



IPCAI 2018, 20-21 June, Berlin, Germany

Program

Wednesday, June 20	Thursday, June 21
08:30 – Opening of IPCAI 2018	08:00 – Plenary Discussion
08:40 – Preoperative Planning and Simulation	08:30 – Selected Oral Presentations I
09:20 – Interventional Ultrasound	10:10 – Coffee Break
10:10 – Interactive Coffee Break	10:40 – Selected Oral Presentations II
10:40 – Intraoperative Registration and Navigation	12:20 – IPCAI Awards II and Closing
11:20 – Image Processing and Instrumentation for CAI	13:00 – IPCAI End of 2 nd Day
12:00 – Luncheon Poster Session I	
13:45 – Endoscopy and Surgical Training	
14:30 – Medical Robotics	
15:20 – IPCAI Awards I	
15:30 – Coffee Poster Session II	
17:30 – IPCAI End of 1 st Day	

Wednesday, June 20	
08:30	Opening of IPCAI 2018 Chairs: Pascal Fallavollita, Etsuko Kobayashi, Stefanie Speidel
08:40	Short Presentations I: Preoperative Planning and Simulation Chair: Caroline Essert
PS-1	Planning nonlinear Access Paths for Temporal Bone Surgery J. Fauser, G. Sakas, A. Mukhopadhyay <i>Technical University Darmstadt (D)</i>
PS-2	A Novel Technology for 3D Knee Prosthesis Planning and Treatment Evaluation using 2D X-ray Radiographs G. Zheng, H. Hommel, A. Akcoltekin, B. Thelen, G. Peersman <i>University of Bern (CH), Hospital Maerkisch Oderland GmbH (D), KU Leuven (B)</i>
PS-3	A Pre-Operative Planning Framework for Global Registration of Laparoscopic Ultrasound to CT images J. Ramalhinho, M. Robu, S. Thompson, K. Gurusamy, B. Davidson, D. Hawkes, M. Clarkson <i>University College London (UK)</i>
PS-4	IMHOTEP - Virtual Reality Framework for Surgical Applications M. Pfeiffer, H. Kenngott, A. Preukschas, M. Huber, L. Bettscheider, B. Mueller-Stich, S. Speidel National Center for Tumor Diseases Dresden (D), University Hospital Heidelberg (D)
PS-5	Patient Specific Catheter Shaping for the Minimally Invasive Closure of the Left Atrial Appendage E. Graf, I. Ott, J. Praceus, F. Bourier, T. Lüth Technical University of Munich (D), German Heart Center Munich (D)
PS-6	FEM Based Elasticity Reconstruction Using Ultrasound For Imaging Tissue Ablation C. Ottesteanu, V. Vishnevskiy, O. Goksel ETH Zurich (CH)
09:20	Short Presentations II: Interventional Ultrasound Chair: Christoph Hennersperger
US-1	High Dynamic Range Ultrasound Imaging A. Degirmenci, D. Perrin, R. Howe <i>Harvard University (US), Children's Hospital Boston (US)</i>

US-2	<p>Determination of Optimal Ultrasound Planes for the Initialisation of Image Registration during Endoscopic Ultrasound-guided Procedures E. Bonmati, Y. Hu, E. Gibson, L. Uribarri, G. Keane, K. Gurusamy, B. Davidson, S. Pereira, M. Clarkson, D. Barratt <i>University College London (UK)</i></p>
US-3	<p>Segmentation of Prostate in Transrectal Ultrasound Guided by Prior from Magnetic Resonance Imaging Q. Zeng, G. Samei, D. Karimi, C. Kesck, S. Mahdavi, P. Abolmaesumi, T. Salcudean <i>University of British Columbia (CA), British Columbia Cancer Agency (CA)</i></p>
US-4	<p>Registration of 3D Freehand Ultrasound to a Bone Model for Orthopaedic Procedures of the Forearm M. Ciganovic, F. Ozdemir, F. Péan, P. Fünstahl, C. Tanner, O. Goksel <i>ETH Zurich (CH), University of Zurich (CH)</i></p>
US-5	<p>Convolution Neural Networks for Real-Time Needle Detection and Localization in 2D Ultrasound C. Mwikirize, J. Noshier, I. Hacihaliloglu <i>Rutgers University (US)</i></p>
US-6	<p>Automatic intraoperative estimation of blood flow direction during neurosurgical interventions D. Iversen, L. Løvstakken, G. Unsgård, I. Reinertsen <i>Norwegian University for Science and Technology (N), SINTEF (N), St. Olav University Hospital (N)</i></p>
US-7	<p>SUPRA: Open Source Software Defined Ultrasound Processing for Real-Time Applications R. Göbl, C. Hennemperger, N Navab <i>Technical University Munich (D), Johns Hopkins University (US)</i></p>
US-8	<p>Ultrasound thermal monitoring with an external ultrasound source for customized bipolar RF ablation shapes Y. Kim, Chloe Audigier, J. Ziegele, M. Friebe, E. Boctor <i>Johns Hopkins University (US), Otto-von-Guericke University Magdeburg (D)</i></p>
10:10	Interactive Brain Writing Coffee Break

10:40	<p>Short Presentations III: Intraoperative Navigation and Registration Chair: Elvis Chen</p>
NR-1	<p>Biomechanics-based graph matching method for CT-CBCT fusion J.G. Guevara, I. Peterlik, M.O. Berger, S. Cotin <i>INRIA Strasbourg (F), INRIA Nancy (F)</i></p>
NR-2	<p>Automatic Global Rigid Registration of CT to Video in Laparoscopic Liver Surgery M.R. Robu, J. Ramalhinho, S. Thompson, K. Gurusamy, B. Davidson, D. Hawkes, D. Stoyanov, M.J. Clarkson <i>University College London (UK)</i></p>
NR-3	<p>Supervised reinforcement learning for model to image registration in cardiac procedures D. Toth, S. Miao, T. Kurzendorfer, C. A. Rinaldi, R. Liao, T. Mansi, K. Rhode, P. Mountney <i>Siemens Healthineers (UK), Siemens Healthineers, Medical Imaging Technologies (USA), Siemens Healthineers, Forchheim(D), NHS Foundation Trust (UK), King's College London (UK)</i></p>
NR-4	<p>Fast 5DOF Needle Tracking in iOCT J. Weiss, N. Rieke, M. A. Nasser, M. Maier, A. Eslami, N. Navab <i>Technical University of Munich (D), Carl Zeiss Meditec (D)</i></p>
NR-5	<p>Robust Navigation Support in Lowest Dose Image Setting M. Bui, F. Bourier, C. Baur, F. Milletari, N. Navab, S. Demirci <i>Technical University of Munich (D), German Heart Center Munich (D)</i></p>
NR-6	<p>In-Vivo Estimation of Target Registration Errors During Augmented Reality Laparoscopic Surgery S. Thompson, C. Schneider, M. Bosi, K. Gurusamy, S. Ourselin, B. Davidson, D. Hawkes, Matthew, J. Clarkson <i>University College London (UK)</i></p>
11:20	<p>Short Presentations IV: Image Processing and Instrumentation for CAI Chair: Stefanie Demirci</p>
IPI-1	<p>Automatic Segmentation of Stereoelectroencephalography (SEEG) Electrodes Post-Implantation considering Bending A. Granados, V. Vakharia, R. Radionov, M. Schweiger, S. B. Vo, O'Keeffe, K. Li, A. Miserocchi, A. McEvoy, M. J. Clarkson, J. Duncan, R. Sparks, S. Ourselin</p>

	<i>University College London Hospitals NHS (UK), University College London (UK)</i>
IPI-2	A Photon Recycling Approach to Denoising of Ultra-low Dose X-ray Sequences S. Hariharan, N. Strobel, M. Kowarschik, S. Demirci, S. Albarqouni, R. Fahrig, N. Navab <i>Technical University of Munich (D), University of Applied Sciences Wuerzburg-Schweinfurt (D), Siemens Healthineers (D), Johns Hopkins University (US)</i>
IPI-3	Effective deep learning training for single-image super-resolution in endomicroscopy exploiting video-registration-based reconstruction D. Ravi, A.Szczotka, D.Shakir, S.Pereira, T. Vercauteren <i>University College London (UK)</i>
IPI-4	RF - ablation pattern shaping employing switching channels of dual bipolar needle electrodes - in-vitro results J. Ziegler, C. Audigier, J. Krug, G. Ali, Y. Kim, E. Boctor, M. Friebe <i>Otto-von-Guericke University Magdeburg (D), Johns Hopkins University (US)</i>
IPI-5	Motion-invariant SRT treatment detection from direct M-scan OCT imaging T. Fountoukidou, P. Raisin, D. Kaufmann, J. Justiz, R.Sznitman, S. Wolf <i>University of Bern (CH), Bern University of Applied Sciences (CH), Inselspital University Hospital (CH)</i>
IPI-6	LV Function Validation of Computer-Assisted Interventional System for Cardiac Resynchronization Therapy M. Panayiotou, R. Housden, Athanasios Ishak, A. Brost, C. Rinaldi, B. Sieniewicz, J. Behar, T. Kurzendorfer, K. Rhode <i>Siemens Healthineers (D), King's College London (UK)</i>
12:00	Luncheon Poster Session I & Interactive Brain Writing
13:45	Short Presentations V: Endoscopy and Surgical Training Chair: Raphael Schnitman
ET-1	Retrieval and Registration of Long-Range Overlapping Frames for Scalable Mosaicking of In Vivo Fetoscopy L. Peter, M. Tella-Amo, D.I. Shakir, G. Attilakos, R. Wimalasundera, J. Deprest, S. Ourselin, T. Vercauteren <i>University College London (UK), KU Leuven (BE), University College Hospital (UK)</i>
ET-2	Trackerless Panoramic Optoacoustic Imaging - Is it feasible? S. Nitkunanantharajah, C. Hennesperger, X. L. Dean-Ben, D. Razansky, N. Navab

	<i>Technical University of Munich (D), Helmholtz Center Munich (D), Johns Hopkins University (US)</i>
ET-3	Exploiting the potential of unlabeled endoscopic video data with self-supervised learning T. Ross, D. Zimmerer, A. Vemuri, F. Isensee, S. Bodenstedt, F. Both, P. Kessler, M. Wagner, B. Muller, H. Kenngott, S. Speidel, K. Maier-Hein, L. Maier-Hein <i>German Cancer Research Center (D), National Center for Tumor Diseases Dresden (D), University of Heidelberg (D), understand.ai (D)</i>
ET-4	Context Aware Decision Support in Neurosurgical Oncology based on an Efficient Classification of Endomicroscopic Data Y. Li, P. Charalampaki, Y. Liu, G.-Z. Yang, S. Giannarou <i>Imperial College London (UK), Zhejiang University (CN), Cologne Medical Center (D), Heinrich Heine University Duesseldorf (D)</i>
ET-5	Surgical skills: Can learning curves be computed from recordings of surgical activities? G. Forestier, L. Riffaud, F. Petitjean, P. L. Henaux, P. Jannin, <i>University of Haute-Alsace (F), Pontchaillou University Hospital (F), Monash University (AU), University of Rennes (F)</i>
ET-6	Automated Surgical Skill Assessment in RMIS Training A. Zia, I. Essa <i>Georgia Institute of Technology (US)</i>
14:30	Short Presentations VI: Medical Robotics Chair: Siyang Zuo
MD-1	Learning-Based Endovascular Navigation Through the Use of Non-Rigid Registration for Collaborative Robotic Catheterization W. Chi, J. Liu, H. Rafii-Tari, C. Riga, C. Bicknell, G-Z. Yang <i>Imperial College London (UK)</i>
MD-2	Precisely positioning the tip of an instrument inserted through an orifice with a free wrist robot. R. Chalard, D. Reversat, G. Morel, P. Mozer and M.A. Vitrani <i>Sorbonne Université (FR)</i>
MD-3	Experimental Validation of Robot-assisted Cardiovascular Catheterization: Model-based versus Model-free Control X. Wang, D. Fu, Z. Dong, K-H. Lee, K. Wang, G. Fang, S-L. Lee, A. Lee, K-W. Kwok <i>The University of Hong Kong (CN), Imperial College (UK), The Chinese University of Hong Kong (CN)</i>

MD-4	Robotic ultrasound-guided facet joint insertion - Can we replace X-ray Fluoroscopy? J. Esteban, S. Witzig, W. Simpson IV, S. Virga, O. Zettinig; B. Frisch, A. Riennmuller, D. Sakara, Y-M. Ryang, N. Navab, C. Hennersberger <i>Technical University of Munich (D), Imfusion GmbH (D), Medidee Services SA (CH), Klinikum Rechts der Isar (D), Johns Hopkins University (US), Trinity College Dublin (IRE)</i>
MD-5	A cable-driven parallel manipulator with force sensing capabilities for high-accuracy tissue endomicroscopy K. Miyashita, T. Vrieling, G. Mylonas <i>Imperial College London (UK)</i>
MD-6	Use the Force: Deformation Correction in Robotic 3D Ultrasound S. Virga, R. Gobl, M. Baust, N. Navab, C. Hennersperger <i>Technical University of Munich (D), Johns Hopkins University (US), Trinity College Dublin (IRE)</i>
MD-7	A Linear Stepping Endovascular Intervention Robot with Variable Stiffness and Force Sensing C. He, S. Wang, S. Zuo <i>Tianjin University (CN)</i>
MD-8	Blended Shared Control Utilizing Online Identification T. Stephens, R. Dockter, J. O'Neill, T. Kowaleski <i>University College London (UK), University Of Minnesota (USA)</i>
15:20	IPCAI Awards I
15:30	Coffee Poster Session II & Interactive Brain Writing
17:30	IPCAI End of 1st Day

THANK YOU TO OUR MANY INDUSTRY PARTNERS
FOR THEIR SUPPORT & SPONSORSHIP OF IPCAI !

Thursday, June 21	
08:00	Plenary Discussion (Brain Writing Questions)
08:30	Selected Oral Presentations I: Preoperative Planning and Simulation & Interventional Ultrasound & Intraoperative Navigation and Registration Chairs: Stamatia Giannarou, Christian Linte
10:10	Coffee Break
10:40	Selected Oral Presentations II: Image Processing and Instrumentation for CAI & Endoscopy and Surgical Training & Medical Robotics Chairs: Amber Simpson, Chee-Kong Chui
12:20	IPCAI Awards II and Closing Chairs: Pascal Fallavollita, Etsuko Kobayashi, Stefanie Speidel
13:00	IPCAI End of 2nd Day

