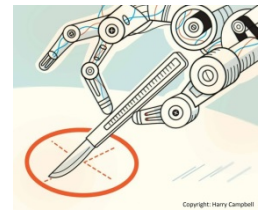


# 6<sup>TH</sup> SURGETICA



Le Couvent des Jacobins, Rennes, France, June 17-18, 2019

## Program

Conference chairs: Pascal Haigron, Antoine Simon, Pierre Jannin (FR)

### Monday, June 17, 2019

08:00 Registration

08:30 Opening Session

Jocelyne Troccaz, Pascal Haigron (FR)

08:40 Modeling and simulation

Session chair: Nabil Zemiti (FR)

**Modeling the non-linearities of flexible endoscopes using machine learning**

R. Aleluia Porto, F. Nageotte, M. De Mathelin; University of Strasbourg (FR)

**Kernel selection in statistical femur modeling**

A. Asvadi, G. Dardenne, A. Guezou-Philippe, A. Salhi, B. Borotikar, J. Troccaz, V. Burdin; Univ of Western Brittany, IMT Atlantique, University Grenoble Alpes (FR)

**Pre-operative planning in acetabular and pelvic ring surgery: the first biomechanical model**

M. Boudissa, M. Chabanas, H. Oliveri, G. Bahl, J Tonetti; Grenoble University Hospitals, University Grenoble Alpes (FR)

**Biomechanical modeling of the lung deflation during minimally-invasive surgery**

A. C. Lesage, K. Brock, D. Rice, B. Rigaud, A. Tam, G. Cazoulat; The University of Texas MD Anderson Cancer Center (USA)

10:00 Coffee break

10:30 Keynote lecture

Chair: Jocelyne Troccaz (FR)

**Image guided surgery - inside and outside the OR**

Ingerid Reinertsen; SINTEF Digital, Dpt. of Health Research (NO)

11:30 Medical procedures: analysis and evaluation

Session chair: Guillaume Dardenne (FR)

**Situation awareness in the "Virtual Operating Room of Errors": a pilot study**

M-S. Bracq, M. Le Duff, E. Michinov, B. Arnaldi, V. Gouranton, P. Jannin; Univ Rennes, CHU de Rennes (FR)

**Preliminary evaluation of haptic guidance for pre-positioning a comanipulated needle**

H. Gurnel, M. Marchal, L. Launay, L. Beuzit, A. Krupa; University of Rennes 1 (FR)

### **Analyzing the practice of expert surgeons based on video spatial features**

A. Derathé, S. Voros, F. Reche, P. Jannin, A. Moreau-Gaudry, B. Gibaud; University Grenoble Alpes, CHU de Grenoble, University of Rennes 1 (FR)

### 12:30 Lunch

### 13:30 Data fusion and augmented reality

Session chair: Matthieu Chabanas (FR)

#### **Intraoperative Ultrasound-based Augmented Reality Guidance**

J. Shen, N. Zemiti, C. Taoum, J-L. Dillenseger, P. Rouanet, P. Poignet; University of Rennes 1, University of Montpellier, Institut du Cancer de Montpellier Val d'Aurelle (FR)

#### **3D landmark detection for augmented reality based otologic procedures**

R. Hussain, C. Guigou, K. Berihu Girum, A. Lalande, A. Bozorg Grayeli; University of Bourgogne Franche-Comté (FR)

#### **Fusion of X-Ray and patient specific model to assist cardiac resynchronisation therapy**

N. Courtial, A. Simon, S. Bruge, M. Lederlin, E. Donal, C. Leclercq, M. Garreau; University of Rennes 1, University Hospital Rennes (FR)

### 14:30 Keynote lecture

Chair: Jérôme Szewczyk (FR)

#### **Driving and controlling flexible surgical instruments – new developments and challenges**

Emmanuel Vander Poorten; KU Leuven (BE)

### 15:30 Coffee break & Poster session

### 16:00 Poster session

### 17:10 Robotics and mechatronics

Session chair: Pierre Renaud (FR)

#### **X-ray free breach detection in robot-assisted spine surgery with real-time conductivity sensing**

J. Da Silva, F. Richer, V. Kespern, T. Chandanson, G. Morel; SpineGuard, Sorbonne Université (FR)

#### **Toward a design method for tensegrity-based medical robots**

J. Begey, M. Vedrines, N. Andreff, P. Renaud; ICube, University of Strasbourg, University of Franche-Comté (FR)

#### **Bright pill: ingestible biorobot using light to control therapeutic molecule release produced by embarked bacteria**

T. Soranzo, G. Aiche, C. Caffaratti, D. Martin, P. Cinquin, Y. Haddab; University Grenoble Alpes, University of Montpellier (FR)

### 18:10 Surgetica Welcome Reception

### 20:00 Surgetica Dinner

**Tuesday, June 18, 2019**

**08:30 Image processing and registration**

Session chair: Jean Louis Dillenseger (FR)

**Robust tracking of tissues for flexible endoscopy**

X. T. Ha, P. Zanne, F. Nageotte; University of Strasbourg (FR)

**Investigating the Role of Helical Markers in 3D Catheter Shape Monitoring from 2D Fluoroscopy**

A. E-T. Yang, J. Szewczyk; Sorbonne Université (FR)

**Localization of brachytherapy seeds in TRUS images using rigid priors and medial forces**

V. Jaouen, J. Bert, A. Valeri, D. Visvikis; Inserm, Université de Bretagne Occidentale, CHRU Brest (FR)

**Automatic segmentation of intraoperative ultrasound images of the brain using U-Net**

F.-X. Carton, J. Noble, B. Munkvold, I. Reinertsen, M. Chabanas; Univ Grenoble Alpes, Vanderbilt Univ, Norwegian Univ of Science and Technology, SINTEF (FR-NO)

**10:00 Coffee break**

**10:30 Invited lecture**

Chair: Jean-Philippe Verhoye (FR)

**Data-driven solutions for deep brain stimulation surgery**

Clément Baumgarten; University Hospital Grenoble; University of Rennes 1, University Hospital Rennes, LTSI – INSERM UMR 1099 (FR)

**11:10 Navigation and interventional planning**

Session chair: Marie-Aude Vitrani (FR)

**Real-time Prediction of High-risk Instrument Motion based on Location Information**

Y. Sawano, N. Ohtori, Ryoichi Nakamura; Chiba University, Jikei University School of Medicine, Japan Science and Technology Agency (JP)

**Transcranial robot-assisted Blood-Brain Barrier opening with Focused Ultrasound**

G. Thomas, L. Barbé, P. Agou, B. Larrat, J. Vappou, F. Nageotte; Université de Strasbourg (FR)

**Accurate Instrument Tracking in Minimally Invasive Surgery**

M. Arico, G. Morel; Sorbonne Université (FR)

**12:10 Closing session**

**12:30 Lunch**

## Poster session (Monday, June 17, 15:30)

### **Statistical shape model of vascular structures with abdominal aortic aneurysm**

C. Dupont, C. Boichon-Grivot, A. Kaladji, A. Lucas, M. Rochette, P. Haigron; University of Rennes 1, Ansys France (FR)

### **Pelvic parameters measurement with sterEOS: a preliminary reliability study**

M. Dorniol, G. Dardenne, A. Guezou-Philippe, H. Letissier, C. Lefevre, E. Stindel; University Hospital Brest, University of Western Brittany (FR)

### **Extended field-of-view of the knee bone surface using ultrasound**

M. Nasan, Y. Morvan, G. Dardenne, J. Chaoui, E. Stindel; University of Western Brittany, University Hospital Brest, IMASCAP (FR)

### **Towards a patient-specific simulation of the balloon angioplasty treatment technique**

B. Al-Helou, C. Dupont, A. Bel-Brunon, W. Ye, A. Kaladji, P. Haigron; University of Rennes 1, University Lyon, ANSYS (FR)

### **Nervous System Exploration Using Tractography To Enhance Pelvic Surgery**

C. Muller, A. Delmonte, P. Meignan, Q. Peyrot, A. Virzi, L. Berteloot, D. Grevent, T. Blanc, P. Gori, N. Boddaert, I. Bloch, S. Sarnacki; Université Paris Descartes, Necker Hospital, Université Paris-Saclay (FR)

### **Transvaginal Uterine Biopsy: Robot Comanipulation**

N. Tajeddine, M-A. Vitrani, R, Chalard; Sorbonne Université, Univ Paris 06 (FR)

### **Surface imaging for patient positioning in radiotherapy**

S. Nazir, J. Bert, D. Visvikis, Hadi Fayad; University of Western Brittany, Hamad Medical Corporation OHS, PET/CT center Doha (FR-QA)

### **Orientability evaluation of concentric tube robots deployed in natural orifices**

Q. Peyron, K. Rabenorosoa, N. Andreff, P. Renaud; University of Strasbourg, University of Franche-Comté (FR)

### **Computer Assisted Early Diabetic Retinopathy Detection from Retinal Fundus Image using Transfer Learning Model**

B. Kumar, S. Kumar, Rajeev Gupta; MNNIT Allahabd (IN)

### **Simulation for preoperative planning, balloon inflation for tibial plateau fracture reduction**

K. Aubert, T. Vendevre, M. Rochette, P. Rigoard, A. Germaneau; Université de Poitiers, ANSYS France, CHU Poitiers (FR)

### **Computer Assisted Detection of Good View Frame from USG Video for ONSD Measurement**

B. Kumar, M. Singh, R. Gupta; MNNIT Allahabd (IN)

### **Patient's specific computer simulations to assist coronary artery bypass surgery**

A. Drochon, A. Anselmi, H. Corbineau, J-P. Verhoye; Univ Technologie Compiègne, University Hospital Rennes (FR)

### **CFD based study of blood stagnation caused by LVAD inflow cannula angulation**

A. Ben Abid, V. Morgenthaler, P. Haigron, E. Flecher; University of Rennes 1, University Hospital Rennes, ANSYS France (FR)

**Transesophageal HIFU cardiac fibrillation therapy guidance by two perpendicular US images**

B. Dahman, J.-L. Dillenseger; University of Rennes 1 (FR)

**Potential of global vision system for learning laparoscopy surgical skills**

S. Vijayan, E. Keddiseh, B. Trilling, S. Voros; University Grenoble Alpes (FR)

**Segmenting Surgical Tasks using Temporal Convolutional Neural Network**

M. Millan, J. Szewczyk, C. Achard; Sorbonne Université (FR)

**An Experimental Protocol on Attentional Abilities in Classic and Robot-Assisted Laparoscopy**

E. Ferrier-Barbut, V. Luengo, M-A. Vitrani; Sorbonne Université (FR)

**Mixed Reality Experiment for Hemodialysis Treatment**

C. Lohou, M. Bouiller, Emilie Gadea-Deschamps; Université Clermont Auvergne, Centre Hospitalier Emile Roux, le Puy-en-Velay (FR)

**Image-based registration for lung nodule localization during VATS**

P. Alvarez, R. Simon, M. Chabanas, Y. Payan, J.-L. Dillenseger; University of Rennes 1, University Grenoble Alpes, University Hospital Rennes (FR)

**Additive Manufacturing of a Microbiota Sampling Capsule Based on a Bistable Mechanism**

M. Ben Salem, G. Aiche, L. Rubbert, T. Soranzo, P. Cinquin, D. K. Martin, P. Renaud, Y. Haddab; University of Montpellier, University of Strasbourg, University of Grenoble Alpes (FR)

**Towards a novel man-machine interface to speed up training on robot-assisted surgery**

G. Gil, J. Walker, N. Zemiti, A. Okamura, P. Poignet; University of Montpellier, Stanford University (FR-USA)

**Percutaneous osteoplasty**

J. Garnon, L. Meylheux, B. Bayle, A. Gangi; University of Strasbourg (FR)

**Development of a finite element model of prostate validated by a realistic prostate phantom**

M. Dieng, G. Chagnon, S. Voros; University Grenoble Alpes (FR)

**FEM-based confidence assessment of non-rigid registration**

P. Baksic, H. Courtecuisse, M. Chabanas, B. Bayle; University of Strasbourg, University Grenoble Alpes (FR)

**Tumor heterogeneity estimation from DW-MRI and histology data by linking macro- and micro-information in a quantitative way**

Y. Yin, O. Sedlacek, K. Breuhahn, I. Vignon-Clementel, D. Drasdo; INRIA Paris, University Hospital of Heidelberg (FR-GE)

**Improved prostate cancer radiotherapy planning with decreased dose in a rectal sub-region highly predictive for toxicity**

O. Acosta, C. Lafond, A. Barateau, B. Houede, A. Largent, E. Mylona, N. Perichon, N. Delaby, P. Haigron, R. de Crevoisier; University of Rennes 1 (FR)

**Experimental test bench for the hemodynamic study of coronary arteries: bifurcation, stent, aneurysm**

M. Lagache, R. Coppel, A. Gomez, G. Finet, J. Ohayon; University Grenoble Alpes, Université Savoie Mont Blanc, Université Claude Bernard, Lyon (FR)