARS-LE-4]

The CathPilot: a novel approach for accurate interventional device steering and tracking

M. Tavallaei, J. Zhou, A. Quadri, A. Sewani, Y. Alawneh, R. Gilliland-Rocque, C. Magnin, A. Dueck, G. Wright, Ryerson Univ., Toronto; Univ. of Waterloo; Magellan Biomedical Inc.; Sunnybrook Health Sciences Centre, Toronto (CA) [CARS-LE-75]

Development of a 3D printer-based model to assess contact pressure of cryoballoon ablation

T. Hayashi, E. Kawasaki, J. Takada, M. Murakami, S. Saito, K. Iwasaki, Shonan Kamakura General Hospital, Kamakura; Tokyo Women's Medical Univ.; Waseda Univ., Tokyo (JP) [CARS-LE-144]

Development of an in vitro functional mitral regurgitation model for preclinical evaluation of transcatheter mitral valve repair devices.

H. Morimura, Y. Okamoto, J. Takada, K. Iwasaki, Waseda Univ., Tokyo (JP) [CARS-LE-146]

Bicuspid aortic valve morphology and aortic hemodynamics: An experimental analysis using an MRI-compatible pulsatile flow circulation system

K. Hattori, N. Nakama, J. Takada, E. Kawasaki, K. Hamada, M. Nagao, Y. Goto, H. Niinami, K. Iwasaki, Waseda Univ., Tokyo; Tokyo Women's Medical Univ. (JP) [CARS-LE-147]

A system for real-time multivariate feature combination of endoscopic mitral valve simulator training data

R. Fuchs, K.M. Van Praet, R. Bieck, J. Kempfert, D. Holzhey, M. Kofler, M. A. Borger, S. Jacobs, V. Falk, T. Neumuth [CARS-LE-21-00744]

3D localization from 2D x-ray projection

D. Bertsche, V. Rasche, W. Rottbauer, I. Vernikouskaya, Ulm Univ. Medical Center (DE) [CARS-LE-22-00018]

CASSIA (Cardiology Software Suite for Image Analysis) – A tool to improve infective endocarditis diagnostic accuracy by the evaluation of myocardial metabolic activity in [18F]FDG PET/CT

D. Palomino-Fernández, A Gómez-Grande, M. Fernández-Igarza, P. Pilkington, A.P. Seiffert, H. Bueno, E.J. Gómez, P. Sánchez-González, Universidad Politecnica de Madrid; Hospital Universitario 12 de Octubre, Madrid (ES) [CARS-LE-22-00024]

Patient-specific multi-modality abdominal aortic aneurysm imaging phantoms for EVAR simulation training

C.D. Little, E.C. Mackle, E. Maneas, D. Chong, D Nikitichev, J. Constantinou, J. Tsui, G. Hamilton, R. Rakhit, T. Mastracci, A.E. Desjardins, Univ. College London; Imperial College London; Royal Free Hosp., London (GB) [CARS-LE-22-00037]

Robust Bifurcation Matching for Consistent Cerebral Vessel Labeling in CTA for Stroke Patients

L. Rist, O. Taubmann, F. Thamm, H. Ditt, M. Sühling, A. Maier, Friedrich-Alexander-Univ. Erlangen-Nürnberg; Siemens Healthineers, Forchheim (DE) [CARS-LE-22-00075]

3D Localization of Vena Contracta using Doppler ICE Imaging in Tricuspid Valve Interventions

H. Nisar, D. Fakim, D. Bainbridge, E.C.S. Chen, T. Peters, Western Univ.; Robarts Research Inst., London, ON (CA) [CARS-LE-22-00114]

Friday, June 10, 2022

13:00-15:15 Digital Operating Room

Clinical experiences of robotic scrub nurse system in neurosurgery

K. Yoshimitsu, K. Masamune, H. Yamaga, Y. Muragaki, Tokyo Women's Medical Univ., Tokyo; Showa Univ. Northern Yokohama Hosp. (JP) [CARS/DOR-LE-26]

Brain tumor surgery using middleware "OPeLiNK" for integrating intraoperative information

Y. Fujii, T. Ogiwara, T. Goto, K. Hongo, Y. Muragaki, T. Horiuchi, Shinshu Univ. School of Medicine, Matsumoto; Tokyo Women's Medical Univ. (JP) [CARS/DOR-LE-68]

Towards Wireless 5G Operating Room

G. Lelu, Y. Zhou, G. Pasquier, A. Muriene, IRT b-com, Cesson-Sevigne (FR) [CARS/DOR-LE-97]

Mobile service robots for the operating room wing: Balancing cost and performance by optimizing robotic fleet size and composition

L. Bernhard, A.F. Amalanesan, O. Baumann, F. Rothmeyer, Y. Hafner, M. Berlet, D. Wilhelm, A. Knoll, Klinikum rechts der Isar der TUM; Technical Univ. Munich (DE) [CARS/DOR-LE-22-00053]

Clinical Decision Support Models for Oropharyngeal Cancer Treatment: Design and Evaluation of a Multi-Stage Knowledge Abstraction and Formalization Process

J. Gaebel, S. Mehlhorn, A. Oeser, A. Dietz, T. Neumuth, M. Stoehr, Univ. Leipzig; Univ. Hosp. Leipzig (DE) [CARS/DOR-LE-22-00054]

A high-fidelity prototype of a sterile information system for the perioperative area - OR-Pad

C. Ryniak, S.M. Frommer, D. Junger, S. Lohmann, M. Stadelmaier, P. Schmutz, A. Stenzl, B. Hirt, O. Burgert, Reutlingen Univ.; Univ. Hospital Tübingen; Eberhard Karls Univ. Tübingen (DE) [CARS/DOR-LE-22-00057]

Service-oriented Device Connectivity Interface for a Situation Recognition System in the OR

D. Junger, P. Beyersdorffer, C. Kücherer, O. Burgert, Reutlingen Univ. (DE) [CARS/DOR-LE-22-00058]

Towards the OR of the future: Introducing an adaptive and technology-embracing OR wing layout

C. Amato, C. Yang, L. Bernhard, P.C. Giulianotti, P. Kondrat, O. Ratib, D. Wilhelm, Klinikum rechts der Isar der TUM, Munich (DE); Cannon Design, Los Angeles, CA; Univ. of Illinois, Chicago, IL (US); Univ. Hospital of Geneva (CH) [CARS/DOR-LE-22-00086]

Intuitive Teaching of Medical Device Operation to Clinical Assistance Robots

O. Baumann, A. Lenz, J. Hartl, L. Bernhard, A.C. Knoll, Technical Univ. Munich; Klinikum rechts der Isar der TUM (DE) [CARS/DOR-LE-22-00092]

Deep-learning-based Instrument Detection for intra-operative robotic Assistance

J. Badilla-Solórzano, S. Spindeldreier, S. Ihler, N.C. Gellrich, S. Spalthoff, Leibniz Univ. Hannover, Garbsen; Hannover Medical School (DE) [CARS/DOR-LE-22-00093]

Towards Intraoperative Tissue Classification: Exploiting Signal Feedback from an Ultrasonic Aspirator for Brain Tissue Differentiation

N. Bockelmann, D. Schetelig, D. Kesslau, S. Buschschlüter, F. Ernst, M.M. Bonsanto, Univ. of Lübeck; Söring GmbH, Quickborn; Univ. Hospital Schleswig-Holstein, Lübeck (DE) [CARS/DOR-LE-22-00105]

A system integration strategy for an autonomously-driven needle in prostate biopsy interventions

R. Lisk, F. Tavakkolmoghadam, G. S. Fischer, J. Tokuda, N. Hata, Brigham and Women's Hospital, Boston; Worcester Polytechnic Institute (US) [CARS/DOR-LE-116]

Friday, June 10, 2022

15:25-16:30 Digital Healthcare

Robots in healthcare: now and in the future

Invited Lecture: D. Wilhelm, Klinikum rechts der Isar der TUM, München (DE) [CARS-IS-44]

Toward Fully Automated Robotic Auscultation Platform with LiDAR Camera-based Registration

R. Tsumura, Y. Koseki, N. Nitta, K. Yoshinaka, National Institute of Advanced Industrial Science and Technology, Ibaraki (JP) [CARS-LE-12]

Digital Transformation of Radiology Service in the Era of Artificial Intelligence

S. Mun, K. Wong, S. C. Lo, Virginia Tech, Arlington, VA (US) [CARS-LE-42]

How Can We Build Surgery Globally? Two Very Different Models with Impressive Results

R. Andrews, NASA Ames Research Center, Los Gatos, CA (US) [CARS-LE-56]

Telehealth approach for patient follow-up after total knee and reverse total shoulder arthroplasty: a pilot study

C. Fabrés Martín, C. Ventura Parellada, H. Herrero Antón de Vez, C.E. Ordoñez Urgilles, J. Alonso-Rodríguez Piedra, J.M. Mora Guix, Consorci Sanitari de Terrassa; Centro Médico Teknon, Barcelona (ES) [CARS-LE-22-00043]

Concepts and IT Infrastructures for Model Guided Medicine

H.U. Lemke, H. Herrero Antón de Vez, M.A. Cypko, IFCARS, Küssaberg; Free Univ. of Berlin (DE); Alma Medical Imaging, Barcelona (ES) [CARS-LE-1]

24th International Conference on Computer-Aided Diagnosis and Artificial Intelligence (CAD-AI)

Chairman: Hiroyuki Yoshida, PhD (US)

Thursday, June 9, 2022

9:00-9:30 CAD-AI Poster Session

Investigation of segmentation-based prostate volume measurement for use in PSA density calculation

K. Abe, H. Takeo, Y. Nagai, Y. Kuroki, S. Nawano, Kanagawa Institute of Technology; National Cancer Center Hosp. East; Niimura Hosp., Kagoshima; Shinmatsudo Central General Hosp., Chiba (JP) [CAD-PO-2]

Development of image processing aimed at improving benign-malignant discrimination processing of breast tumors by CAD

S. Kudo, K. Abe, H. Takeo, Y. Nagai, S. Nawano, Graduate School of Kanagawa Institute of Technology; National Cancer Center Hosp. East; Shinmatsudo Central General Hosp., Chiba (JP) [CAD-PO-3]

Prediction scheme of the short-term urinary continence using robotic surgery images

A. Teramoto, F. Oba, M. Sumitomo, W. Nakamura, R. Shiroki, K. Saito, H. Fujita, Fujita Health Univ., Toyoake; Gifu Univ. (JP) [CAD-PO-62]

Automated analysis of carotid plaque using ultrasound video images: Fully automated recognition of plaque regions using U-Net

G. Hirano, H. Takai, Y. Higashi, A. Teramoto, S. Watanabe, K. Sugimoto, S. Matsumoto, K. Saito, H. Fujita, Fujita Health Univ., Toyoake, Gifu Univ. (JP) [CAD-PO-64]

Automatic CT segmentation and classification of pancreatic cancer including uncertainty maps

M. Riera i Marín, J. García, J. Rodríguez Comas, M. A. González Ballester, Sycai Technologies SL; Universitat Pompeu Fabra, Barcelona (ES) [CAD-PO-73]

Unsupervised Deep Feature Generation from 9ch 2.5-Dimensional Images for Detecting Cerebral Aneurysm on MR Angiography image

K. Hosoda, M. Nemoto, H. Yamaguchi, Y. Kimura, N. Hayashi, Kindai Univ., Wakayama; Univ. of Tokyo Hospital (JP) [CAD-PO-78]

Prediction of extracorporeal shock wave lithotripsy outcome by combined analysis of CT image textures and patient factors

Y. Nakamae, M. Nemoto, Y. Kimura, S. Yamashita, R. Deguchi, Y. Kohjimoto, I. Hara, Kindai Univ., Wakayama Kinokawa City (JP) [CAD-PO-95]

Detection of Micro-Nodules in Pneumoconiosis in 3D CT Images Using 3D U-Net

M. Matsuhiro, Y. Hashimoto, H. Suzuki, Y. Kawata, Y. Ohtsuka, T. Kishimoto, K. Ashizawa, N. Niki, Tokushima Univ.; Hokkaido Chuo Rosai Hospital; Okayama Rosai Hospital, Nagasaki Univ.; Medical Science Institute Inc. (JP) [CAD-PO-115]

Thursday, June 9, 2022

9:40-11:00 CAD-AI in Abdomen

Performance evaluation of self-supervised 3D GAN for electronic cleansing in CT colonography

R. Tachibana, J. Näppi, T. Hironaka, H. Yoshida, National Institute of Technology, Yamaguchi (JP); Massachusetts General Hosp. and Harvard Medical School, Boston (US) [CAD-LE-29]

Positive-Gradient Weighted Object Activation Mapping: Analysis of Object Detector Towards Precise Colorectal-Polyp Localisation

H. Itoh, M. Misawa, Y. Mori, S.-E. Kudo, M. Oda, K. Mori, Nagoya Univ.; Northern Yokohama Hospital (JP) [CAD-LE-22-00082]

Gaussian Affinity and GloU-based Loss for Perforation Detection and Localization from Colonoscopy Videos

K. Jiang, H. Itoh, M. Oda, T. Okumura, Y. Mori, M. Misawa, T. Hayashi, S.-E. Kudo, K. Mori, Nagoya Univ.; Northern Yokohama Hospital (JP) [CAD-LE-22-00102]

Universal Lymph Node Detection in T2 MRI using Neural Networks

T. S. Mathai, S. Lee, T.C. Shen, Z. Lu, R.M. Summers, National Institutes of Health, Bethesda, MD (US) [CAD-LE-22-00112]

Training Deep Neural Networks with Noisy Clinical Labels: Towards Accurate Detection of Prostate Cancer in US Data

G. Javadi, S. Samadi, S. Bayat, S. Sojoudi, A. Hurtado, W. Eshumani, S. Chang, P. Black, P. Mousavi, P. Abolmaesumi, The Univ. of British Columbia, Vancouver, BC; Queens Univ., Kingston, ON (CA) [CAD-LE-22-00101]

Development of a classification method for mild liver fibrosis using non-contrast CT image

R. Hirano, P. Rogalla, C. Farrell, B. Hoppel, Y. Fujisawa, S. Ohyu, C. Hattori, T. Sakaguchi, Canon Medical Systems Corporation, Otawara (JP); Univ. of Toronto, ON; Canon Medical Systems Canada Ltd., Markham (CA); Canon Medical Systems USA, Inc., Tustin (US) [CAD-LE-22-00017]

Thursday, June 9, 2022

9:40-11:00 CAD-AI in Lung - detection/classification

Improvement of lung nodule classification performance using progressive growing channel attentive non-local networks

M. Al-Shabi, M. Tan, Monash Univ. Malaysia; Sunway Medical Centre, Selangor (MY) [CAD-LE-50]

Computer aided diagnosis based homology method -Identification of the degree of invasion of lung adenocarcinoma-

K. Takarabe, K. Doi, K. Nakane, M. Yanagawa, H. Yamamoto, N. Tomiyama, H. Numasaki, Osaka Univ. Graduate School of Medicine, Suita (JP) [CAD-LE-66]

A computer-aided diagnosis system—3-D SGE-SANet for lung nodule classification on low-dose computed tomography

Y. S. Huang, T. C. Lin, R. F. Chang, National Changhua Univ. of Education, Changhua (TW) [CAD-LE-16]

Classifying pulmonary interstitial opacities in chest X-ray images using convolutional neural network and transfer learning

L. L. Lima, M. Koenigkam-Santos, L. Peron, K. L. Fontes Lopes, M. Repolês Lourenço, M. Koenigkam-Santos, P. de Azevedo-Marques, Univ. of São Paulo, Ribeirão Preto Medical School, Ribeirão Preto (BR) [CAD-LE-103]

Thursday, June 9, 2022

13:00-14:20 CAD-AI in Lung - Prediction

Musculoskeletal AI for CAD

Invited Speaker: Yoshinobu Sato, PhD, Nara Institute of Science and Technology (NAIST) [CAD-IS-301]

Machine Learning Algorithm for Quantitative CT in Patients with COVID-19 Pneumonia: Utility for Favipiravir Treatment Effect Prediction

Y. Ohno, K. Aoyagi, K. Arakita, Y. Doi, M. Kodo, S. Banno, Y. Fujisawa, A. Taniguchi, H. Ikeda, H. Hattori, K. Murayama, H. Toyama, Fujita Health Univ. School of Medicine, Toyoake; Canon Medical Systems Corporation (JP); Univ. of Pittsburgh School of Medicine (US) [CAD-LE-34]

Predicting the necessity of supplemental oxygen in COVID-19 infected patients with the temporal variation of radiomics features in chest CT

Y. Sekiguchi, T. Okamoto, Y. Iwao, N. Kawata, Y. Takiguchi, Y. Matsuura, T. Suzuki, H. Haneishi, Chiba Univ.; National Institute of Radiological Sciences; Chiba Municipal Aoba Hospital (JP) [CAD-LE-136]

Unsupervised 3D prediction model for COVID-19 progression in chest CT

H. Yoshida, C. Watari, T. Uemura, T. Hironaka, J. Näppi, Harvard Medical School, Boston, MA (US) [CAD-LE-21]

Computer-aided prognostic system for lung cancer using chest CT images

Y. W. Lee, S. Y. Chang, R. F. Chang, National Taiwan Univ., Taipei (TW) [CAD-LE-22]

Use of deep learning to predict postoperative recurrence of lung adenocarcinoma from preoperative CT

Y. Sasaki, Y. Kondo, T. Aoki, N. Koizumi, T. Ozaki, H. Seki, Niigata Cancer Center Hospital; Niigata Univ. (JP) [CAD-LE-22-00007]

Thursday, June 9, 2022

9:40-11:00 CAD-AI in Breast

3-D split attention CNN-based tumor detection for automated breast ultrasound image

R. F. Chang, Y. S. Huang, C. W. Tu, National Taiwan Univ., Taipei (TW) [CAD-LE-47]

Deep learning-based model for tumor detection in ultrasound computed tomography

K. Madhawa, Y. Jinnai, M. Suzuki, T. Azuma, S. Akashi-Tanaka, T. Doi, Lily MedTech, Bunkyo City; The Univ. of Tokyo; Showa Univ., Tokyo; Shonan Memorial Hospital, Kanagawa (JP) [CAD-LE-22-00079]

Automated Tumor Feature Classification Method for Ultrasound Computed Tomography

T. Koike, Y. Jinnai, K. Madhawa, T. Azuma, M. Suzuki, N. Tomii, S. Akashi-Tanaka, T. Doi, Lily MedTech, Bunkyo City; The Univ. of Tokyo; Showa Univ., Tokyo; Shonan Memorial Hospital, Kanagawa (JP) [CAD-LE-22-00089]

Breast Cancer Detection using Ultrasound and Shear Wave Elastography Images through Discriminative Convolutional Neural Network

R. Hoffmann, C. Reich, K. Skerl, Hochschule Furtwangen, Villingen-Schwenningen (DE) [CAD-LE-21-00714]

Deep Convolutional Neural Networks (CNN) for lesions localization of in mammograms

H. Benzaouia, Z. Guessoum, X. Lessage, S. Mahmoudi, S. A. Mahmoudi, S. Murgo, Univ. of Mons; URCA, Sciences Exactes et Naturelles, Reims (BE) [CAD-LE-53]

Thursday, June 9, 2022

9:40-11:00 CAD-AI in Brain and Other Organs

Explainability of Deep Neural Networks for MRI Analysis of Brain Tumors

R.A. Zeineldin, M.E Karar, Z. Elshaer, J. Coburger, C.R. Wirtz, O. Burgert, F. Mathis-Ullrich, Reutlingen Univ.; Ulm Univ.; Univ. Hosp. Ulm; Karlsruhe Institute of Technology (DE); Univ. of Menoufia; Minuf (EG) [CAD-LE-22-00048]

Deep learning-based classification of DSA image sequences of patients with acute ischemic stroke

B.J. Mittmann, M. Braun, F. Runck, B. Schmitz, T.N. Tran, A. Yamlahi, L. Maier-Hein, A.M. Franz, Technische Hochschule Ulm; Bezirkskrankenhaus Günzburg; German Cancer Research Center, Heidelberg (DE) [CAD-LE-22-00026]

Automatic Detection of Bladder Tumors in Narrow-Band Imaging Cystoscopic Images by tiny-YOLO

J. Mutaguchi, M. Oda, E. Kashiwagi, J. Inokuchi, K. Mori, M. Eto, Kyushu Univ. Hospital, Fukuoka; Nagoya Univ.; Research Center for Medical Bigdata, Tokyo (JP) [CAD-LE-61]

Audio based Analysis of Dysphagia using cervical Auscultation

J. Fuchtmann, D. Ostler, D. Bani-Harouni, L. Richter, B. Schilling, H. Feußner, D. Wilhelm, S. Graf, Klinikum rechts der Isar of Technical Univ. of Munich (DE) [CAD-LE-101]

Prognosis prediction and its visualization of the patient in coronary care unit using electrocardiogram

T. Kondo, A. Teramoto, E. Watanabe, Y. Sobue, H. Izawa, K. Saito, H. Fujita, Fujita Health Univ., Toyoake, Gifu Univ. (JP) [CAD-LE-63]

28th Computed Maxillofacial Imaging Congress (CMI)

Chairs: Christos Angelopoulos, DDS (US), Yoshihiko Hayakawa, PhD (JP)

Thursday, June 9, 2022

12:00-13:15 Computed Maxillofacial Imaging

Prediction of dysphagia risk by hyoid bone classification using panoramic radiographs and deep learning technology

Y. Matsuda, Y. Hanada, Y. Hayakawa, K. Araki, Showa Univ. School of Dentistry, Tokyo; Kitami Institute of Technology (JP) [CMI-LE-79]

Clinical Feasibility of Automatic CBCT Segmentation for Orthognathic Surgical Planning

H. Deng, J. Barber, Q. Liu, T. Kuang, D. Kim, J. Gateno, P. T. Yap, D. Shen, J. Xia, Houston Methodist Hospital, Univ. of North Carolina, Chapel Hill (US) [CMI-LE-110]

Automated segmentation of head CT scans for computer-assisted craniomaxillofacial surgery applying a hierarchical patch-based stack of convolutional neural networks

M.F. Russe, D. Steybe, P. Poxleitner, M.C. Metzger, L.S. Brandenburg, R. Schmelzeisen, F. Bamberg, P.H. Tran, E. Kellner, M. Reiser, Albert-Ludwigs Univ., Freiburg (DE) [CMI-LE-21-00769]

Evaluation of Virtual Handles for Dental Implant Manipulation in Virtual Reality Implant Planning Procedure

H. Mehtonen, H.-R. Rantamaa, J. Kangas, M. Jordan, J. Mäkelä, K. Ronkainen, M. Turunen, O. Sundqvist, I. Syrjä, J. Järnstedt, R. Raisamo, Tampere Univ.; Tampere Univ. Hospital; Planmeca Oy, Helsinki (FI) [CMI-LE-22-00046]

Evaluation of Voice Commands for Mode Change in Virtual Reality Implant Planning Procedure

H.-R. Rantamaa, J. Kangas, M. Jordan, H. Mehtonen, J. Mäkelä, K. Ronkainen, M. Turunen, O. Sundqvist, I. Syrjä, J. Järnstedt, R. Raisamo, Tampere Univ.; Tampere Univ. Hospital; Planmeca Oy, Helsinki (FI) [CMI-LE-22-00047]

26th Annual Conference of the International Society for Computer Aided Surgery (ISCAS)

Chairs: Kensaku Mori, PhD (JP), Cristian A. Linte, PhD (US)

Tuesday, June 7, 2022

9:00-9:50 Orthopedic Applications

Development and assessment of a user-friendly method for non-invasive detection of knee implant loosening using 3D-CT image analysis

M. A. ter Wee, J. G. G. Dobbe, A. J. Kievit, G. J. Streekstra, Amsterdam UMC, Amsterdam (NL) [ISCAS-LE-10]

Predicting facial changes following bony movement via deep correlation for orthogonal surgical planning

X. Fang, D. Kim, T. Kuang, X. Xu, H. H. Deng, J. Gateno, M. A. K. Liebschner, J. J. Xia, P. Yan, Rensselaer Polytechnic Institute; Houston Methodist Hosp.; Houston Methodist Research Institute; Weill Medical College of Cornell Univ., New York; Baylor College of Medicine (US) [ISCAS-LE-100]

Analysis of tracking performance with two different HoloLens 2 augmented reality markers for orthopedic oncological surgeries.

A. Pose Díez de la Lastra, R. Moreta-Martínez, F. von Haxthausen, M. García-Sevilla, L. Hernández-Álvarez, J. A. Calvo-Haro, R. Pérez-Mañanes, J. Pascau, Universidad Carlos III de Madrid, Leganés; Hospital General Universitario Gregorio Marañón (ES) [ISCAS-LE-102]

Automated Elaborate Resection Planning for Bone Tumor Surgery

D. Hill, T. Williamson, C.Y. Lai, M. Leary, M. Brandt, P. Choong, Univ. of Bern (CH); RMIT Univ., Carlton; Univ. of Melbourne, Fitzroy (AU); Univ. College London (GB) [ISCAS-LE-22-00036]

Automated Quantification of Cartilage Quality for Hip Treatment Decision Support

A.C. Ruckli, F. Schmaranzer, M.K. Meier, T.D. Lerch, S.D. Steppacher, M. Tannast, G. Zeng, J. Burger, K.A. Siebenrock, N. Gerber, K. Gerber, Univ. Bern; Inselspital Universitätsspital Bern (CH) [ISCAS-LE-22-00066]

Tuesday, June 7, 2022

10:00-11:55 Surgical Instrumentation and Robotics

Flexible ureteroscope with omnidirectional bending based on frameless-structured tube and crossed control wiring

A. Yamada, T. Tani, Shiga Univ. of Medical Science, Otsu (JP) [ISCAS-LE-88]

Surgical robot capable of estimating grasping force

T. Kanno, K. Tadano, M. Kanazawa, T. Nishihara, K. Shindo, K. Takikawa, N. Morita, T. Inoue, J. Sakata, K. Kawashima,, Tokyo Institute of Technology, Yokohama, Kanagawa (JP) [ISCAS-LE-91]

Implementation of a macro-mini robot as a needle insertion guidance system

S. H. Shen, N. W. Chang, Y. C. Hsieh, H. C. Zou, F. A. Halim, P. L. Yen, National Taiwan Univ., Taipei (TW) [ISCAS-LE-108]

Compliant Multi-DOF Endoluminal Forceps with 2.5 mm in diameter

K. Osawa, D. S. V. Bandara, R. Nakadate, Y. Nagao, T. Akahoshi, M. Eto, J. Arata, Kyushu Univ., Kyushu Univ. Hosp., Fukuoka (JP) [ISCAS-LE-112]

A flexible endoscope manipulator with diagonal rolling friction mechanism

H. Kim, S. Shim, J. Hong, DGIST, Daegu (KR) [ISCAS-LE-125]

Stiffness evaluation by a sensorized grasping forceps with modularized gap sensor focusing on the object thicknesses

T. Komaki, T. Dohi, K. Kuwana, Tokyo Denki Univ., Adachi-ku (JP) [ISCAS-LE-127]

A Force-Sensing Retractor for Robot-Assisted Transoral Surgery

L. Zhu, S. Yang, J. Shen, C. Wang, A. Song, Southeast Univ., Nanjing (CN) [ISCAS-LE-22-00044]

Follower manipulator with semi-decoupled mechanism for supermicrosurgery

S. Jeong, K. Tadano, Tokyo Institute of Technology, Yokohama (JP) [ISCAS-LE-22-00085]

General Concept of Self-Assembling Surgical Tools for Minimally Invasive Surgery

T. H. Fass, G. Hao, P. Cantillon-Murphy, Univ. College Cork, Cork (IE) [ISCAS-LE-74]

Wednesday, June 8, 2022

10:00-11:55 Surgical Simulation, Training and Education Applications

MRI-based 3D silicone model for left atrial appendage occluder device size determination

D. Bertsche, A. Reinelt, P. Metze, V. Rasche, T. Dahme, L. Schneider, I. Vernikouskaya, Ulm Univ. Medical Center (DE) [ISCAS-LE-14]

Effective surgical education and development of an AI operation system designed for safety improvement and optimal cancer surgery by digitizing

Y. Bamba, S. Ogawa, F. Tokitou, H. Kondo, M. Itabashi, K. Suzuki, S. Morita, K. Iwado, T. Yamaguchi, K. Masamune, S. Yamaguchi, Tokyo Women's Medical Univ., Tokyo (JP) [ISCAS-LE-80]

Predicting surgery using normalized brain-function database and the application of tele-surgery support in 5G network

M. TAMURA, I. Sato, T. Yamaguchi, K. Yoshimitsu, Y. Horise, T. Maruyama, M. Nitta, T. Saito, Y. Fuujino, K. Masamune, T. Kawamata, H. Iseki, Y. Muragaki,, Tokyo Women's Medical Univ.; Future Univ. Hakodate (JP) [ISCAS-LE-93]

Development of an advanced simulator for technical assessment and training of hepaticojejunostomy

K. Yamada, S. Onishi, S. Ieiri, Kagoshima Univ. (JP) [ISCAS-LE-145]

“Stand-up straight !”: Human pose estimation to evaluate postural skills during orthopedic surgery simulations

T. Casy, A. Tronchet, H. Thomazeau, X. Morandi, P. Jannin, A. Huaultmé, Univ. of Rennes; Univ. Hosp. of Rennes (FR) [ISCAS-LE-22-00013]

The Colonoscopic Vacuum Model - Simulating biomechanical restrictions to provide a realistic colonoscopy training environment

J. Steger, C. Kwade, M. Berlet, R. Krumpholz, S. Ficht, D. Wilhelm, P. Mela, Klinikum rechts der Isar der TUM; Technical Univ. Munich (DE) [ISCAS-LE-22-00055]

Wednesday, June 8, 2022

10:45-12:05 Surgical Workflow Assessment and Applications

A multi-stage TCN-LSTM network for recognition of surgical gestures based on kinematic data.

A. Goldbraikh, C. M. Pugh, S. Laufer, Technion Israel Institute of Technology, Haifa (IL), Stanford Univ. (US) [ISCAS-LE-24]

Automatic Purse-string Suture Skill Assessment in Transanal Total Mesorectal Excision (TaTME) using 3D CNN-based Video Analysis

D. Kitaguchi, K. Teramura, H. Matsuzaki, H. Hasegawa, N. Takeshita, M. Ito., National Cancer Center Hospital East, Kashiwa (JP) [ISCAS-LE-37]

Development of automated skill assessment system for laparoscopic colorectal surgery using automated surgical workflow recognition model

K. Nakajima, S. Takenaka, D. Kitaguchi, H. Hasegawa, S. Kojima, N. Takeshita, Y. Kinugasa, M. Ito, National Cancer Center Hospital East, Chiba; Tokyo Medical and Dental University (JP) [ISCAS-LE-70]

Building of Surgical Process Identification System via 5G network in awake brain tumor surgery

A. Nakamura, I. Sato, M. Tamura, T. Yamaguchi, K. Kusuda, K. Yoshimitsu, Y. Muragaki, K. Masamune, Y. Fujino, Future Univ. Hakodate; Tokyo Women's Medical Univ. (JP) [ISCAS-LE-120]

Development of a manufacturer independent method for real-time data collection of surgical energy devices

P. van Esch, K. Hara, N. Takeshita, S. Takenaka, N. Takeshita, I. Masaaki, I. Sakuma, E. Kobayashi, The Univ. of Tokyo; National Cancer Center Hospital East, Chiba (JP) [ISCAS-LE-124]

A system for streamlined quality assurance of surgical trackers

I. Butz, M. Fernandez, A. Uneri, N. Theodore, W. S. Anderson, J. Siewerdsen, Johns Hopkins Univ.; Johns Hopkins Medicine, Baltimore (US) [ISCAS-LE-143]

Wednesday, June 8, 2022

10:00-11:55 Imaging Informatics /AI for Interventional Support

An automatic tumor monitoring system for robot-assisted surgery using deep learning

A. Mukasa, N. Koizumi, Y. Nishiyama, Y. Onodera, M. Matsuyama, T. Fujibayashi, S. Shoji, The Univ. of Electro-Communications, Tokyo; Tokai Univ. School of Medicine, Isehara (JP) [ISCAS-LE-35]

Optimal Quantitative Metrics Reflecting Qualitative Evaluation in Deep Learning-based Intraoperative Anatomy Recognition Task

Y. Ishikawa, D. Kitaguchi, H. Matsuzaki, A. Yamada, K. Hayashi, N. Kosugi, H. Hasegawa, S. Kojima, K. Nakajima, K. Obuchi, N. Takeshita, M. Ito., National Cancer Center Hospital East, Chiba (JP) [ISCAS-LE-87]

Neural network approach to detection and 3D localization of guidewires from 2D intraoperative fluoroscopy

L. Mekki, A. Uneri, N. Sheth, R. Vijayan, A. Sisniega Crespo, G. Kleinszig, S. Vogt, G. Osgood, J. Siewerdsen, Johns Hopkins Univ., Baltimore (US); Siemens Healthineers, Erlangen (DE) [ISCAS-LE-141]

Data augmentation using CycleGAN for an artificial intelligence system aiming to support surgeon's decision.

M. Kimura, Y. Matsunobu, K. Shinozuka, T. Kamiyama, K. Ebe, A. Fujinaga, H. Nakanuma, M. Kawamura, Y. Endo, T. Etoh, M. Inomata, T. Tokuyasu, Fukuoka Institute of Technology; Olympus Technologies Asia, Tokyo; Oita Univ. (JP) [ISCAS-LE-22-00040]

Predicting reachability to peripheral lesions in transbronchial biopsies using CT-derived geometrical attributes of the bronchial route

M. Naito, F. Masaki, R. Lisk, H. Tsukada, N. Hata, Brigham and Women's Hosp., Boston, MA (US) [ISCAS-LE-22-00060]

Pathological evaluation of human pancreatic tissue injuries by machine compression for computer-aided safe pancreatic compression devices

K. Inai, D. Kim, N. Takano, M. Uno, S. Noriki, H. Naiki, E. Kobayashi, Fukui Univ., Eiheiji-cho; Teikyo Heisei Univ., Faculty of Health and Medical Science, Toshima; The Univ. of Tokyo (JP) [ISCAS-LE-59]

Wednesday, June 8, 2022

14:30-15:25 Interventional Modeling Tools and Applications

Laplacian mesh-based surface deformation recovery using scene flow for robotic minimally invasive surgery

J. Chen, K. Hara, I. Sakuma, E. Kobayashi, N. Tomii, The Univ. of Tokyo, Tokyo (JP) [ISCAS-LE-82]

Short and long posterior spinal instrumentation and fusion for multiple thoracolumbar vertebral fracture: Finite element analysis.

N. Nishida, F. Jiang, R. Kitazumi, Y. Yamamura, T. Asano, R. Tome, Y. Imajo, H. Suzuki, M. Funaba, J. Ohgi, X. Chen, T. Sakai, Yamaguchi Univ. Graduate School of Medicine; Yamaguchi Univ., Ube (JP) [ISCAS-LE-22-00015]

Biomechanical analysis of laminectomy, laminoplasty, posterior decompression with instrumented fusion, and anterior decompression with fusion for the kyphotic cervical spine.

N. Nishida, M. Mumtaz, S. Tripathi, A. Kelkar, Y. Kumaran, T. Sakai, V.K. Goel, The Univ. of Toledo (US); Yamaguchi Univ. Graduate School of Medicine, Ube (JP) [ISCAS-LE-22-00019]

Self-healing ultrasound phantoms for peripheral nerve blocks

E.C. Mackle, S.J. West, E. Maneas, C.D. Little, A.E. Desjardins, Univ. College London; Univ. College Hosp., London; Imperial College London (GB) [ISCAS-LE-22-00034]

Thursday, June 9, 2022

9:20-10:40 Neuro-Interventions and Applications

Current Issues and Future Prospects of Stereotactic Micro-Radiosurgery for Acoustic Tumors

M. Hayashi, Tokyo Women's Medical Univ., Tokyo (JP) [ISCAS-LE-46]

Clinical Results and Challenges of Photodynamic Therapy for Glioblastoma

M. Nitta, T. Kobayashi, T. Saito, S. Tsuzuki, A. Fukui, S. Koriyama, A. Kuwano, T. Kawamata, Y. Muragaki, Tokyo Women's Medical Univ., Tokyo (JP) [ISCAS-LE-60]

Real-time continuous navigation with 3D/4K exoscope for brain tumor surgery

K. Saito, N. Sasaki, Y. Seiya, R. Onoda, K. Kobayashi, H. Nakatomi, Y. Shiokawa, M. Nagae, Kyorin Univ. Faculty of Medicine, Tokyo (JP) [ISCAS-LE-119]

Clinical utility of intraoperative long-film imaging for thoracolumbar fusion surgery

A. Johnston, Y. Huang, A. Uneri, A. Sacino, R. Planchard, A. Liu, T. Witham, J. Siewerdsen, Johns Hopkins Univ., Baltimore (US) [ISCAS-LE-142]

Integration analysis of surgical navigation and motor evoked potential monitoring

T. Yamaguchi, A. Kuwano, T. Koyama, J. Okamoto, S. Suzuki, H. Okuda, T. Saito, K. Masamune, Y. Muragaki, Tokyo Women's Medical Univ.; Tokyo Women's Medical Univ. Hosp.; DENSO Corp., Aichi; OPEXPARK Inc., Tokyo (JP) [ISCAS-LE-22-00027]

NousNav: a low-cost neuronavigation system for deployment in lower resource settings

E. Léger, S. Horvath, J.-C. Fillion-Robin, D. Allemang, S. Gerber, P. Juvekar, E. Torio, S. Pujol, T. Kapur, S. Pieper, R.S. Bardsley, S. Frisken, A. Golby, Concordia Univ., Montréal, QC (CA); Kitware Inc.; Harvard Medical School; Brigham and Women's Hospital, Boston, MA; Isomics, Inc., Cambridge, MA (US) [ISCAS-LE-22-00077]

Thursday, June 9, 2022

10:50-11:55 Interventional Imaging and Image-Guided Navigation

Development of a laparoscopic system for laser thermal therapy equipped with an ultra-compact thermographic camera

M. Harada, Y. Morimoto, J. Ohya, K. Masamune, Y. Itazaki, T. Sugihara, H. Tsujimoto, Y. Kishi, H. Ueno, National Defense Medical College, Tokorozawa, Waseda Univ. (JP) [ISCAS-LE-69]

Towards surgical margin assessment with photon-counting spectral microCT imaging

I. Chitra Ragupathy, T. Tramm, J. Albertus Nijkamp, Aarhus Univ., Aarhus Univ. Hosp. (DK) [ISCAS-LE-104]

Laparoscopic image classification based on surgical areas in laparoscopic gastrectomy

Y. Hayashi, K. Misawa, K. Mori, Nagoya Univ.; Aichi Cancer Center Hospital; National Institute of Informatics, Tokyo (JP) [ISCAS-LE-132]

Surgical navigation in long-length tomosynthesis images using dynamic focal plane reconstruction

I. Butz, X. Zhang, Y. Huang, A. Johnston, T. F. Witham, P. Helm, J. Siewerdsen, A. Uneri, Johns Hopkins Univ.; Johns Hopkins Medicine Baltimore; Medtronic, Littleton (US) [ISCAS-LE-140]

Information-guided surgery centered on intraoperative magnetic resonance imaging ensures quality and safety with ultra-low mortality

S. Tsuzuki, Y. Muragaki, M. Nitta, T. Maruyama, T. Saito, A. Fukui, S. Koriyama, A. Kuwano, S. Ikuta, M. Tamura, H. Iseki, T. Kawamata, Tokyo Women's Medical Univ.; Waseda Univ., Tokyo (JP) [ISCAS-LE-22-00074]

Uncertainty estimation for margin detection in cancer surgery using mass spectrometry

A. Jamzad, F. Fooladgar, L. Connolly, A. Santilli, M. Kaufmann, K. Ren, P. Abolmaesumi, J. Rudan, D. McKay, G. Fichtinger, P. Mousavi, Queens Univ., Kingston, ON; Univ. of British Columbia, Vancouver, BC (CA); Royal Children's Hospital, Melbourne (AU) [ISCAS-LE-22-00115]

Thursday, June 9, 2022

13:00-13:30 ISCAS Poster Session 1

Layout design of the drive mechanisms considering the delay of a surgical robot

R. Sekine, S. Miura, Tokyo Institute of Technology, Tokyo (JP) [ISCAS-LP-PO-38]

Can skill-assessment suturing practice in medical school clinical practice increase the number of applicants for surgery?

S. Onishi, M. Murakami, K. Sugita, K. Yano, T. Harumatsu, K. Yamada, W. Yamada, M. Matsukubo, M. Muto, S. Ieiri, Kagoshima Univ. (JP) [ISCAS-PO-134]

Surgical Reporting for Laparoscopic Cholecystectomy Based on Phase Annotation by a Convolutional Neural Network (CNN) and the Phenomenon of Phase Flickering: A Proof of Concept

M. Berlet, T. Vogel, D. Ostler, T. Czempel, M. Kähler, S. Brunner, H. Feussner, D. Wilhelm, M. Kranzfelder, Klinikum rechts der Isar der TUM; Technical Univ. Munich (DE) [ISCAS-PO-22-00035]

Towards surgical navigation with electromagnetic tracking for robotic surgeries

L. Aguilera Saiz, H. Groen, W. Heerink, W. ten Bolscher, M. Hiep, T. Ruers, Netherlands Cancer Institute - Antoni van Leeuwenhoek, Amsterdam (NL) [ISCAS-LP-PO-41]

The usefulness of fusion three-dimensional computer graphics for surgical simulation of glioma

T. Koike, T. Kin, N. Shono, Y. Furuta, R. Niwa, K. Sato, T. Uchida, Y. Takeda, S. Kiyofuji, H. Takami, S. Takayanagi, S. Tanaka, N. Saito, The Univ. of Tokyo (JP) [ISCAS-PO-58]

Preoperative planning for cardiovascular surgery

C. Ciobirca, C. I. Dumitrescu, R. T. Popa, D. Dumitrescu, C. G. Tambura, D. M. Ciobirca, M. F. Tiuca, S. Maces, M. Moraru, L. F. Barbulescu, L. D. Popa, S. M. Cazacu, Univ. of Medicine and Pharmacy of Craiova; SPAD Imaging International; Slatina Emergency County Hospital (RO) [ISCAS-PO-72]

Intraoperative holographic image-guided lateral pelvic lymph node dissection in a transanal approach for rectal cancer

T. Yoshimoto, T. Tokunaga, Y. Saito, H. Kashihara, K. Yoshikawa, T. Nakao, M. Nishi, C. Taksu, Y. Wada, S. Yamashita, Y. Iwakawa, M. Shimada, Tokushima Univ. Hospital (JP) [ISCAS-PO-86]

Metaverse and Extended reality (XR:VR/AR/MR) for endoscopic robotic tele-surgery navigation, simulation, and holographic guiding

M. Sugimoto, Teikyo Univ. Okinaga Research Institute, Tokyo (JP) [ISCAS-PO-96]

Intraoperative compensation of magnetic field distortions for fluoroscopic and electromagnetic hybrid navigation

M. Cavaliere, P. Cantillon-Murphy, Univ. College Cork (IE) [ISCAS-PO-22-00042]

Augmented Reality Navigation with Ultrasound-assisted Point Cloud Registration for Percutaneous Ablation of Liver Tumors

L. Ma, H. Liang, B. Han, S. Yang, X. Zhang, H. Liao, Tsinghua Univ., Beijing (CN) [ISCAS-PO-22-00052]

Thursday, June 9, 2022

13:30-13:57 ISCAS Poster Session 2

Quantitative assessment of the forearm rotation axis

J. Oonk, I. Dobbe, G. Streekstra, G. Strijkers, Amsterdam UMC, Amsterdam (NL) [ISCAS-PO-15]

Novel Measurement Method of Residual Proteins in Cleanliness Evaluation of Reusable and Reprocessed Medical Devices

M. Uematsu, Y. Miyamoto, H. Sakoda, Y. Okamoto, R. Nakaoka, Y. Haishima, National Institute of Health Sciences, Tokyo (JP) [ISCAS-PO-17]

How diffusion tensor imaging enables direct targeting for focused ultrasound surgery

H. Hori, T. Hori, K. Abe, T. Taira, Moriyama Neurological Center Hospital, Tokyo (JP) [ISCAS-PO-31]

Malignancy Index Using Intraoperative Flow Cytometry is a Valuable Prognostic Factor for Glioblastoma Treated With standard chemo-radiotherapy

T. Saito, Y. Muragaki, M. Nitta, S. Tsuzuki, A. Fukui, S. Koriyama, T. Kawamata, Tokyo Women's Medical Hospital (JP) [ISCAS-PO-32]

Removing irrelevant frames in plastic surgery videos using semi-supervised learning combined with optical flow

T. Kobayashi, H. Kajita, Y. Takatsume, Y. Aoki, Keio Univ., Tokyo (JP) [ISCAS-PO-43]

Combining, PET and DTI with intraoperative magnetic resonance imaging in the navigation are both useful for glioma surgery

A. Kuwano, M. Tamura, H. Kurihara, T. Saito, M. Nitta, T. Maruyama, S. Tsuzuki, A. Fukui, S. Koriyama, T. Kawamata, Y. Muragaki, Tokyo Women's Medical Univ. Hospital, Tokyo (JP) [ISCAS-PO-57]

Utility of intraoperative flow cytometry and real-time PCR in glioma surgery

S. Koriyama, Y. Muragaki, M. Nitta, T. Saito, T. Shioyama, A. Suzuki, T. Komori, K. Masui, S. Tsuzuki, A. Fukui, A.

Kuwano, T. Kawamata, Tokyo Women's Medical Univ. Hospital; Nihon Kohden Corporation; Tokyo Metropolitan Institute of Medical Science (JP) [ISCAS-PO-81]

Machine-learning classification of surgical procedures using multiple views of surgical fields

R. Fujii, H. Kajita, Y. Takatsume, Y. Aoki, Keio Univ. (JP) [ISCAS-PO-94]

A Study on the Visualization of Brain Tumors Using a Hyperspectral Camera

H. Asano, J. Okamoto, M. Tamura, T. Maruyama, T. Saito, K. Masamune, Y. Muragaki, Atom Medical Corporation, Saitama-city; Tokyo Women's Medical Univ. (JP) [ISCAS-PO-121]

Thursday, June 9, 2022

14:00-14:24 ISCAS Poster Session 3

Development of the estimation method for organ-instruments contact during endoscopic surgery

M. Sogabe, R. Tamaki, T. Miyazaki, T. Kawase, T. Kanno, K. Kawashima, The Univ. of Tokyo; Tokyo Medical and Dental Univ.; Tokyo Institute of Technology, Kanagawa; Riverfield Inc., Tokyo (JP) [ISCAS-PO-117]

Sleeve-meter with Contact Force Sensors for Assisting Sleeve Gastrectomy

M. G. Lee, S. H. Kim, S. Cho, S. E. Kim, Y. J. Kang, S. Yun, Ajou Univ., Suwon-si (KR) [ISCAS-PO-129]

A Novel Pneumatic Drill for Bone Biopsy Under MRI Imaging

K. Cleary, M.D. Gebremeskel, E.M. Fischer, D. Stoianovici, K. Sharma, Children's National Medical Center, Washington, DC; Johns Hopkins Univ., Baltimore, MD (US) [ISCAS-PO-22-00014]

Design and Implementation of a Surgical Planning System for Robotic Assisted Mandible Reconstruction with Fibula Free Flap

Y. Guo, X. Chen, W. Xu, P. Tu, J. Han, C. Zhang, J. Liu, Shanghai Ninth People's Hospital; Shanghai Jiao Tong Univ. (CN) [ISCAS-PO-22-00076]

Steerable catheter based on wire-driven seamless artificial blood vessel tube for endoscopic retrograde transpapillary interventions

A. Yamada, W. Yonemichi, O. Inatomi, A. Andoh, T. Tani, Shiga Univ. of Medical Science; Zeon Corporation, Shiga (JP) [ISCAS-PO-22-00080]

Development of a Remote-Control System for Catheterization Capable of High-Speed Force Feedback

A. Hanafusa, R. Takagi, M. Takagi, S. bin Mohamaddan, K. Mitsui, H. Anzai, Shibaura Institute of Technology, Saitama; Tokyo Denki Univ.; Fujikura Kasei Co. (JP) [ISCAS-PO-22-00109]

Surgery Assistance System for Continuous Resection of Brain Tumors - Proposal of Continuous Tumor Resection Forceps, Tumor Cell Separation, Dehydration, and Isolation Mechanism -

A. Hanafusa, T. Koguchi, F. Shimizu, Y. Goto, H. Iwasaki, M. Takagi, S. bin Mohamaddan, K. Nomura, Y. Muragaki, H. Iseki, K. Masamune, T. Akitaya, T. Nagame, Shibaura Institute of Technology, Saitama; Joint Graduate School of Tokyo Women's Univ. and Waseda Univ.; Tokyo Women's Medical Univ.; Waseda Univ., Tokyo (JP) [ISCAS-PO-22-00110]

Quantification of manipulation forces needed for robot assisted reduction of the ankle syndesmosis: an initial cadaveric study

K. Cleary, M.D. Gebremeskel, B. Shafiq, A. Uneri, N. Sheth, C. Simmerer, W. Zbijewski, J.H. Siewerdsen, G. Li, Children's National Medical Center, Washington, DC; Johns Hopkins Univ., Baltimore, MD (US) [ISCAS-PO-22-00116]

IPCAI 2022 - 13th International Conference on Information Processing in Computer-Assisted Interventions

General Chairs: Tim Salcudean, PhD (CA), Stefanie Speidel, PhD (DE), Raphael Sznitman, PhD (CH)

Program Chairs: Alexander Seitel, PhD (DE), Shekoofeh Azizi, PhD (CA)

Tuesday, June 7 - 8, 2022