~~CARS~~ IPCAI 2019 Preliminary Program

~~CARS~~ IPCAI 2019 ~~Computer Assisted Radiology and Surgery~~
10th~~33rd~~ International ~~Congress and Exhibition~~Conference on Information Processing in Computer-Assisted Interventions
Le Couvent des Jacobins, Rennes, France, June 18 - 19~~21~~, 2019
~~www.cars-int.org / www.cars2019.org~~www.ipcai.org

~~CARS 2019 Opening Ceremony~~

Tuesday, June 18, 2019

~~17~~08:30 Welcome/Opening for IPCAI 2019

~~Pierre Jannin, President of CARS 2019~~
~~Heinz~~ U. ~~Lemke, CARS Organizer~~Raphael Sznitman, Program Chair
Kanako Harada, Program Chair
Elvis Chen, Program Chair

~~Keynote Lectures:~~

~~Fostering A Strong Ecosystem For Artificial Intelligence In Medical Imaging~~
~~Bibb Allen Jr., MD, FACR~~
~~Chief Medical Officer, American College of Radiology, Data Science Institute, Diagnostic Radiology, Grandview Medical Center, Birmingham, Alabama USA~~

~~Quantitative and Intelligent Imaging for Clinical Decision Support~~
~~Sir Michael Brady, FRS, FREng, FMedSci~~,
~~Membre Étranger de l'Académie des Sciences, Emeritus Professor of Oncological Imaging, University of Oxford, GB, Founder Chairman: Perspectum Diagnostics, ScreenPoint Medical, Founder Director: Mirada Medical, Volpara Health Technologies, Chairman: Optellum~~

~~19:00 CARS 2019 Opening Ceremony~~

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~~CARS 2019 Program~~

~~33rd International Congress and Exhibition on Computer Assisted Radiology (CAR)~~

~~Chairs: Ulrich Bick, MD (DE), Pierre Jannin, PhD (FR)~~

~~Thursday, June 20, 2019~~

088:400 ~~Image-guided Therapy~~Short Podium Presentation 1: Interventional Imaging

Session Chair: Ilker Hacihaliloglu, PhD (US) ~~Hideaki Haneishi, PhD (JP)~~

~~Robotic Imaging, Machine Learning and Augmented Reality for Computer Assisted Interventions~~
~~Invited Speaker~~: ~~Nassir Navab, PhD,~~ ~~Technical Univ. of Munich (DE)~~

Towards Intraoperative Use of Ambient Mass Spectrometry Imaging for Cardiac Tissue~~Evaluation on reconstruction accuracy of visual SLAM based bronchoscope tracking~~
R. Ellis, D. Tomalty, A. Santilli, J. Rudan, M. Kaufmann, G. Bisleri, Queen's University (CA) [II-1-08]

~~K. Mori, C. Wang, M. Oda, Y. Hayashi, T. Kitasaka, H. Itoh, H. Honma, H. Takabatake, M. Mori, H. Natori, Nagoya Univ.; Aichi Inst. of Technology, Toyota; Sapporo-Kosei General Hosp.; Sapporo Minami-Sanjo Hosp.; Keiwakai Nishioka Hosp., Sapporo (JP) [213]~~

Learning Needle Tip Localization from Digital Subtraction in 2D Ultrasound~~Novel Automated Vessel Pattern Characterization of Larynx Contact Endoscopic Video Images~~
C. Mwikirize, J.L. Nosher, I. Hacihaliloglu, Rutgers University (US) [II-2-11] ~~N. Esmaeili, A. Illanes, A. Boese, N. Davaris, C. Arens, M. Friebe, Otto-von-Guericke-Univ., Magdeburg Univ. Hosp. (DE) [19-00025]~~

Catheter Localization in 3D Ultrasound Using Voxel-of-Interest-based ConvNets for Cardiac Intervention
~~Toward patient-specific estimation of hepatic tumors respiratory motion: A finite element-based machine learning approach~~
H. Yang, C. Shan, A.F. Kolen, P. H. N. de With, Eindhoven University of Technology (NL) [II-3-32]

~~M. Abayazid, H. Naghibi Beidokhti, M. Berjanian, B. Sirmaçek, Univ. of Twente, Enschede (NL) [19-00127]~~

Uncertainty-aware Performance Assessment of Optical Imaging Modalities with Invertible Neural Networks~~Fast Image Enhancement in Optical Coherence Tomography for Retinal Disease Diagnosis and Surgery~~
T. Adler, L. Ardizzone, A. Vemuri, J. Groehl, T. Kirchner, L. Ayala, S. Wirkert, J. Kruse, C. Rother, U. Köthe, L. Mair-Hein, DKFZ Heidelberg (DE), [II-4-57]~~Y. Hu, J. Yang, J. Cheng, Y. Zhao, K. Masamune, J. Liu, Ningbo Inst. of Materials Technology and Engineering (CN); Tokyo Women's Medical Univ. (JP) [9]~~

Implicit Domain Adaptation with Conditional Generative Adversarial Networks for Depth Prediction in Endoscopy
A. Rau, P. Edwards, O. Ahmad, P. Riordan, M. Janatka, L. Lovat, D. Stoyanov, University College London (UK) [II-5-72]

Estimation of Tissue Oxygen Saturation based on Image to Image Translation
Q. Li, J. Lin, N. Clancy, D. Elson, Imperial College London (UK) [II-6-92]

09:2015~~00~~ Short Podium Presentation 2: Surgical Planning and Simulation, System and Software~~Deep Learning for Image Processing~~

Session Chairs: Caroline Essert, PhD (FR) ~~Leo Joskowicz, PhD (IL), Parvin Mousavi, PhD (CA)~~

~~TBA~~
~~Invited Speaker:~~

Flexible and Comprehensive Patient-Specific Mitral Valve Silicone Models with Chordae Tendinae Made From 3D-Printable Molds~~Convolutional neural network (CNN) applied to respiratory motion detection in fluoroscopic frames~~
S. Engelhardt, B. Preim, M. Karck, I. Wolf, R. De Simone, S. Sauerzapf, University of Applied Sciences Mannheim (DE) ~~I. Vernikouskaya, C. Baldauf, A. Bäuerle, T. Ropinski, V. Rasche, Ulm Univ. Medical Center; Ulm Univ. (DE)~~ [SS-1-023]

Towards an Automatic Preoperative Pipeline for Image-Guided Temporal Bone Surgery~~A pilot study to classify multiple anatomical landmarks in CT by deep convolutional neural network~~
J. Fauser, I. Stenin, Markus Bauer, W.-H. Hsu, J. Kristin, T. Klenzner, J. Schipper, A. Mukhopadhyay, TU Darmstadt (DE) ~~M. Nemoto, Y. Yamato, Y. Kimura, S. Hanaoka, N. Hayashi, Kindai Univ., Wakayama; The Univ. of Tokyo Hosp. (JP)~~ [SS-2-27~~168~~]

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~~Dynamic Soft Tissue Modeling for Real-Time Simulation~~
O. Ginty, J. Moore, P. Carnahan, M. Eskandari, M. Monaghan, T. PetersJ. T. Kwak, M. Nguyen Nhat To, H. J. Kim, H. G. Roh, Y. S. Cho, Sejong Univ.; Konkuk Univ. Medical Center, Seoul; Catholic Univ., Deajeon (KR), Robarts Research Institute, (CA) [SS-3-19-0003435]

Automatic Biplane Left Ventricular Ejection Fraction Estimation with Mobile Point-of-care Ultrasound Using Multi-task Learning and Adversarial Training
M. Jafari, H. Girgis, N. Van Woudenberg, Z. Liao, R. Rohling, K. Gin, P. Abolmaesumi, T. Tsang, University of British Columbia (CA) [SS-4-43]

Prediction of Laparoscopic Procedure Duration Using Unlabeled, Multimodal Sensor Data
S. Bodenstedt, M. Wagner, L. Mündermann, H. Kenngott, B. Müller-Stich, S. Torge Mees, J. Weitz, S. Speidel, NCT Dresden (DE) [SS-5-61]

10:00 Coffee Break and Poster Session

~~10:30 – 11:45 Poster Session 1~~

~~Session Chairs:~~ ~~NN~~

~~Posters #~~ ~~001-018~~

~~Session Chairs:~~ ~~NN~~

~~10:30 – 11:30 Poster #~~

101:3430 Short Podium Presentation 3:~~~~0 Image Registration and its Application~~ **Tracking and Navigation**
Session Chair: Stamatia Giannarou, PhD (~~Oscar Acosta, PhD (UK~~FR~~)~~

~~**TBA**~~
~~Invited Speaker:~~

Limits of Electromagnetic Tracking for High Precision Interventions~~**3D registration method based on intensity gradient information for temporal subtraction technique in thoracic MDCT image**~~
D. Kügler, H. Krumb, J. Bredemann, I. Stenin, J. Kristin, T. Klenzner, J. Schipper, R. Schmitt, G. Sakas, A. Mukhopadhya, Technische Universität Darmstadt (DE) ~~N. Miyake, H. Lu, H. Kim, S. Murakami, S. Kido, T. Aoki, Kyushu Inst. of Technology; Univ. of Occupational and Environmental Health, Fukuoka; Yamaguchi Univ. (JP)~~ [TN-1-0611]

Flexible Needle and Patient Tracking using Fractional Scanning for Reduced Dose in Interventional CT Procedures~~**Automatic registration of unordered point clouds for the study of abdominal organs and lymph node deformations.**~~
~~B. Villard, K. Tachi, K. Misawa, M. Oda, K. Mori, Nagoya Univ.; Aichi Cancer Center Hosp., Nagoya (JP)~~ G. Medan, Hebrew University of Jerusalem (IL) [TN-2-19-0005307]

Deformable Multi-Modal Registration for Navigation in Beating-Heart Cardiac Surgery~~**Fusion of 3D real-time echocardiography and cine MRI using a saliency analysis**~~
J. Peoples, G. Bisleri, R. Ellis, Queen's University (CA) ~~A. M. Atehortúa Labrador, M. Garreau, A. Simon, E. Donal, M. Lederlin, E. Romero, Univ. of Rennes 1 (FR); National Univ. of Colombia, Bogota (CO)~~ [TN-3-19-0007518]

Immersive Virtual Reality Environment for Medicine
L. Groves, P. Carnahan, D. Allen, T. Peters, E. Chen, Robarts Research Institute (CA) [TN-4-20]

Learning Soft-Tissue Behavior of Organs for Surgical Navigation with Convolutional Neural Networks
M. Pfeiffer, C. Riediger, J. Weitz, S. Speidel, NCT Dresden (DE) [TN-5-65]

On the Feasibility of 3D/4D Ultrasound Transperineal Image-Guidance for Robotic Radical Prostatectomy
P. Mathur, G. Samei, K. Tsang, J. Lobo, S. Salcudean, University of British Columbia (CA) [TN-6-84]

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11:15 Short Podium Presentation 4: Augmented Reality, Advanced Intraoperative Visualization, and User Interface
Session Chairs: Roy Eagleson, PhD (CA)

Interactive Flying Frustums (IFFs): Spatially-Aware Surgical Data Visualization
J. Fotouhi, M. Unberath, T. Song, W. Gu, A. Johnson, G. Osgood, M. Armand, N. Navab, Johns Hopkins University (US) [AU-1-12]

Pedicle Screw Navigation using Surface Registration on the Microsoft HoloLens
F. Liebmann, S. Roner, M. von Atzigen, D. Scaramuzza, R. Sutter, J. Snedeker, M. Farshad, P. Fürnstahl, Balgrist University Hospital Zurich (CH) [AU-2-75]

Automatic tissue classification in textured models: A novel approach to intraoperative integration of structured light scanning
B. Chan, J. Auyeung, J. Rudan, P. Mousavi, M. Kunz, Queen's University (CA) [AU-3-19]

A Novel Gaze-supported Multimodel Human Computer Interaction for Ultrasound Machines
H. Zhu, S. Salcudean, R. Rohling, University of British Columbia (CA) [AU-4-23]

Deep Neural Maps for Unsupervised Visualization of High Grade Cancer in Prostate Biopsies
A. Sedghi, M. Pesteie, S. Azizi, G. Javadi, P. Yan, S. Xu, J.T. Kwak, P. Pinto, I.B. Turkbey, P. Choyke, B. Wood, R. Rohling, P. Abolmaesumi, P. Mousavi, Queen's University (CA) [AU-5-59]

A "Pick-Up" Stereoscopic Camera with Visual-Motor Aligned Control for the da Vinci Surgical System: A Preliminary Study
A. Avinash, A.E. Abdelaal, P. Mathur, S. Salcudean, University of British Columbia (CA) [AU-6-78]

1~~2~~2:3~~0~~0 Lunch Break and Poster Session I

13:30 Short Podium Presentation 5:~~Image Segmentation by Machine~~ Surgical Data Science~~Learning~~
Session Chairs: ~~Guoyan Zheng, PhD (CNCH)?, Florent Lalys~~Nicola Reike, PhD (~~FR~~US)

~~**Probabilistic Deep Voxelwise Dilated Residual Networks for Whole Heart Segmentation**~~
~~**Invited Speaker**: Guoyan Zheng, PhD, Shanghai Jiao Tong University,~~University of Bern (CNCH) ~~?~~

Weakly Supervised Method for Spatio-Temporal Tool Tracking in Laparoscopic Videos~~Evaluation of squeeze and excitation fully convolutional networks for multi-organ segmentation~~
C. Nwoye, D. Mutter, J. Marescaux, N. Padoy, University of Strasbourg (~~C. Shen, F. Milletari, H. Roth, M. Oda, B. Villard, Y. Hayashi, K. Misawa, K. Mori, Nagoya Univ.; Aichi Cancer Center Hosp., Nagoya (JP); NIVIDIA, Santa Clara, CA (US~~FR) [~~146~~SDS-1-26]

Teacher/Student Approach for Semi-Supervised Surgical Phase Recognition~~Segmentation of Organs at Risk in Head and Neck Radiation Therapy with 3D Convolutional Networks~~
T. Yu, D. Mutter, J. Marescaux, N. Padoy, University of Strasbourg ~~M. Concepción-Brito, R. Moreta-Martinez, J. Serrano, D. García-Mato, M. García-Sevilla, J. Pascau, Inst. de Investigación Sanitaria Gregorio Marañón, Madrid~~ (~~ES~~FR) [~~166~~SDS-2-32]

Objective Assessment of Intraoperative Technical Skill in Capsulorhexis with Temporal Neural Networks~~MultiAtlas Neonatal Brain MRI Segmentation: From Patch-based to Deep Approaches~~
T.S. Kim, M. O'Brien, S. Zafar, G.D. Hager, S. Sikder, S. S. Vedula, Johns Hopkins University [SDS-3-44]~~Invited Speaker~~: ~~François Rousseau, PhD, LaTIM U1101 INSERM, Brest (FR)~~

Visual Domain Adaptation with Self-Training for Face Detection in the Operating Room~~A comparison of conventional and deep learning methods of image segmentation on aortic dissection~~
T. Issenhuth, V. Srivastav, A. Gangi, N. Padoy, CAMMA (FR) ~~C. Shao, T. Lv, J. Tomasi, X. Zhao, J. P. Verhoye, G. Yang, Y. Chen, P. Haigron, Ansys, Villeurbane; Univ. of Rennes 1 (FR); Southeast Univ., Nanjing (CN)~~ [96SDS-4-60]

Active Learning using Deep Bayesian Networks for Surgical Workflow Analysis~~Liver Tissue Segmentation In Multiphase CT Scans Using Cascaded Convolutional Neural Networks~~
S. Bodenstedt, D. Rivoir, A. Jenke, M. Wagner, S.T. Mees, J. Weitz, S. Speidel, NCT Dresden ~~F. Ouhmich, V.~~

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Agnus, V. Noblet, F. Heitz, P. Pessaux, Nouvel Hopital Civil, Strasbourg; Univ. of Strasbourg, Illkirch (FRDE) [19SDS-5-0009068]

Video-based Surgical Skill Assessment using Deep Neural Networks **Cerebrovasculature segmentation via FCNN for SEEG trajectory planning**
J. Funke, S.T. Mees, J. Weitz, S. Speidel, NCT Dresden S. El Hadji, S. Moccia, D. Scorza, F. Cardinale, G. Baselli, E. De Momi, Politecnico di Milano; Niguarda Hosp. Ca' Granda, Milan; Univ. Politecnica delle Marche, Ancona (ITDE) [19SDS-001056-76]

14:15 Short Podium Presentation 6: Interventional Robotics, Evaluation and Validation

Session Chairs: Danail Stoyanov, PhD (UK)

Design Optimization of A Contact-Aided Continuum Robot for Endobronchial Interventions Based on Anatomical Constraints
L. Ros Freixedes, A. Gao, N. Liu. G.-Z. Yang, Imperial College London (UK) [RV-1-63]

Preliminary Study of An RNN Based Active Interventional Robotic System (AIRS) in Retinal Microsurgery
C. He, I. Iordachita, Johns Hopkins University (USA) [RV-2-102]

Leveraging RSF and PET Images for Prognosis of Multiple Myeloma at Diagnosis
L. Morvan, T. Carlier, C. Bailly, B. Jamet, C. Bodet-Milin, F. Kraeber-Bodéré, P. Moreau, C. Touzeau, D. Mateus, CRCINA INSERM (FR) [RV-3-24]

An In-vivo Porcine Dataset and Evaluation Methodology to Measure Soft-Body Laparoscopic Liver Registration Accuracy with an Extended Algorithm that Handles Collisions
R. Modrzejewski, T. Collins, B. Seeliger, A. Bartoli, A. Hostettler, J. Marescaux, IHU Strasbourg (FR) [RV-4-28]

Fully Auto Automatic Self-gated 4D-MRI Construction from Free-breathing 2D Acquisitions Applied on Liver Images
L. Vazquez Romaguera, N. Olofsson, R. Plantefeve, E. Lugez, J. De Guise, S. Kadoury, École Polytechnique de Montreal (CA) [RV-5-16]

15:00 IPCAI Awards 1

Session Chairs: Elvis Chen, PhD (CA), Kanako Harada (JP), Raphael Sznitman (CH)

15:30 Coffee Break and Poster Session 2

17:30 CARS 2019 Opening Session

19:00 CARS 2019 Opening Ceremony

16:00 Image Segmentation: Other Innovative Approaches
Session Chairs: D. Louis Collins, PhD (CA), Su Ruan, PhD (FR)

MD+Machine: Machine Learning for Computer Aided Diagnosis and Interventions in Prostate Cancer
Invited Speaker: Parvin Mousavi, PhD, Queens University, Kingston, Ontario (CA)

Automated Segmentation of Oriented Branching Structures through Dilation Shells using Dynamic Programing
G. Stetten, M. Wu, L. Wang, H. Aizenstein, Univ. of Pittsburgh; Univ. of Pittsburgh Medical Center, PA (US) [19-00021]

User-dependent variability in mitral valve segmentation and its impact on CFD computed hemodynamic parameters
K. Vellguth, J. Brüning, L. Tautz, S. Sündermann, F. Degener, I. Wamala, V. Falk, U. Kertzscher, A. Hennemuth, T. Kühne, L. Goubergrits, Charité - Universitätsmedizin Berlin; German Heart Inst. Berlin (DE) [19-00069]

Capsule Networks for Mother's Womb Segmentation in TTTS Fetal Surgery Planning
M. Ceresa, J. Torrents-Barrena, R. López-Velazco, G. Piella, E. Gratacós, E. Eixarch, M. A. González Ballester, Univ. Pompeu Fabra, Barcelona; Univ. of Barcelona (ES) [121]

Segmentation-based registration of ultrasound volumes
L. Canalini, J. Klein, D. Miller, R. Kikinis, Fraunhofer MEVIS, Bremen; Universitätsklinikum Knappschaftskrankenhaus Bochum (DE) [19-00030]

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17:1500 – 18:00 Exhibition Tour

18:00 YINS and Job Fair

WednesdayFriday, June 1921, 2019

08:00 Selected Podium Presentation 1: Interventional Imaging, Surgical Planning and Simulation, System and Software, Tracking and NavigationCAR / CAD-AI Joint Session on Deep Learning and GAN in Medical Imaging

Session Chairs: Ingerid ReinerstenGabriele von Voigt, PhD (DE), Hiroyuki Yoshida, PhD (NOUS), Pierre JanninToby Collins, PhD (FR)

8:00 The Challenge for Ai in Medical Imaging in China6 Audience-Chosen Presentations (20 minutes each)

10:00 Coffee Break and Poster Session

10:30 Selected Podium Presentation 2: Augmented Reality, Advanced Intraoperative Visualization and User Interface, Surgical Data Science, Interventional Robotics, Evaluation and Validation

Session Chairs: Amber Simpson, PhD (CA), Matthieu Chabanas, PhD (FR)

6 Audience-Chosen Presentations (20 minutes each)

Invited Speaker: Huimao Zhang, MD, PhD, The First Hospital of Jilin University, Changchun City (CN)

Recent progress in Medical Image Processing and Deep Learning
Invited Speaker: D. Louis Collins, PhD, McGill University, Montreal, Quebec (CA)

Enhancing virtual bronchoscopy with intra-operative data using multi-objective GANs
D. Gil, A. Esteban, C. Sánchez, A. Borras, Autonomous Univ. of Barcelona (ES) [20]

Weakly-supervised Generative Adversarial Networks for Deformable Image Registration
Z. Li, M. Ogino, Hitachi, Ltd., Tokyo (JP) [115]

Cyclegan for style transfer in x-ray angiography
O. Tmenova, R. Martin, L. Duong, École de technologie supérieure, Montréal, QC (CA) [19-00031]

Synthesis of CT Images from Digital Body Phantoms Using CycleGANs
T. Russ, S. Goerttler, A.-K. Schnurr, D. F. Bauer, L. R. Schad, F. G. Zöllner, K. Chung, Univ. of Heidelberg, Mannheim (DE) [19-00120]

Generative adversarial learning-based prediction of survival of patients with interstitial lung diseases
H. Yoshida, T. Uemura, C. Watari, J. Nappi, T. Hironaka, Massachusetts General Hosp. and Harvard Medical School, Boston, MA (US) [37]

Generative adversarial learning-based electronic cleansing system for CT colonography
R. Tachibana, J. J. Näppi, T. Hironaka, H. Yoshida, National Inst. of Technology, Oshima (JP); Massachusetts General Hosp., Boston, MA (US) [129]

10:00 Coffee Break and Poster Session

10:30 – 11:30 Poster Session 2

Session Chairs: NN

Posters # 019-047

10:30 – 11:30 Poster Session 2

Poster #

11:30 Visualization and Augmented Reality
Session Chairs: Caroline Essert, PhD (FR), Marta Kersten-Oertel, PhD (CA)

Spatial augmented reality system with real-time methods for soft tissue deformation compensation
S. Ilango, L. A. Kahrs, T. Ortmaier, Leibniz Univ. Hannover (DE) [142]

Introducing a zoom-independent calibration target for augmented reality applications using a digital surgical microscope

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J. C. Rosenthal, A. Schneider, P. Eisert, Fraunhofer Inst. for Telecommunications, Berlin; ARRI Medical GmbH, Munich (DE) [187]

Considering visibility of vascular virtual handling system for endovascular intervention assistance
T. Shinohara, Y. Nishida, N. Nakasako, Kindai Univ., Kinokawa (JP) [14]

A Web-based collaborative Multidisciplinary Team Meeting Visualisation System
H. Jung, Y. Jung, D. D. Feng, M. Fulham, J. Kim, Univ. of Sydney, NSW (AU) [19-00093]

12:30 Lunch Break and Poster Session 3

13:30 Image Analysis (1)Short Presentation: Long Abstracts

Session Chairs: Cristian A. Linte, PhD (US)Yoshinobu Sato, PhD (JP), Miguel Á. González Ballester, PhD (ES)

Localizing Dexterous Surgical Tools in X-ray for Image-based NavigationGeneration of three-dimensional myocardial blood flow distribution by image reconstruction of coronary angiographic images
C. Gao, M. Unberath, R. Taylor, M. Armand, Johns Hopkins University (USA) T. Kato, T. Ohnishi, K. Nakano, T. Kasahara, K. Miura, H. Kitahara, H. Haneishi, Chiba Univ.; Chiba Univ. Hosp. (JP) [54LA-1]

Evaluation of Head Segmentation Quality for Treatment Planning of Tumor Treating Fields in Brain TumorsA new method for reducing large motion artifacts of DSA based on deep learning technique
R. Shamir, Z. Bomzon, Novocure (IL) M. Yamamoto, Y. Okura, H. Kawata, N. Yamamoto, Hiroshima International Univ.; Kurume Univ. Hosp., Fukuoka (JP) [114LA-2]

Physchophysiological Data and Computer Vision to Assess Cognitive Load and Team Dynamics in Cardiac SurgeryComputer simulation of low-dose chest radiographs from a real high-dose radiograph
R.D. Dias, S. Yule, L. Kennedy-Metz, M. Zenati, Harvard Medical School (US)R. Murakami, T. Mawatari, S. Katsuragawa, Teikyo Univ., Omuta (JP) [43LA-3]

Unity and VTK for VR Medical Image Analysis - an Initial Clinical EvaluationComputer-based virtual clinical trial for pulmonary function diagnosis with dynamic chest radiograph
G. Wheeler, S. Deng, N. Toussaint, K. Pushparajah, J. Schnabel, T. Peters, J. Simpson, A. Gomez, King's College London (UK) R. Tanaka, E. Samei, W. P. Segars, E. Abadi, H. Roth, H. Oda, K. Mori, Kanazawa Univ.; Nagoya Univ. (JP); Duke Univ., Durham, NC (US) [53LA-4]

EM Navigation of a Raman Spectroscopy Needle for Prostate Cancer Confirmation: Preliminary ex-vivo Study in 3D Slicer
R. Shams, F. Picot, G. Sheehy, C. Menard, J.-F. Carrier, F. Leblond, S. Kadoury, Polytechnique Montreal (CA) [LA-5]

Combining Visual Cues and Interactions for 3D-2D Registration in Liver Laparoscopy
Y.E. Lopez, E. Özgür, L. Calvet, B. Le Roy, E. Buc, A. Bartoli, Université Clermont-Auvergne (FR) [LA-6]

Novel Instrument Design for Electromagnetic Navigation Bronchoscopy
H. Jaeger, S. Hinds, T. Langø, E.F. Hofstad, O.V. Solberg, H. Leira, J. Scheltes, P. Cantillon-Murphy, University College Cork (IE) [LA-7]

OP 4.1: A User-Centered Platform for the Operation Room of the Future
K. März, L. Mündermann, M. Nolden, T. Simpfendörfer, C. Gasch, T. Ross, S. Onogur, J. Metzger, C. Feldmann, J. Fallert, M. Hohenfellner, L. Maier-Hein, DKFZ (DE) [LA-8]

EchoBot: An Open-Source Robotic Ultrasound System
A. Østvik, L. Bo, E. Smistad, SINTEF / NTNU (NO) [LA-9]

3D Ultrasound Image Guidance System for Focal Liver Tumor Therapies
D. Gillies, J. Bax, K. Barker, L. Gardi, D. Tessier, N. Kakani, A. Fenster, Robarts Research Institute (CA) [LA-10]

Miniature C-arm Simulator Using Wireless Accelerometer Based Tracking
D. Allen, T. Peters, C. Clarkes, E. Chen, Robarts Research Institute (CA) [LA-11]

134:30 Image Analysis (Plenary Discussion2)

Session Chairs: Gabrielle Voigt, PhD (DE)

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15:00 IPCAI Awards II and Closing
Session Chairs: Raphael Sznitman, PhD (CH), Kanako Harada, PhD (JP), Elvis C.S. Chen, PhD (CA)

~~**Detection and Segmentation of Lymphomas in 3D PET Images via Clustering with Entropy-based Optimization Strategy**~~
~~S. Ruan, H. Hu, P. Decazes, P. Vera, H. Li, Univ. of Rouen Normandie; Centre Henri Becquerel Hosp., Rouen (FR); Washington Univ., St. Louis, MO (US) [19-00007]~~

~~**A closer look onto breast density with weakly supervised dense-tissue masks**~~
~~M. Tardy, B. Scheffer, D. Mateus, Ecole Centrale de Nantes; Integrated Center for Oncology, Saint-Herblain (FR) [19-00079-P]~~

~~**A Deep Learning Framework For Efficient Analysis Of Breast Volume and Fibroglandular Tissue Using MR Data With Strong Artifacts**~~
~~T. Ivanovska, T. G. Jentschke, A. Daboul, K. Hegenscheid, H. Völzke, F. Wörgötter, Georg-August-Univ. Göttingen; Universitätsmedizin Greifswald (DE) [18-00554]~~

~~**Multi-planar pose prediction in medical imaging**~~
~~B. Maris, E. Ghignoni, P. Fiorini, Univ. of Verona (IT) [122]~~

15:30 Coffee Break and Poster Session

18:00 CARS 2019 Exhibition Opening Ceremony

~~**16:00 Decision Support, Prediction**~~
~~**Session Chairs:** Amber Simpson, PhD (US), Ulrich Bick, MD (DE)~~

~~**Ultrafast imaging and Superresolution Ultrasound for Medicine**~~**~~MD+Machine: Machine Learning for Computer Aided Diagnosis and Interventions in Prostate Cancer~~**
~~**Invited Speaker:** Mickael Tanter, PhD, INSERM ESPCI Paris (FR)Parvin Mousavi, PhD, Queens University, Kingston, Ontario (CA)~~

~~**Can one predict brain disease based on cardiac imaging data? A proof-of-concept study.**~~
~~M. Masias Bruns, I. Cetin, S. E. Petersen, M. A. Gonzalez Ballester, G. Piella, K. Lekadir, Univ. Pompeu Fabra, Barcelona (ES); Queen Mary Univ. of London (GB) [97]~~

~~**Validation of the larynx cancer model regarding treatment decision**~~
~~M. Stoehr, A. Hikal, A. Oeser, M. A. Cypko, H. U. Lemke, A. Dietz, Univ. of Leipzig (DE) [171]~~

~~**Morphology-based estimation of disease duration in multiple sclerosis patients using T1-weighted MRI datasets**~~
~~N. Subbanna, A. Rauscher, D. Li, A. Traboulsee, B. Pike, N. Forkert, Univ. of Calgary, AL; Univ. of British Columbia, Vancouver, BC (CA) [196]~~

~~**Comparison of statistical learning approaches for cerebral aneurysm rupture assessment**~~
~~F. J. Detmer, D. Lückehe, F. Mut, M. Slawski, S. Hirsch, P. Bijlenga, G. von Voigt, J. R. Cebral, George Mason Univ., Fairfax, VA (US); Leibniz Univ. Hannover (DE); Univ. of Geneva; Zurich Univ. of Applied Sciences, Wädenswil (CH) [19-00118]~~

~~**17:30 CARS Closing Ceremony**~~
~~**Chairs: Pierre Jannin, PhD (FR), Kensaku Mori, PhD (JP), Hiroyuki Yoshida, PhD (US), Heinz U. Lemke, PhD (DE)**~~

~~18:00 CARS 2019 Farewell Party~~

~~**Position-based modeling of lesion displacement in Ultrasound guided breast biopsy**~~
~~E. Tagliabue, D. Dall'Alba, E. Magnabosco, C. Tenga, P. Fiorini, Univ. of Verona (IT) [19-00039]~~

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12th CARS Clinical Day
Artificial Intelligence in Clinical Practice: Success and Challenges
Chairs: Leonard Berliner, MD (US), Eric vanSonnenberg, MD (US), Hubertus Feussner, MD (DE), Pierre Jannin, PhD (FR)

Wednesday, June 19, 2019

8:30 Artificial Intelligence for Medical Imaging
Session Chairs: Leonard Berliner, MD (US), Eric vanSonnenberg, MD (US)

8:30 Preparing students and practitioners for artificial intelligence: imperatives in medical education
Invited Speaker: Eric vanSonnenberg, MD, Univ. of Arizona College of Medicine, AZ; David Geffen School of Medicine at UCLA, CA (US)

8:45 Radiomics and radiogenomics: clinical applications
Invited Speaker: Amber Simpson, PhD, Memorial Sloan Kettering Cancer Center, New York, NY (US)

9:00 Artificial intelligence in medical imaging: perspective from the NIH
Invited Speaker: Krishna Kandarpa, MD, PhD, National Institutes of Health, Bethesda, MD (US)

9:15 Laparoscopic video image analysis: automated annotation with artificial intelligence
Invited Speaker: Masaaki Ito, MD, National Cancer Center East, Kashiwa (JP)

9:30 The impact of needle placement error and preoperative planning in prostate focal cryoablation: A simulation study
P. Moreira, K. Tuncali, C. Tempany, J. Tokuda, Brigham and Women's Hosp., Harvard Medical School, Boston, MA (US) [19-00094]

9:45 A Comparison of Thin Plate Spline Deformation and Finite Element Modeling for Brain Shift Compensation using Sparse Features that were Automatically Generated from 3D Intraoperative Ultrasound
S. Frisken, M. Luo, A. Bunevicius, I. Machado, P. Juvekar, P. Unadkat, M. M. Bertotti, M. Toews, W. M. Wells, M. I. Miga, A. J. Golby, Brigham and Women's Hosp., Boston, MA; Vanderbilt Univ., Nashville, TN (US); Univ. of Lisbon (PT); Ecole de Technologie Superieure, Montreal, QC (CA) [19-00054]

10:00 Coffee Break

10:30 Artificial Intelligence in Imaging for Surgery and Radiology
Session Chairs: Krishna Kandarpa, MD (US), Giuseppe Esposito, MD (US)

10:30 Stanley-Baum-Lecture
Artificial intelligence in radiology: A Path for the Democratization of AI in Radiological Practice
Keynote Speaker: Bibb Allen, Jr., MD, ACR's Data Science Institute (USA)

11:00 Artificial intelligence in nuclear medicine
Invited Speaker: Giuseppe Esposito, MD, Georgetown Univ. Medical Center, Washington, DC (US)

11:15 Detection and grading of sacroiliitis in computed tomography as incidental finding using deep learning
Invited Speaker: Leo Joskowicz, PhD, The Hebrew University of Jerusalem (IL)

11:30 Early Interception of Lung Cancer through Artificial Intelligence
Invited Speaker: Michael Brady, PhD, University of Oxford (GB)

11:45 Assessment of surgical skills by using surgical navigation in robot-assisted partial nephrectomy
S. Kobayashi, B. Cho, A. Huaulmé, K. Tatsugami, H. Honda, P. Jannin, M. Hashizume, M. Eto, Kyushu Univ.; Kyushu Univ. Hosp., Fukuoka (JP); Univ. of Rennes 1 (FR) [19-00012]

12:00 GPU-accelerated blood vessel enhancement from free-breathing angiography using robust principal component analysis
M. Kawabe, Y. Kokura, T. Ohnishi, K. Nakano, H. Kato, Y. Ooka, T. Sakai, H. Haneishi, Chiba Univ.; Chiba Univ. Hosp.; Nagasaki Univ. (JP) [34]

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12:15 Panel Discussion

12:30 Lunch Break

13:30 Innovations in Surgery
Session Chairs: Hubertus Feussner, MD (DE), Leonard Berliner, MD (US)

13:30 Surgineering
Invited Speaker: Hubertus Feussner, MD, Technical Univ. of Munich (DE)

13:45 Potential Applications of Artificial Intelligence in Surgery
Invited Speaker: Dirk Wilhelm, MD, Technical Univ. of Munich (DE)

14:00 The future of surgery is flexible and image guided
Invited Speaker: Silvana Perretta, PhD, MD, University Hospital (NHC), Strasbourg (FR)

14:15 Robotics and Surgical data science in urology
Invited Speaker: Charles-Karim Bensalah, PhD, MD, University Hospital Rennes (FR)

14:3015 Surgical data science for functional neurosurgery
Invited Speaker: Claire Haegelen, PhD, MD, University Hospital Rennes (FR)

14:30 Robotics and Surgical data science in urology
Invited Speaker: Charles-Karim Bensalah, PhD, MD, University Hospital Rennes (FR)

14:45 Intra-arterial CT imaging during liver ablation treatment as an adjunct for accurate targeting and therapy monitoring - a feasibility study
G. Chintalapani, E. Lin, R. Avritscher, B. Odisio, Siemens Medical Solutions USA Inc., Hoffman Estates, IL; The Univ. of Texas MD Anderson Cancer Center, Houston, TX (US) [230]

15:00 A platform for irreversible electroporation treatment planning
E. Perera-Bel, A. Ivorra, M. A. González Ballester, Univ. Pompeu Fabra, Barcelona (ES) [160]

15:15 Coffee Break

16:00 Panel Discussion: Artificial Intelligence in the Future of Radiology and Surgery
Chairs: Leonard Berliner, MD (US), Eric vanSonnenberg, MD (US), Hubertus Feussner, MD (DE)

Introduction to Panel Discussion
Leonard Berliner, MD, New York Presbyterian-Brooklyn Methodist Hosp., Weill Cornell Medical College; Brooklyn, NY (US)

Participants:
Amber Simpson, PhD (US), Krishna Kandarpa, MD, PhD (US), Masaaki Ito, MD (JP), Giuseppe Esposito, MD (US) Leo Joskowicz, PhD (IL), Michael Brady, PhD (GB), Bibb Allen, Jr. MD (US), Pierre Jannin, PhD (FR), Dirk Wilhelm, MD (DE)

17:00 End of Session

18:00 Exhibition Opening Ceremony

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23rd Annual Conference of the International Society for Computer Aided Surgery (ISCAS)

General PresidentChairs: Kensaku Mori, PhD (JP), Cristian Linte, PhD (US)

Thursday, June 20, 2019

8:15 Surgical Robotics & Instrumentation

Session Chairs: Guang-Zhong Yang, PhD (GB), Kanako Harada, PhD (JP)

Cathbot - Navigation and Control for Endovascular Intervention
Invited Speaker: Guang-Zhong Yang, PhD, Imperial College London (GB)

Microsurgical robots and their evaluation using bionic humanoids
Invited Speaker: Kanako Harada, PhD, University of Tokyo (JP)

Towards Flexible Cooperative Surgical Robotics: A Review and Future Challenges
P. Schleer, S. Drobinsky, M. de la Fuente, K. Radermacher, Helmholtz Inst. for Biomedical Engineering of RWTH Aachen (DE) [18-00568]

An "eye-in-body" integrated surgery robot system for stereotactic surgery
G. Wang, L. Li, H. Ding, J. Wu, Tsinghua Univ., Beijing (CN) [19-00087]

2mm surgical manipulator with four degrees-of-freedom for transnasal endoscopy comprising elastic mechanical elements
J. Arata, S. V. Bandara, W. Kajihara, R. Nakadate, K. Harada, M. Mitsuishi, K. Kiguchi, M. Hashizume, Kyushu Univ., Fukuoka; The Univ. of Tokyo; Kitakyushu Chuou Hosp. (JP) [209]

Portable Forceps Manipulator with Gimbal-mounted Parallel Linkage and Telescopic Rail Mechanism for Laparoscopic Surgery
S. Fukui, S. S. Han, T. Kawai, Y. Nishizawa, A. Nishikawa, T. Nakamura, Osaka Inst. of Technology; National Cancer Center Hosp. East, Kashiwa; Shinshu Univ., Ueda; Kyoto Univ. (JP) [12]

Trans-Bronchial Biopsy Catheter Robot with Follow-The-Leader Motion
N. Hata, L. Dupourquè, F. Masaki, Y. Lorig Colson, T. Kato, Brigham and Women's Hospital, Boston, MA (US); Ecole Polytechnique Federale de Lausanne (CH); Canon Healthcare Optics Lab, Cambridge, MA (US) [18-00612]

10:00 Coffee Break and Poster Session

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

ISCAS Poster Ssession 1
Session Chairs: Kensaku Mori, PhD (JP), Cristian A. Linte, PhD (US)

Poster # 048 - 060

11:15 CAD-AI / ISCAS Joint Session on Artificial Intelligence in Computer-aided Diagnosis and Image-guided Therapy

Session Chairs: Hiroyuki Yoshida, PhD (US), Kensaku Mori, PhD (JP)

Artificial intelligence in CAD: clinical perspective
Invited Speaker: Yoshiharu Ohno, MD, PhD, Kobe University Graduate School of Medicine (JP)

Polyp size determination method using short colonoscopic video clip information
H. Itoh, Y. Mori, M. Misawa, M. Oda, S. E. Kudo, K. Mori, Nagoya Univ.; Showa Univ. Northern Yokohama Hosp. (JP) [153]

Innovation of 3D Imaging and Visualization for Intelligent Minimally Invasive Surgery
Invited Speaker: Hongen Liao, PhD, Tsinghua University, Beijing (CN)

Deep neural network for differentiation of brain tumors displayed by confocal laser endomicroscopy
A. Ziebart, D. Stadniczuk, V. Roos, D. Hänggi, F. Enders, Univ. Hosp. Mannheim (DE) [103]

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A multispectral snapshot camera method to analyze optical tissue characteristics in vivo
E. L. Wisotzky, F. C. Uecker, P. Arens, A. Hilsmann, P. Eisert, Fraunhofer HHI; Charité Universitätsmedizin, Berlin (DE) [191]

12:30 Lunch Break

12:30 Lunch Break

13:30 Mixed reality for Surgical Simulation, Training and Education
Session Chairs: Carla Pugh, MD, PhD (US), Roy Eagleson, PhD (CA)

Use of Sensor-Based Metrics to Improve Mastery Learning During Simulation
Invited Speaker: Carla Pugh, MD, PhD, Stanford University (US)

Orthopaedics residents basics skills learning with virtual reality arthroscopy simulator: a large national prospective study
P. Walbron, H. Thomazeau, H. Common, E. Bernard, F. Sirveaux, Univ. Hosp. of Nancy; Univ. Hosp. of Rennes (FR) [225]

An AR-Solution for Education and Consultation during Microscopic Surgery
A. Schneider, M. Lanski, M. Bauer, E. Wisotzky, J. C. Rosenthal, ARRI Medical GmbH; pripares GmbH, Munich; Fraunhofer Heinrich Hertz Inst., Berlin (DE) [178]

Anxiety Reduction System for Glioma Patients undergoing Awake Surgery using Virtual Reality
Y. Horise, Y. Kasuya, K. Takada, T. Onishi, A. Takahashi, T. Taipaleenmaki, H. Iseki, K. Masamune, Y. Muragaki, Tokyo Women's Medical Univ.; NTT docomo Inc.; Nokia Solutions and Networks Japan; Waseda Univ., Tokyo (JP) [218]

An augmented reality guidance system for endovascular aortic repair: first steps in reducing radiation exposure
F. von Haxthausen, S. Jäckle, J. Bouchagiar, F. Matysiak, M. Kaschwich, J.-P. Goltz, E. Stahlberg, M. Kleemann, F. Ernst, V. García-Vázquez, Univ. of Lübeck; Univ. Hosp. Schleswig-Holstein, Lübeck; Fraunhofer MEVIS, Lübeck (DE) [19-00028]

14:45 ISCAS General Assembly

15:30 Coffee Break and Poster Session

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

Poster Session – PLEASE DELETE! No ISCAS poster session at this time – only @ 10-11:15 AM
Poster #

16:00 Computational Methods for Image-guided Therapy
Session Chairs: Lena Maier-Hein, PhD (DE), Roy Eagleson, PhD (CA)

Source-detector trajectory optimization for C-arm CBCT
S. Hatamikia, A. Biguri, G. Kronreif, H. Furtado, J. Kettenbach, M. Figl, W. Birkfellner, Austrian Center for Med. Innovation and Technology, Vienna; Medical Univ. of Vienna; Landesklinikum Wiener Neustadt (AT); Univ. of Southampton (GB) [23]

Automatic segmentation of attention-aware artery region in laparoscopic colorectal surgery
H. Itoh, S. Morimitsu, T. Ozawa, H. Oda, T. Kitasaka, T. Sugino, Y. Hayashi, N. Takeshita, M. Ito, M. Oda, K. Mori, Nagoya Univ.; Aichi Inst. of Technology, Toyota; National Cancer Center Hosp. East, Kashiwa (JP) [107]

Stereotactic Image-Guided Microwave Ablation for malignant liver tumors - Can computer-assistance broaden treatment eligibility?
P. Tinguely, L. Frehner, A. Lachenmayer, V. Banz, S. Weber, D. Candinas, M. Maurer, Inselspital Univ. of Bern; Univ. of Bern (CH) [182]

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Gabor-domain optical coherence microscopy for optical biopsy, image-guided surgery, and intraoperative imaging
C. Canavesi, R. O'Connell, T. Paczos, A. Cogliati, A. Hayes, A. Bonham, J. Rolland, LighTopTech Corp., West Henrietta, NY; Univ. of Rochester Medical Center, NY (US) [185]

Accounting for surgical aerosol propagation delay in navigated intra-operative tissue characterization by mass spectrometry
M. Asselin, J. Wiercigroch, K. Sunderland, M. Kaufmann, N. Janssen, T. Ungi, A. Lasso, J. Rudan, G. Fichtinger, Queen's Univ., Kingston, ON (CA) [161]

Utilizing a convolutional neural network for tool detection in central venous catheterization
T. Ungi, J. Isen, R. Hisey, G. Fichtinger, Laboratory for Percutaneous Surgery, Kingston, ON (CA) [201]

Real-time surgical needle detection using region-based convolutional neural networks
A. Nakazawa, K. Harada, M. Mitsuishi, P. Jannin, The Univ. of Tokyo (JP); Univ. of Rennes 1 (FR) [19-00066]

Friday, June 21, 2019

8:15 Image-guided Neuro-interventions and Applications
Session Chairs: Sandrine de Ribaupierre, MD (CA), Thomas Lango, PhD (NO)

Endoscopic endonasal approach in Smart Cyber Operation Theater (SCOT): preliminary clinical application
T. Ogiwara, A. Nagm, T. Goto, Y. Fujii, T. Nakamura, K. Hongo, J. Okamoto, Y. Muragaki, Shinshu Univ. School of Medicine, Matsumoto; Tokyo Women's Medical Univ. (JP) [64]

Structured Light Scanning for Morphometric Analysis in Craniosynostosis Reconstruction Surgery
D. García-Mato, M. García-Sevilla, S. Ochandiano, C. Navarro-Cuéllar, J. V. Darriba-Allés, R. García-Leal, J. Pascau, Univ. Carlos III de Madrid; Hosp. General Universitario Gregorio Marañón, Madrid (ES) [183]

Projection-mapping navigation with image deformation tracking for brain surgeries
Y. Nakajima, Y. Sohma, J. Jiang, Tokyo Medical and Dental Univ.; The Univ. of Tokyo (JP) [214]

The development of non-contact user interface of a surgical navigation system based on Kinect depth camera and a phantom experiment for zygomatic implant placement
C. Qin, X. Chen, X. Ran, Y. Wu, Shanghai Jiao Tong Univ.; Zhejiang Univ. (CN) [19-00047]

9:15 Rapid Prototyping Applications in Image-guided Therapy
Session Chairs: Marta Kersten-Oertel, PhD (CA), Ichiro Sakuma, PhD (JP)

Rapid prototyping framework for image-guided interventions
I. Vernikouskaya, D. Bertsche, W. Rottbauer, V. Rasche, Ulm Univ. Medical Center (DE) [45]

Optimizing navigation with patient-specific 3D printed guides in pelvic tumor resection surgery
D. García-Mato, M. García-Sevilla, J. Calvo-Haro, R. Pérez-Mañanes, J. Pascau, Univ. Carlos III de Madrid; General Univ. Hosp. Gregorio Maranon, Madrid (ES) [176]

Accuracy of Mastoid Surface Templates for Targeting Temporal Bone Anatomy
W. Morrel, R. Labadie, J. Noble, Vanderbilt Univ. Medical Center; Vanderbilt Univ., Nashville, TN (US) [188]

10:00 Coffee Break and Poster Session

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

ISCAS Poster Session 2 ?
Session Chairs: Kensaku Mori, PhD (JP), Cristian A. Linte, PhD (US)

Poster # 061 - 083

11:15 Workflow Analysis and Modeling for Image-guided Therapy
Session Chairs: Cristian A. Linte, PhD (US), Caroline Essert, PhD (FR)

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Predicting the quality of surgical exposure using spatial and procedural features from laparoscopic videos
A. Derathé, F. Reche, A. Moreau-Gaudry, P. Jannin, B. Gibaud, S. Voros, Univ. Grenoble Alpes, La Tronche; Univ. of Rennes 1 (FR) [19-00131]

Recognizing surgical actions of Robot-Assisted Partial Nephrectomy
H. C. Nakawala, L. E. Pescatori, R. Bianchi, O. De Cobelli, G. Ferrigno, P. Fiorini, E. De Momi, Univ. of Verona; Polytechnico di Milano; European Inst. of Oncology, Milan (IT) [19-00104]

Automatic annotation of surgical activities using virtual-reality environments
A. Huaulmé, F. Despinoy, S. A. Heredia Perez, K. Harada, M. Mitshuishi, P. Jannin, Univ. of Rennes 1 (FR); The Univ. of Tokyo (JP) [19-00056]

Cognitive Load Associations when utilizing Auditory Display within Image-Guided Neurosurgery
M. Kersten-Oertel, J. Plazak, D. di Giovanni, D. L. Collins, Concordia Univ.; McGill Univ., Montreal, QC (CA) [19-00050]

12:30 Lunch Break

13:30 Interventional Robotics for Orthopedics
Session Chairs: Randy EllisKevin Cleary, PhD (CAUS), Parvin Mousavi, PhD (CA)

New Horizons in orthopedic surgery: Past, present and future perspectives
Invited Speaker: Pedro Alvarez Diaz, MD, PhD, International University of Catalunya, Barcelona (ES)

PedBotHome: robotically-assisted ankle rehabilitation system for home use for children with cerebral palsy
S.H. Evans, R. Monfaredi, T. Salvador, H. F. Talari, C. Coley, S. Kovelman, J. Belschner, S. Alyamani, K. Cleary, Children's National, Washington, DC (US) [71]

Early Experience with Force-Space Navigated Robotics for Glenoid Implantation during Total Shoulder Arthroplasty
C. Smith, G. Athwal, L. Ferriera, Western Univ.; St. Joseph's Health Care, London, ON (CA) [173]

A comparative analysis of intensity-based 2D-3D registration for intraoperative use in pedicle screw insertion surgeries
H. Esfandiari, C. Anglin, P. Guy, J. Street, A. J. Hodgson, Univ. of British Columbia, Vancouver, BC; Univ. of Calgary, AL (CA) [19-00011]

14:30 Image-guided Orthopedic Interventions
Session Chairs: Amber Simpson, PhD (US), Pedro Alvarez Diaz, MD, PhD (ES)

3D reconstruction of the knee bone surface using markerless 3D ultrasound
M. Nasan, Y. Morvan, G. Dardenne, J. Chaoui, E. Stindel, LaTIM, Brest; Wright Medical Group, Inc., Plouzané (FR) [156]

Electromagnetically Navigated Forearm Fracture Plating
D.R. Pichora, P. Lin, J. Chan, R.E. Ellis, Queen's Univ., Kingston, ON (CA) [51]

Knee Arthroscopic Navigation using Virtual-vision Rendering and Self-positioning Technology
H. Liao, C. Ma, X. Cui, F. Chen, L. Ma, S. Xin, Tsinghua Univ. School of Medicine, Beijing; Nanjing Univ. of Aeronautics and Astronautics (CN) [19-00098]

15:30 Coffee Break and Poster Session

Poster Session ?, – PLEASE DELETE! No ISCAS poster session at this time – only @ 10-11:15 AM

16:00 Motion & Shape Tracking and Analysis for Image-guided Therapy
Session Chairs: Elvis C.S. Chen, PhD (CA), Gabor Fichtinger, PhD (CA)

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Combining Position-Based Dynamics and Gradient Vector Flow for Mitral Valve Tracking in TEE Ultrasound
L. Tautz, L. Walczak, J. Georgii, S. Sündermann, V. Falk, A. Hennemuth, Fraunhofer MEVIS, Bremen; Charité Universitätsmedizin Berlin (DE) [19-00083]

Surface Deformation Analysis of Deaerated Lungs using Model-based Shape Matching
M. Nakao, J. Tokuno, T. Chen-Yoshikawa, H. Date, T. Matsuda, Kyoto Univ.; Kyoto Univ. Hosp. (JP) [19-00114]

Respiratory motion prediction and tumor tracking with electromagnetic and optical tracking technology
Z. Bardosi, Y. Özbek, W. Freysinger, Medical Univ. of Innsbruck (AT) [38]

Fine-Tuning Neural Networks for Fast and Robust Optical Flow Estimation in Endoscopic Surgery
S. Ihler, J. P. Schulz, L. A. Kahrs, T. Ortmaier, Leibniz Univ. Hannover (DE) [19-00133]

Forceps Motion Analysis from Endoscope Videos using Deep Learning for Quantitative Evaluation of Endoscopic Sinus Surgery Training
A. Matsui, N. Ootori, K. Ohmura, R. Nakamura, Chiba Univ.; Jikei Univ. School of Medicine, Tokyo (JP) [108]

17:15 ISCAS Award Ceremony
Chairs: Kensaku Mori, PhD (JP), Cristian A. Linte, PhD (US)

21st International Conference on Computer-Aided Diagnosis and Artificial Intelligence (CAD-AI)

Chairman: Hiroyuki Yoshida, PhD (US)

Thursday, June 20, 2019

8:00 Deep Learning in Lung 1

Session Chairs: Kunio Doi, PhD (US), Martin Fiebich, PhD (DE)

3D convolutional neural networks for automatic detection of lung nodules from temporal subtraction images

Y. Yoshino, H. Kim, H. Lu, S. Murakami, T. Aoki, S. Kido, Kyushu Inst. of Technology, Kitakyushu; Univ. of Occupational and Environment Health, Fukuoka; Yamaguchi Univ., Ube (JP) [74]

Preliminary study of automated detection of pulmonary nodule in ultrashort echo time MR images

Y. Nomura, S. Hanaoka, T. Yoshikawa, I. Sato, T. Nakao, M. Murata, T. Takenaga, S. Koshino, S. Miki, T. Watadani, N. Hayashi, O. Abe, The Univ. of Tokyo Hosp.; The Univ. of Tokyo Graduate School of Medicine (JP) [52]

Deep learning-based radiomics of primary lung tumors in CT images for prediction of distant metastasis

P. Azevedo-Marques, J. R. Ferreira Junior, M. Koenigkam-Santos, T. Hironaka, F. E. Garcia Cipriano, A. Todorovic Fabro, H. Yoshida, Univ. of São Paulo, São Carlos; Univ. of São Paulo Medical School, Ribeirão Preto (BR); Harvard Medical School, Boston, MA (US) [68]

8:45 Deep Learning in Abdomen

Session Chairs: Martin Fiebich, PhD (DE), Kunio Doi, PhD (US)

Feasibility of using Faster R-CNN to detect colorectal masses in high-resolution CT colonography

J. Näppi, H. Yoshida, Massachusetts General Hosp.; Harvard Medical School, Boston, MA (US) [50]

Reduction of false-positive polyp detections in CT colonography using multiscale 3D residual networks

T. Uemura, J. Näppi, H. Lu, H. Kim, R. Tachibana, T. Hironaka, H. Yoshida, Massachusetts General Hosp., Boston, MA (US); Kyushu Inst. of Technology, Fukuoka (JP) [105]

Prostate Cancer Detection using Residual Networks

H. Xu, J. S. H. Baxter, O. Akin, D. Cantor-Rivera, Ezra AI Canada, Toronto, ON (CA); Memorial Sloan-Kettering Cancer Center, New York, NY (US); Univ. of Rennes 1 (FR) [19-00029]

Gastric cancer detection for gastroenterological endoscopy with local and multi-scale global information

A. Hayakawa, Y. Kurose, K. Tanaka, K. Aida, S. Satoh, M. Kitsuregawa, T. Harada, The Univ. of Tokyo, Bunkyo; Kyoto Second Red Cross Hosp.; National Inst. of Informatics, Chiyoda (JP) [204]

Deep Learning for Automatic Assessment of Kidney Dysfunction from CT images

J. Pascau, M. Perera, Gonzalez-Garzon, R. San Jose Estepar, Univ. Carlos III de Madrid (ES); Brigham and Women's Hosp., Boston, MA (US) [190]

10:00 Coffee Break and Poster Session

10:00 – 11:15 Poster Session # 84-97

13:30 Deep Learning in Lung 2

Session Chairs: Paulo M. Azevedo-Marques, PhD (BR), Shoji Kido, MD, PhD (JP)

Detecting lung lesions based on Deep Learning for constructing medically-meaningful TB descriptors

V. Kovalev, V. Liauchuk, A. Tarasau, E. Snezhko, A. Gabrielian, A. Rosenthal, United Inst. of Informatics Problems; Scientific and Practical Center for Pulmonology and Tuberculosis, Minsk (BY); National Inst. of Allergy and Infectional Diseases, Bethesda, MD (US) [95]

Convolutional Neural Network for 3D CADv Systems: Utility for Differentiation of Malignant from Benign Pulmonary Nodules

Y. Ohno, A. Yaguchi, K. Aoyagi, Y. Kishida, S. Seki, Y. Ueno, T. Yoshikawa, Kobe Univ. Graduate School of Medicine (JP) [16]

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Improving Lung Cancer Prediction with a Deep Learning Nodule Malignancy Classifier
X. Rafael-Palou, I. Bonavita, M. Ceresa, G. Piella, V. Ribas-Ripoll, M. A. González Ballester, Eurecat; Univ. Pompeu Fabra, Barcelona (ES) [73]

Lung Nodule Classification using Deep Local-Global Networks
M. Tan, M. al-Shabi, B. L. Lan, W. Y. Chan, K.-H. Ng, Monash Univ., Subang Jaya (MY); Univ. of Oklahoma, Norman, OK (US) [19-00018]

14:30 Radiomics 1
Session Chair: Akinobu Shimizu, PhD (JP), Janne J. Näppi, PhD (US)

Machine learning based lung cancer diagnosis using post-contrast T1-weighted and T2-weighted magnetic resonance imaging.
P. Azevedo-Marques, V. Francisco, D. Wada, J. R. Ferreira Junior, A. Fabro, F. Cipriano, L. Ferreira, S. Quatrina, M. Koenigkam-Santos, Univ. of São Paulo, São Carlos; Univ. of São Paulo Medical School, Ribeirão Preto (BR) [47]

A radiomics approach for differentiation of pseudocavitation from cavitation on lung cancer tumors
P. Azevedo-Marques, J. R. Ferreira Junior, M. Koenigkam-Santos, Y. Kikuchi, M. Faleiros, F. E. Garcia Cipriano, A. Todorovic Fabro, H. Yoshida, Univ. of São Paulo, São Carlos; Univ. of São Paulo Medical School, Ribeirão Preto (BR); Harvard Medical School, Boston, MA (US) [69]

Identifying alterations in the cardiac ventricles in atrial fibrillation: a radiomics approach
I. Cetin, S. E. Petersen, O. Camara, M. A. Gonzalez Ballester, K. Lekadir, Univ. Pompeu Fabra, Barcelona (ES); Queen Mary Univ. of London (GB) [94]

Tissue classification of esophagus resected tissue based on hyperspectral data
M. Maktabi, H. Köhler, M. Ivanova, J. Takoh, S. Rabe, B. Jansen-Winkeln, S. Niebisch, I. Gockel, C. Chalopin, Univ. of Leipzig; Univ. Hosp. Leipzig (DE) [19-00071]

15:30 Coffee Break

16:00 Radiomics 2
Session Chair: Ruey-Feng Chang, PhD (TW), Yoshiharu Ohno, MD, PhD (JP)

Artificial neural network for the prediction of colorectal lymph node metastasis
B. Villard, H. Itoh, K. Ichimasa, Y. Mori, M. Misawa, M. Oda, S. Kudo, K. Mori, Nagoya Univ.; Showa Univ. Northern Yokohama Hosp. (JP) [19-00102]

A novel method of determining breast cancer risk using parenchymal textural analysis of mammography images
M. Tan, S. Mariapun, C. H. Yip, K. H. Ng, S. H. Teo, Monash Univ. Malaysia; Subang Jaya Medical Centre, Selangor; Univ. of Malaya, Kuala Lumpur (MY) [77]

16:30 Deep Learning in Breast, Eye, Brain, and MSK
Session Chairs: Hiroshi Fujita, PhD (JP), Ruey-Feng Chang, PhD (TW)

Tumor detection for automated breast ultrasound using 3-D convolutional neural network
R. F. Chang, Y. S. Huang, C. H. Hsu, National Taiwan Univ., Taipei (TW) [21]

Classification of breast cancer histology images using consensus oriented by three Deep Convolutional Neural Networks
I. Nedjar, S. Mahmoudi, M. A. Chikh, Tlemcen Univ. (DZ); Univ. of Mons (BE) [192]

Optical Coherence Tomography Classification of Multiple Retinal Diseases Using Densenet
K. Mori, C. Wang, M. Oda, Y. Itoh, Nagoya Univ.; Nagoya Univ. Graduade School of Medicine (JP) [120]

Retinal OCT disease classifi- cation with variational autoencoder regularization
M. H. Laves, S. Ihler, L. A. Kahrs, T. Ortmaier, Leibniz Univ. Hannover (DE) [222]

3D deep convolutional neural network using SPECT images for classification of dementia type
M. Yambe, A. Saito, M. Fukasawa, T. Iizuka, A. Shimizu, Tokyo Univ. of Agriculture and Technology, Koganei; Fukujuji Hosp., Kiyose (JP) [60]

~~**Detection of hip fractures on digital pelvic radiographs using a deep convolution neural network**~~
~~T. Mawatari, R. Murakami, S. Katsuragawa, Y. Hayashida, Teikyo Univ., Omuta; Univ. of Occupational and Environmental Health School of Medicine, Kitakyushu (JP) [41]~~

~~18:00 End of Session~~

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CARS – Computer Assisted Radiology and Surgery

Wednesday, June 19, 2019

8:00 21st IFCARS / SPIE / ISCAS Joint Workshop on the Digital Operating Room (DOR)
Chairs: Yoshihiro Muragaki, MD (JP), Pierre Jannin, PhD (FR), Heinz U. Lemke, PhD (DE)

8:00 Smart Cyber Operating Theater (SCOT) realized through Internet of Things (IoT)
Invited Speaker: Yoshihiro Muragaki, MD, PhD, Tokyo Women's Medical University (JP)

ORNET and beyond: AI and machine learning in the OR of the future
Invited Speaker: Thomas Neumuth, PhD, ICCAS Institute (DE)

TBA
Invited Speaker:

The Bonseyes-Project: democratizing Artificial Intelligence for the collaborative OR
D. Ostler, N. Marahrens, D. Wilhelm, H. Feußner, Klinikum rechts der Isar of Technical Univ. of Munich (DE) [181]

GATOR: Connecting Integrated Operating Room Solutions Based on the IEEE 11073 SDC and ORiN Standards
J. Berger, M. Rockstroh, E. Schreiber, Y. Yoshida, J. Okamoto, K. Masamune, Y. Muragaki, T. Neumuth, Univ. of Leipzig (DE); Tokyo Women's Medical Univ.; DENSO Wave Incorporated, Aichi (JP) [19-00049]

Extending BPMN 2.0 for Intraoperative Workflow Modeling with IEEE 11073 SDC for Description and Orchestration of Interoperable, Networked Medical Devices
J. Neumann, S. Franke, M. Rockstroh, M. Kasparick, T. Neumuth, Univ. of Leipzig; Univ. of Rostock (DE) [19-00060]

Assisted Annotation of Surgical Videos Using Deep Learning
G. Lecuyer, M. Ragot, N. Martin, L. Launay, P. Jannin, IRT b<>com, Cesson-Sevigne; Univ. of Rennes 1 (FR) [19-00052]

Software assisted warning systems for endoscopic surgery – A Deep Learning based approach
T. Grau, P. Schmitz, G. Strauß, KOPFZENTRUM Gruppe, Leipzig (DE) [84]

Glioma surgery in Standard Smart Cyber Operation Theater (SCOT): initial experience of 5 cases
Y. Fujii, T. Goto, T. Ogiwara, J. Okamoto, Y. Muragaki, K. Hongo, Shinshu Univ. School of Medicine, Matsumoto; Tokyo Women's Medical Univ. (JP) [82]

10:00 Coffee Break and Poster Session

Poster Session ?

Wednesday, June 19, 2019

10:15 4th ISCAS / CAD-AI / IFCARS Joint Symposium on Multidisciplinary Computational Anatomy (MCA)
Chairs: Makoto Hashizume, MD (JP), Hiroyuki Yoshida, PhD (US)

10:15 Results of the national Japanese project on Multi-disciplinary computational anatomy
Invited Speaker: Kensaku Mori, PhD, Nagoya University (JP)

Nasal airflow simulation with LDV validated LB code calculated from CBCT data sets to identify surgically relevant landmarks
M. Berger, S. Schick, M. Pillei, A. Mehrle, W. Recheis, D. Dejaco, F. Kral, M. Kraxner, W. Freysinger, Management Center Innsbruck; Medical Univ. of Innsbruck; Kardinal Schwarzenberg Hosp., Schwarzach i. Pongau (AT) [59]

Statistical intensity model of lung vessels in a CT volume using β-VAE
Y. Saeki, A. Saito, J. Ueno, M. Harada, A. Shimizu, Tokyo Univ. of Agriculture and Technology, Koganei; Tokushima Univ. (JP) [76]

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Multiple Aneurysms AnaTomy CHallenge 2018 (MATCH) - Phase II: Rupture Risk Assessment
P. Berg, S. Voß, G. Janiga, S. Saalfeld, A. W. Bergersen, K. Valen-Sendstad, J. Bruening, L. Goubergrits, A. Spuler, T. L. Chiu, A. C. O. Tsang, G. Copelli, B. Csi, Otto von Guericke Universitat Magdeburg, Magdeburg (DE) [19-00040]

Flow-Splitting-Based Computation of Outlet Boundary Conditions for Improved Cerebrovascular Simulation in Multiple Intracranial Aneurysms
S. Saalfeld, S. Voß, O. Beuing, B. Preim, P. Berg, Otto-von-Guericke-Univ. Magdeburg (DE) [19-00076]

Wednesday, June 19, 2019

11:30 2nd Workshop on Digital Space Medicine (DSM)
Chairs: Mario A. Cypko, PhD (NL), Krishna Kandarpa, MD, PhD (US)

11:30 Medical care and hospitalization in extreme environments like Antarctica (or space)
Invited Speaker: Paul Laforet, Service médical TAAF / IPEV (French national space agency) (FR)

Space Missions Simulation Facilities and Opportunities - Developing ideas and technologies
Invited Speaker: Agata Kołodziejczyk, Analog Astronaut Training Center (PL)

Examples of Technology transfer - how to get involved
Invited Speaker: Arnaud Runge, ESTEC, European Space Agency (NL)

Human Space Flight and Space Medicine - Exploration; Change of ParadigmsMedical Care for Manned Deep Space Exploration - What is needed?
Invited Speaker: Ulrich Straube, EAC, European Space Agency (DE)

12:30 Lunch Break

Wednesday, June 19, 2019

13:30 Special Focus Session: ERC: Europe got talents
Chair: TBANassir Navab, PhD (DE)

Geometric Statistics for Computational Anatomy
Invited Speaker: Xavier Pennec, INRIA, Sophia-Antipolis (FR)

Molecular photoacoustic imaging during ultrasound-guided interventions
Invited Speaker: Adrien Desjardins, UCL, London (GB)

COMBIOSCOPY: Computational biophotonics in endoscopy
Invited Speaker: Lena Maier-Hein, DKFZ, Heidelberg (DE)

Optical theranostics: image-guided cancer thermal therapy using light
Invited Speaker: Dan Elson, Imperial College London (GB)

QuantSURG: Making Sense in Surgery using Near-Infrared Optical Imaging
Invited Speaker: Sylvain Gioux, Université de Strasbourg (FR)

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25th Computed Maxillofacial Imaging Congress (CMI)
Image-Guided Oral and Maxillofacial Surgery
Chairs: Christos Angelopoulos, DDS (US), Yoshihiko Hayakawa, PhD (JP)

Wednesday, June 19, 2019

14:45 CMI Poster Session
Session Chairs: Angelopoulos, DDS (US), Yoshihiko Hayakawa, PhD (JP)

Poster # 098 - 107

16:00 Surgical Navigation
Session Chairs: Akitoshi Katsumata, DDS, PhD (JP), Nermin Morgan (EG)

Future of Oral and Maxillofacial Radiology
Invited Speaker: Christos Angelopoulos, DDS, Columbia University, New York, NY (US)

3D Modeling and Virtual Reality in Oral and Maxillofacial Region
Invited Speaker: Yoshihiko Hayakawa, PhD, Kitami Institute of Technology, Hokkaido (JP)

Development of an application to evaluate the maxilla positioning after computer assisted orthognathic surgery
Y. Sun, X. Hu, Y. Du, B. Vanrumste, C. Politis, Univ. Hosp. Leuven; KU Leuven (BE) [75]

Automated intraoral radiographic projection classification using convolutional neural networks
N. Kyventidis, C. Angelopoulos, Aristotle Univ. of Thessaloniki (GR) [141]

Intraoperative navigation in orbit reconstruction
A. Baumann, Medical Univ. of Vienna (AT) [169]

Accuracy of Low Dose Imaging Protocols of CBCT in Assessment of Peri-implant Bone Defects
N. Morgan, W. Aboelmaaty, E. Abdelfadil, M. Ashmawy, Mansoura Univ.; Ain Shams Univ., Cairo (EG) [172]

A dynamic tracking control of the robotically assisted dental implant surgical system
C. Qin, X. Chen, Z. Cao, J. Hu, Shanghai Jiao Tong Univ. (CN) [216]

17:45 End of Session

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~~**IPCAI 2018 - 9th International Conference on Information Processing in Computer-Assisted Interventions**~~

~~**Chairs:** Kensaku Mori, PhD (J), Parvin Mousavi, PhD (CDN), Danail Stoyanov, PhD (UK)~~

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Poster Sessions

CAR / CARS Poster Session

001 Image quality of low tube voltage on 2nd generation dual-source CT angiography for partial nephrectomy 3D simulation: a phantom study
K. Ohashi, A. Okada, Y. Hirose, T. Yasui, Y. Shibamoto, Nagoya City Univ. Hosp.; Nagoya City Univ. Graduate School of Medical Sciences (JP) [7]

002 Non-contrast to contrasted abdominal CT volume regression using fully convolutional network
M. Oda, K. K. Kumamaru, S. Aoki, K. Mori, Nagoya Univ.; Juntendo Univ.,Tokyo (JP) [29]

003 Anatomical keypoints localization in 3D CT scans using regression CNN
F. Lalys, H. Hammami, A. Landreau, Therenva SAS, Rennes (FR) [30]

004 Deep learning-based dual-energy computed tomography imaging
Y. Chen, T. Lv, W. Zhao, Q. Zhao, L. Xing, Southeast Univ., Nanjing (CN); Stanford Univ., CA (US) [83]

005 70 kVp CT angiography for preoperative assessment of robot assisted partial nephrectomy (RAPN): comparison with 120 kVp imaging
W. Tani, N. Negi, Kobe Univ. Hosp. (JP) [88]

006 Image noise characteristic of deep learning-based reconstruction image in precision detector computed tomography
A. Urikura, Y. Nakaya, T. Yoshida, T. Hara, E. Nishimaru, M. Endo, Shizuoka Cancer Centre; Nakatsugawa Municipal General Hosp., Gifu; Hiroshima Univ. Hosp. (JP) [130]

007 Artifacts reduction for analyzing postmortem CT images by using deep learning
S. Chai, Y. Hirano, S. Kido, K. Kinoshita, K. Inai, S. Noriki, Yamaguchi Univ., Ube; Univ. of Fukui, Eiheiji (JP) [155]

008 Analysis of colon curvatures in CT colonography images in different patient positions
G. Fichtinger, J. Laframboise, K. Barr, P. Tan, L. Hookey, T. Ungi, Queen's Univ., Kingston, ON (CA) [199]

009 Reference misalignment detection and correction for atrial fibrillation catheter ablation
A. J. Stewart, S. Sebastyan, M. Kunz, D. Redfearn, Queen's Univ., Kingston, ON (CA) [207]

010 Clinical Information Analyzer system to support surgery toward realization of AI surgery
K. Kusuda, J. Okamoto, Y. Horise, M. Tamura, E. Kobayashi, Y. Muragaki, K. Masamune, Tokyo Women's Medical Univ. (JP) [211]

011 Bone suppression for chest X-ray image using a convolutional neural filter
N. Matsubara, A. Teramoto, K. Saito, H. Fujita, Fujita Health Univ., Toyoake; Gifu Univ. (JP) [19-00046]

012 Dynamic contrast-enhanced CT diagnosis of primary liver cancers using transfer learning of pre-trained convolutional neural network: Is manual registration of multi-phasic images by radiologists needed?
A. Yamada, K. Oyama, S. Fujita, E. Yoshizawa, F. Ichinohe, D. Komatsu, Y. Fujinaga, Shinshu Univ. School of Medicine, Nagano (JP) [19-00055]

013 Online calibration of a mobile C-arm using inertial sensors: A feasibility study in order to achieve CBCT
I. Lemammer, O. Michel, H. Ayasso, S. Zozor, G. Bernard, Univ. Grenoble Alpes; Thales AVS France, Moirans (FR) [19-00062]

014 Improving realism in patient-specific abdominal Ultrasound simulation using CycleGANs
S. Vitale, J. I. Orlando, E. Iarussi, I. Larrabide, Univ. Nacional del Centro de la Provincia de Buenos Aires, Tandil (AR); Medical Univ. of Vienna (AT) [19-00078]

015 Deep Learning-based Digital Subtraction Angiography Image Generation
Y. Chen, Y. Song, X. Yin, W. Wu, W. Shi, Southeast Univ., Nanjing; Nanjing Medical Univ.; Chongqing Univ. (CN) [19-00088]

016 Downsampled Cerebral CT Perfusion Image Restoration with CNN
H. Zhu, Y. Chen, S. Wang, W. Wu, H. Tang, L. Luo, Southeast Univ., Nanjing; Chongqing Univ. (CN) [19-00096]

017 Markerless pose estimation of a endoscope-compatible fiberprobe for optical biopsy : a feasibility study
O. Zenteno, S. Treuillet, Y. Lucas, Univ. of Orleans (FR) [19-00107]

018 Mesh Optimization and Centerline Extraction of Vascularture for Endovascular Intervention Simulation
W. Si, D. Zhu, H. Xie, M. Wei, W. S. Ho, F. L. Wang, J. Qin, Shenzhen Inst. of Advanced Technology; Nanjing Univ. of Aeronautics and Astronautic (CN); The Hong Kong Polytechnic Univ.; The Education Univ. of Hong Kong; The Open Univ. of Hong Kong; Caritas Inst. of Higher Education (HK) [19-00117]

019 3D Deep Learning approach to predict breast tumor response to chemotherapy using two DCE-MRI volumes
M. El Adoui, S. Drisis, M. Benjelloun, Univ. of Mons; Inst. Jules Bordet, Brussels (BE) [2]

020 Development of automated estimation of disproportionately enlarged subarachnoid space in head CT
N. Takahashi, T. Kinoshita, Y. Shinohara, T. Ohmura, E. Matsuyama, H. Toyoshima, Research Inst. of Brain and Blood Vessels, Akita; Int. Univ. of Health and Welfare, Ohtawara (JP) [13]

021 Fast and automatic liver segmentation for interventional oncology procedures of liver cancer
A. Landreau, F. Lalys, Y. Rolland, H. Hammami, Therenva SAS; Centre Eugène Marquis, Rennes (FR) [19]

022 Primary technical efficacy of stereotactic microwave ablation compared to non-navigated conventional MWA for ablation of liver malignancies.
L. Luerken, L. Beyer, J. Schaible, C. Stroszczynski, Univ. Hosp. Regensburg (DE) [26]

023 Segmentation of glandular area in clinical mammograms using deep learning aimed at volumetric breast density measurement
M. Yamamuro, Y. Asai, N. Yasuda, K. Yamada, K. Sakaguchi, T. Konishi, Y. Ozaki, M. Matsumoto, T. Murakami, Kindai Univ. Hosp., Osaka; Kyoto Prefectural Police Hq.; Osaka Univ. Graduate School of Medecine; Kobe Univ. (JP) [28]

024 Feasibility of 2D-3D intensity-based rigid registration for liver radioembolization guidance
H. Hammami, F. Lalys, Y. Rolland, P. Haigron, Therenva SAS; Centre Eugène Marquis, Rennes; Univ. of Rennes 1 (FR) [32]

025 Dose distribution analysis of hybrid intensity-modulated radiation therapy for locally advanced lung cancer
Y. Okamoto, K. Takahara, Osaka Police Hosp. (JP) [33]

026 Model-based Registration of Deaeration Deformation for in vivo Animal Lungs
K. Kobayashi, M. Nakao, J. Tokuno, T. F. Chen-Yoshikawa, H. Date, T. Matsuda, Kyoto Univ.; Kyoto Univ. Hosp. (JP) [40]

027 Ultrasonic image-guided robotic system for nerve block anesthesia
S. Chen, Y. Lin, Shanghai Jiao Tong Univ. (CN) [44]

028 Effects of super resolution processing using deep learning technique for SPECT images
Y. Okura, M. Yamamoto, R. Hashimoto, Hiroshima International Univ. (JP) [78]

029 First approach to analyse the body fluid status automatically
K. Skerl, J. Schwarz, T. Fritz, V. Oppelt, S. Uharek, R. Celik, Furtwangen Univ., Villingen-Schwenningen; Ortenau Klinikum, Offenburg (DE) [102]

030 Development of Automatic Assessment Method for Meniscus in Ultrasonography
H. Watanabe, N. Hayashi, M. Shimosegawa, T. Ogura, N. Nakamura, M. Ogawa, N. Takagi, N. Tanki, Gunma Prefectural College of Health Sciences, Maebashi; Kaihin Orthopedic and Rheumatism Clinic, Chiba; Teikyo Univ. Chiba Medical Center, Ichihara; Butsuryo College of Osaka, Sakai (JP) [110]

031 Computerised volumetric breast density measurements based on anatomical knowledge on digital mammograms
Y. Asai, M. Yamamuro, N. Yasuda, K. Yamada, Y. Ozaki, M. Matsumoto, T. Murakami, Kindai Univ. Hosp.,

Osaka; Kyoto Prefectural Police Hq.; Osaka Univ. Graduate School of Medicine; Kobe Univ. School of Medicine (JP) [31]

032 3D fully convolutional network-based head structure segmentation on multi-modal images from sparse annotation
K. Mori, T. Sugino, H. Roth, M. Oda, T. Kin, Nagoya Univ.; The Univ. of Tokyo (JP) [116]

033 Intravoxel incoherent motion perfusion magnetic resonance imaging of water molecules in the rat cortex after common carotid artery occlusion at 11.7T
S. Fujiwara, Y. Mori, D. M. de la Mora, K. Yoshida, K. Ogasawara, Y. Yoshioka, Iwate Medical Univ., Morioka; Osaka Univ. (JP); Univ. of Copenhagen (DK) [123]

034 Semi-automated small intestine segmentation by fully convolutional networks and Hessian analysis
K. Mori, H. Oda, T. Sugino, K. Nishio, K. Chiba, K. Oshima, T. Kitasaka, M. Oda, C. Shirota, A. Hinoki, H. Uchida, Nagoya Univ.; Nagoya Univ. Graduade School of Medicine; Aichi Inst. of Technology, Toyota (JP) [133]

035 Can thin-slice diffusion weighted imaging promise reliable measurement of apparent diffusion coefficient? : phantom study
T. Yoshida, A. Urikura, Y. Hosokawa, K. Shirata, Y. Nakaya, M. Endo, Shizuoka Cancer Center, Nagaizumi; Hirosaki Univ. (JP) [139]

036 Preliminary Study on Extraction of Blood Vessels from Fluoroscopic Images Using Deep Convolutional Neural Network
R. Kimura, N. Matsubara, A. Teramoto, K. Saito, T. Ohno, H. Fujita, Fujita Health Univ., Toyoake; Fujita Health Univ. Bantane Hosp., Nagoya; Gifu Univ. (JP) [140]

037 Automated Segmentation of Prostate Gland with Superpixel based and Active Contour based Methodology using Diffusion-Weighted MR Imaging
A. Mehndiratta, D. Singh, S. Bhattacharya, C. J. Das, V. Kumar, A. Singh, Indian Inst. of Technology Delhi; All India Inst. of Medical Sciences Delhi, New Delhi; Amity Univ., Noida (IN) [157]

038 Detection of Spinal Ultrasound Landmarks Using Convolutional Neural Networks
M. Asselin, V. Wu, T. Ungi, G. Fichtinger, Queen's Univ., Kingston, ON (CA) [205]

039 Segmentation of uterus and uterine fibroids in MR images using convolutional neural networks for HIFU surgery planning
G. Yang, C. Zhang, H. Shu, Y. Liu, Y. Wen, Q. Zhang, J. L. Dillenseger, Southeast Univ., Nanjing; Chongqing Medical Univ.; National Engineering Research Center of Ultrasound Medicine; Chongqing Weihai Software Development Co. Ltd., Chongqing (CN); Univ. of Rennes 1 (FR) [210]

040 Segmentation of aorta dissection CT images using convolution neural networks
G. Yang, X. Zhao, T. Lv, H. Shu, P. Haigron, Southeat Univ., Nanjing (CN); Univ. of Rennes 1 (FR) [212]

041 Measurement of pressure value in mammographic breast compression
H. Nishide, S. Sugiura, Gifu Univ. of Medical Science, Seki (JP) [220]

042 Segmentation of Hepatic arterial Cone-beam CT Angiography: Comparison of vessels enhancement methods
S. Toure, E. Curti, Y. Rolland, H. Saint-Jalmes, J. Bézy-Wendling, P.-A. Eliat, Univ. of Rennes 1 (FR) [19-00061]

043 Towards Developing a New Diffeomorphism Strategy for Non Rigid Medical Image Registration
S. Dakua, J. Abinahed, A. Zakaria, A. Al-Ansari, F. Bensaali, A. Amira, X. Zhai, P. Coveney, R. Richardson, Hamad Medical Corp.; Qatar Univ., Doha (QA); Univ. of Essex; Univ. College London (UK) [19-00068]

044 Design and Clinical Test of a Passive Ultrasound Probe Holder Mechanism for Ultrasonography Guided Arterial Puncturing
B.-J. Yi, M. U. A. Khan, Hanyang Univ., Ansan (KR) [19-00077]

045 Regional-surface-based registration for image-guided neurosurgery: Effects of scan modes on registration accuracy
Y. Dong, C. Zhang, D. Ji, M. Wang, Z. Song, Fudan Univ., Shanghai (CN) [19-00106]

046 Analysis and Optimization of the Robot Setup for Robotic-Ultrasound-Guided Radiation Therapy
M. Schlüter, S. Gerlach, C. Fürweger, A. Schlaefer, Univ. of Technology Hamburg-Harburg; European Cyberknife Center Munich (DE) [19-00122]

047 A novel RBF-based predictive tool for facial distraction surgery in growing children with syndromic craniosynostosis.
F. Angullia, R. Fright, R. Richards, S. Schievano, A. Linney, D. Dunaway, Great Ormond Street Hosp. for Children, London; Univ. College London (GB) [219]

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048 Sucker design improvement of stiffness-adjustable grasping pads for laparoscopic surgeries
Y. Nakajima, K. Sukondhasingha, Tokyo Medical and Dental Univ. (JP) [112]

049 Improved laparoscopic access guidance for Verres needle procedures by means of proximally attached audio evaluation
A. Illanes, A. Schaufler, A. Boese, C. Wex, R. Croner, M. Friebe, Otto-von-Guericke Univ., Magdeburg (DE) [163]

050 Bleeding and Hemostasis Region Extraction using a Support Vector Machine for Automatic Hemostasis Surgery with Abdominal Cavity Irrigation
Y. Matsunaga, T. Igarashi, R. Nakamura, Chiba Univ. (JP) [79]

051 Global patient tracking with trifocal reconstruction in computer-assisted ENT-surgery
G. Diakov, W. Freysinger, Innsbruck Medical Univ. (AT) [24]

052 Endoscopic vs. volumetric OCT imaging of the mastoid bone structure for pose estimation in minimally invasive cochlear implant surgery
M.-H. Laves, S. Latus, J. Bergmeier, T. Ortmaier, L. A. Kahrs, A. Schlaefer, Leibniz Univ. Hannover; Univ. of Technology Hamburg-Harburg (DE) [19-00109-P]

053 integration of intra-operative brain functional positions into the standard brain using SPM
K. Ohshima, I. Sato, Y. Nambu, Y. Fujino, Y. Horise, K. Kusuda, M. Tamura, Y. Muragaki, K. Masamune, Future Univ. Hakodate; Tokyo Women's Medical Univ. (JP) [197]

054 An automatic unmarked guidewire navigation: application to a remote-controlled vascular interventional robot system
L. Gu, Y. Ma, C. Wang, H. Shen, S. Zhou, H. Xie, L. Xie, Shanghai Jiao Tong Univ.; Chinese Academy of Sciences, Shenzhen; Peking Union Medical College Hosp. (CN) [223]

055 Improvement of Intraoperative plantar pressure measuring system considering physiological load condition
I. Sakuma, I. Hosoi, E. Kobayashi, S. H. Chang, T. Matsumoto, Q. An, E. Anzai, Y. Ohta, The Univ. of Tokyo; Tokyo Women's Medical Univ.; National Inst. of Advanced Science and Technology; Ochanomizu Univ., Tokyo (JP) [124]

056 3D printed model-based simulation of laparoscopic surgery for cancer of the descending colon with an abdominal aortic aneurysm: A new surgical technique
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057 Impact of a motorised articulated laparoscopic needle holder with ergonomic handle on the gesture smoothness: a pilot study
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058 A Generic Cable-Driven Manipulator for Targeted Transrectal MR-guided Prostate Biopsy: Preliminary Design and Intervention Planning
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059 Development of Mechanical 3D Ultrasound Scanning Devices for Image-guided Interventions
A. Fenster, J. Rodgers, D. Gillies, J. Kishimoto, S. Papernick, N. Kakani, Western Univ., London, ON (CA); Manchester Royal Infirmary (GB) [72]

060 A robotic surgical arm dockable on an endoscope to prevent organ injury during insertion
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061 Design of 4-DOFs master device and preliminary test for flexible endoscopic robot surgery
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062 Design, Characterization and Optimization of a Soft Fluidic Actuator for Minimally Invasive Surgery
G. Decroly, B. Mertens, P. Lambert, A. Delchambre, Univ. Libre de Bruxelles, Brussels (BE) [19-00051]

063 Design of a parametric knee implant model based on Active Shape Model output data for individualized knee implants
P. Sembdner, L. Mika, S. Heerwald, S. Holtzhausen, R. Stelzer, Dresden Univ. of Technology; Dornheim Medical Images GmbH, Magdeburg (DE) [132]

064 Augmented reality guidance for zygomatic implant navigation system based on fully-tracked strategy
X. Chen, Q. Sun, P. Sun, Y. Gao, Shanghai Jiao Tong Univ. (CN) [19-00100]

065 Cerebral white matter abnormalities can affect cognitive improvement after carotid endarterectomy in carotid artery steno-occlusive patients
J. Yoshida, F. Yamashita, M. Sasaki, K. Yoshioka, S. Fujiwara, M. Kobayashi, K. Yoshida, Y. Kubo, K. Ogasawara, Iwate Medical Univ., Morioka (JP) [55]

066 Development of brain surgery assistance system that integrate forceps with continuous tumor resection function and tumor cell isolation device
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067 Augmented reality-assisted ventricular puncture with marker-based scene registration
C. Kunz, M. Schneider, M. Hlavac, D. Zenth, I. Gergel, C. Pylatiuk, B. Hein, Karlsruhe Inst. of Technology; Univ. of Ulm; User Interface Design GmbH, Munich; mbits imaging GmbH, Heidelberg (DE) [158]

068 Volume rendering depth mapping for fast vessel identification during intracranial deep electrode planning
A. Higueras-Esteban, I. Delgado-Martínez, L. Serrano, G. Conesa, M. A. Gonzalez Ballester, L. Serra, Galgo Medical S.L.; Univ. Pompeu Fabra; Hosp. del Mar, Barcelona (ES) [170]

069 Accuracy Evaluation of a Drill Guidance System for Orthopaedic Surgery
I. Georgilas, N. Sell, J. Bridgwater-Court, G. Giddins, J. du Bois, Univ. of Bath (GB) [19-00111]

070 Three-Dimensional Displacement after a Medializing Calcaneal Osteotomy in relation to the Hindfoot Alignment and Osteotomy Angle
A. Burssens, M. Peiffer, C. Belvedere, S. Clockaerts, T. Leenders, A. Leardini, W. I. Group, E. Audenaert, J. Victor, Univ. Hosp. Ghent; AZ Groeninge, Kortrijk; AZ Monica, Deurne (BE); Istituto Ortopedico Rizzoli, Bologna (IT); Hosp. Rummelsberg, Schwarzenbruck (DE) [49]

071 Robust 3D kinematic measurement of femoral component using machine learning
T. Yamazaki, T. Tomita, Y. Sato, H. Yoshikawa, K. Sugamoto, Saitama Inst. of Technology, Fukaya; Osaka Univ. Graduate School of Medicine; Nara Inst. of Science and Technology, Ikoma (JP) [127]

072 Towards a markerless Computer Assisted Orthopaedic Surgery system
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073 A targeting system for distal locking of intramedullary nails based on electromagnetic navigation
X. Chen, Y. Gao, H. Wang, Q. Sun, Shanghai Jiao Tong Univ. (CN) [19-00101]

074 Zebra striping and Moiré mapping assessment for hemifacial deformity
Y. Takeichi, H. Motai, H. Iguchi, K. Hishida, H. Tada, M. Kato, Y. Itoh, Toyota Wakatake General Hosp.; Motai Otorhinolaryngological Clinic, Tokai; Nagoya City Univ.; Wakaba Hosp., Zu; Aichi Medical Univ., Nagakute (JP) [85]

075 printing of contour-adapted bone scaffolds based on calcium phosphate cements
S. Holtzhausen, S. Heinemann, R. Stelzer, Dresden Univ. of Technology (DE) [159]

076 Three-dimensional laparoscopic vision improves forceps motion more in the depth direction than in the horizontal direction.
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077 New objective skill assessment system for the laparoscopic intestinal anastomosis model and evaluation of validity
M. Uemura, M. Tomikawa, M. Hashizume, S. Ieiri, M. Eto, Kyushu Univ., Fukuoka; Kagoshima Univ. (JP) [194]

078 Clinical Usability Testing of TTTS Fetal Surgery Planning and Simulation Framework
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079 Introducing surgical landscape guidance for intelligent assistance in minimally-invasive surgery
J. C. Rosenthal, R. Bieck, T. Wittenberg, P. Eisert, T. Neumuth, Fraunhofer Inst. for Telecommunications, Berlin; Innovation Center Computer Assisted Surgery, Leipzig; Fraunhofer Inst. for Integrated Circuits IIS, Erlangen (DE) [48]

080 Acoustic emission integration for ultrasound guidance: a feasibility study for needle based clinical procedures
A. Illanes, N. Esmaeili, F. Renna, J. Oliveira, M. Coimbra, M. Friebe, Otto-von-Guericke Univ. Magdeburg (DE); Univ. of Porto (PT) [101]

081 Band markers for three-dimensional pose tracking of catheters using single-view fluoroscopy
D. Lee, Korea Inst. of Science and Technology, Seoul (KR) [215]

082 Evaluation of an augmented reality guidance system for laparoscopic liver ablations
K. Cleary, R. Shekhar, X. Liu, W. Plishker, L. W. Lau, Children's National Medical Center, Washington, DC; IGI Technologies, Inc., College Park, MD (US) [180]

083 Workflow assessment as a preclinical development tool: surgical process models of three techniques for minimally invasive cochlear implantation
S. Müller, L. A. Kahrs, J. Gaa, S. Tauscher, M. Kluge, S. John, T. Rau, T. Lenarz, T. Ortmaier, O. Majdani, Leibniz Univ. Hannover; Hannover Medical School (DE) [19-00020]

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084 Proposal for self-evolving CAD system that uses CNN
K. Abe, H. Takeo, Y. Nagai, S. Nawano, Kanagawa Inst. of Technology; National Cancer Center Hosp. East, Chiba; International Univ. of Health and Welfare, Tokyo (JP) [5]

085 Quantification of the diagnosis of depression through application of image recognition technology
Y. Maki, K. Abe, H. Takeo, Y. Nagai, Kanagawa Inst. of Technology; National Cancer Center Hosp. East, Chiba (JP) [6]

086 Heterogeneity of longitudinal brain imaging phenotypes in Alzheimer's disease based on unsupervised clustering of blood marker profiles
G. Martí Juan, G. Sanroma, G. Piella, Univ. Pompeu Fabra, Barcelona (ES); German Center for Neurodegenerative Diseases, Bonn (DE) [126]

087 Subtype classification of triple negative breast cancers by using radiomic feature and miRNA
N. Wada, Y. Uchiyama, Kumamoto Univ. (JP) [57]

088 Automated differential diagnosis of benign and malignant breast lesions on the mammograms
A. Kolchev, I. Egoshin, D. Pasynkov, I. Kliouchkin, O. Pasynkova, Mari State Univ.; Oncology Clinic of Mari El Republic; Kazan Federal Univ., Yoshkar-Ola; Kazan State Medical Univ. (RU) [86]

089 Femur fracture classification from X-ray images with Few-shot learning: A preliminary study
C. Lee, J. Jang, Y. Kim, Y. S. Kim, Hanyang Univ.; CTO Information Technology Research Center, Seoul (KR) [111]

090 Towards Automatic Lesion Classification in the Upper Aerodigestive Tract Using OCT and Deep Transfer Learning Methods

M. Schlüter, N. Gessert, S. Latus, V. Volgger, C. Betz, A. Schlaefer, Hamburg Univ. of Technology; Ludwig-Maximilians-Univ. Munich; Univ. Medical Center Hamburg-Eppendorf (DE) [35]

091 Detection of Lung Nodules and Suprahyoid Head and Neck Lesions in High-Resolution CT Scans
E. Kapoor, M. Khanna, George Washington Univ., Washington, DC (US) [206]

092 Discrimination of the invasive of lung adenocarcinoma in computed tomography image using homology method
K. Nakane, S. Tomohisa, H. Numasaki, M. Koizumi, H. Yamamoto, O. Honda, M. Yanagawa, N. Tomiyama, Osaka Univ. (JP) [81]

093 Deep generative model-based unsupervised detection of inappropriate images in a chest X-ray dataset
T. Nakao, S. Hanaoka, Y. Nomura, M. Murata, T. Takenaga, S. Miki, T. Watadani, T. Yoshikawa, N. Hayashi, O. Abe, The Univ. of Tokyo Graduade School of Medicine; The Univ. of Tokyo Hosp. (JP) [92]

094 Improvement of classification performance of pulmonary nodules in CT images using multiple deep convolutional generative adversarial networks
Y. Onishi, A. Teramoto, M. Tsujimoto, T. Tsukamoto, K. Saito, H. Toyama, K. Imaizumi, H. Fujita, Fujita Health Univ.; Fujita Health Univ. Hosp.; Fujita Health Univ. School of Medicine, Toyoake; Gifu Univ. (JP) [137]

095 Computer Aided Diagnosis of Cirrhosis and Hepatocellular Carcinoma using Multi-Phase Abdomen CT
A. Mehndiratta, A. Nayak, M. Arya, E. Baidya Kayal, J. Culli, S. Krishan, S. Agarwal, Indian Inst. of Technology Delhi, New Delhi; Medanta The Medicity, Gurgaon (IN) [19-00125]

096 Improved Method of An Automated Detection of Gastric Cancer using FCN and Feature Based False Positive Reduction
K. Enomoto, A. Teramoto, T. Shibata, K. Saito, H. Fujita, Fujita Health Univ.; Fujita Health Univ. School of Medicine,Toyoake; Gifu Univ. (JP) [138]

097 Automated malignancy analysis of microscopic lung images using a deep convolutional neural network and generative adversarial networks
A. Teramoto, A. Yamada, Y. Kiriyama, T. Tsukamoto, K. Yan, L. Zhang, R. M.Summers, K. Imaizumi, K. Saito, H. Fujita, Fujita Health Univ., Toyoake; Gifu Univ. (JP); National Inst. of Health; NVIDIA, Bethesda, MD (US) [136]

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098 Optimization of the BMD measurement procedure in photo-stimulable phosphor (PSP) digital intraoral imaging systems
A. Katsumata, W. Nishiyama, E. Mikami, T. Hayashi, Asahi Univ. School of Dentistry, Gifu; Media Corp. Ltd, Tokyo (JP) [17]

099 Computer-aided Patient-specific Plate Design Software for Cranial Reconstruction Surgery
S. Park, T. Lee, H. Cho, T. G. Son, W. S. Jeong, J. W. Choi, Y. Kim, Korea Inst. of Science and Technology; Asan Medical Center, Seoul (KR) [27]

100 Web-based platform of planning and visualization for orthognathic surgery
S. Y. Woo, S. J. Lee, J. Y. Yoo, M. H. Choi, W. J. Yi, Seoul National Univ. (KR) [80]

101 Image quality of cone beam CT under different exposure parameters
Z. Zhang, F. Wang, X. Xie, L. Zhang, Peking Univ. School and Hosp. of Stomatology; Tsinghua Univ., Beijing (CN) [99]

102 High-quality 3D modeling and its VR animation of skull and jaw using an algorithm of structure from motion
Y. Hayakawa, K. Nagase, N. Eguchi, R. Hayashi, K. Mizukami, Kitami Inst. of Technology (JP) [118]

103 Automatic Three-Dimensional Cephalometric Annotation System Using Three-Dimensional Convolutional Neural Networks
S. H. Kang, K. Jeon, H. J. Kim, J. K. Seo, S. H. Lee, National Inst. of Mathematical Science, Daejon; Yonsei Univ., Seoul (KR) [143]

104 Clinical accuracy of computer guided osteotomy stents in titanium screws drilling in mandibular fractures
H. Abou Elwafa, W. Aboelmaaty, M. Abdelhamid , M. Isaac, K. ElMahdy, Mansoura Univ.; Delta Univ. for Science and Technology, Gamasa; Ministry of Health and Population, Mansoura (EG) [154]

105 Non-invasive computer-assisted dental implant surgery based on optical tracking and 3D printing
J. Pascau, D. García-Mato, S. Ochandiano, S. Espías-Alonso, M. García-Sevilla, R. Moreta-Martinez, J. A. Calvo-Haro, R. Pérez-Mañanes, Univ. Carlos III de Madrid; Univ. Complutense de Madrid (ES) [184]

106 Modified Point- and Surface-based Registration and their Accuracy Evaluation Methods for Computer Assisted Maxillofacial Surgical System
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107 Periodontitis detection and classification in panoramic radiographs using Deep Convolutional Neural Network(DCNN)
T. H. Yong, S. J. Lee, S. Y. Woo, J. Y. Yoo, M. H. Choi, S. R. Kang, W. J. Yi, Seoul National Univ. Dental Hosp.; Seoul National Univ. (KR) [208]