Intelligent Robot Interactions with the Anatomy

iROS MACAU 2019

IEEE Robotics & Automation Society
TECHNICAL COMMITTEE FOR SURGICAL ROBOTICS

Accepted Full-day Workshop at IROS
9am-6pm, Friday, November 8th, 2019
The Venetian Macao Resort Hotel, Macau, China.

▌BACKGROUND & OBJECTIVE

Introducing robotic technology into surgery has advanced this field in many ways: less invasive procedures, less cognitive burden on surgeons, and better patient outcome. There are a great number of robotic systems, commercialized or being developed in research labs, that can provide interventions for a variety of surgical procedures. Yet,to this day, there are still very limited intelligent features on these robots compared to other robotic application domains, such as home, manufacturing, or warehouse.

At the core of robotic surgery lies the robot interactions with the anatomy, but challenges persist in fully monitoring, understanding, and regulating them. This workshop aims to bring world-class researchers to present the state-of-art research achievements and advances that contribute to better sensing the anatomy, to modeling the interaction more representatively, to regulating the interaction more intelligently, and to using methods that leverage recent advances in machine learning.

This workshop is endorsed by IEEE RAS Technical Committee for Surgical Robotics.
This workshop is sponsored by Intuitive Surgical Inc

▌TALK INFORMATION

Keynotes

Dr. Yang	Medical Robotics - Levels of Autonomy and Associated Challenges
Dr. Desai	Steerable Robotic Systems for Surgical Interventions

Invited Talks

Dr. Valdastri	Exploring Autonomy in Robotic Colonoscopy
Dr.Kawashima	Pneumatically-driven Surgical Robot with Force Feedback
Dr. Hong	High Rigidity Bone Endoscopic Surgery Robot
Dr. Liu	Image-based Sensing and Control for Robotic Surgery
Dr. Yip	dVRL: daVinci Reinforcement Learning Framework for learning Transferable Surgical Skills
Dr. Ren	Human-centered Surgical Robotics with Compliance Modulations and Delicate Sensing
Dr. Fiorini	Tissue Interaction within an Autonomous Surgical Robot
Dr. Çavuşoğlu	Task Automation in Robotic Surgery: Towards Intelligent Robotic Surgical Assistants
Dr. Sun	Key Technologies, Innovations and Collaborative Research & Development of Medical Robots

More talk information is coming!

▌INVITED SPEAKERS

Guang-Zhong Yang
Shanghai Jiao Tong University

Jaydev P. Desai
Georgia Institute of Technology

Ann Majewicz Fey
The University of Texas at Dallas

Kenji Kawashima
Tokyo Medical and Dental University

Pietro Valdastri
University of Leeds

M. Cenk Çavuşoğlu
Case Western Reserve University

Paolo Fiorini
University of Verona

Lining Sun
Soochow University

Hongliang Ren
National University of Singapore

Yun-hui Liu
Chinese University of Hong Kong

Russell H. Taylor
Johns Hopkins University

▌ORGANIZERS

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Michael Yip
University of California San Diego

▌WORKSHOP PAPER SUBMISSION

We welcome workshop paper submissions in the following two formats:
- extended abstract (maximum 2 pages, IEEE double column)
- short paper (maximum 4 pages, IEEE double column)

Selected submissions will be invited to present at the workshop in the formats of 5-min spotlight presentation and of interactive poster. In addition, the selected submissions will be invited to a journal special issue being planned and organized.

Submission Information

Submission Deadline: **October 6th, 2019**
Submission Website: https://easychair.org/cfp/iros2019iria (submission link will be open in September, 2019)