



# 2021 FSMR and 2021 ISMR

November 15 - 19, 2021

Georgia Institute of Technology, Atlanta, GA, USA

## Organizing Committee

General Chair [2021 FSMR  
and 2021 ISMR]:

**Jaydev P. Desai**, Georgia  
Institute of Technology, USA

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ISMR]:

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**Iulian Iordachita**, Johns Hopkins  
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**Arianna Menciassi**, Scuola  
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**Ann Majewicz Fey**, UT Austin,  
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**Farokh Atashzar**, New York  
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**Nabil Simaan**, Vanderbilt  
University, USA

**Emmanuel Vander Poorten**, KU  
Leuven, Belgium

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**Kanako Harada**, University of  
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**Aaron Young**, Georgia Institute of  
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ISMR]:

**Jun Sheng**, UC Riverside, USA

**Kihan Park**, UMass Dartmouth,  
USA

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ISMR]:

**Zion Tse**, University of York, UK

**Elena De Momi**, Politecnico di  
Milano, Italy

# Speakers

## 2021 Fall School on Medical Robotics



Emmanuel Vander Poorten

*Title: Knowing and Controlling Flexible Instruments, Challenges and Advances.*



Jessica Burgner-Kahrs

*Title: Through the Keyhole with Next Generation Surgical Continuum Robots*



Elena de Momi

*Title: Smart Planning and Navigation of Soft Robots for Minimally Invasive Surgery*



Arianna Menciassi

*Title: Wireless Solutions Enabling Robotic Minimally Invasive Interventions*



Kimberly Hoang

*Title: Robotics for Neurosurgical Applications, Stereotaxy and Beyond*



Greg Sawicki

*Title: Lower Limb Exoskeletons: Moving Beyond Improving Locomotion Economy.*



Zachary Bercu

*Title: Where Medical Robotics Can Address Unmet Clinical Needs in Image-Guided Medicine*



Nabil Simaan

*Title: Recent Results On Micro and Macro Motion and Sensory-Guided Control of Continuum Robots*



Cameron Riviere

*Title: Compensation of Physiological Motion for Surgical Accuracy Enhancement*

# Speakers

## 2021 Fall School on Medical Robotics



Jaydev Desai

*Title: Meso-to-Micro-Scale Robotic Systems for Surgical Interventions*



Paolo Fiorini

*Title: The Development of Autonomous Capabilities in Robotic Surgery*



Mahdi Tavakoli

*Title: Shared-autonomy and Distancing-aware Delivery of Healthcare via Intelligent Control and AI*



Russell Taylor

*Title: Autonomy and Semi-Autonomous Behavior in Surgical Robot Systems*



Shaneeta Johnson

*Title: Robotic applications in General Surgery*



Ann Majewicz Fey

*Title: From Tool to Assistant: Towards Developing Adaptive Surgical Robots for the Operating Room*



Robert Webster

*Title: Enabling Two-handed Transendoscopic Surgery - Without Changing the Endoscope!*



Iulian Iordachita

*Title: Sensor-based Technology for Safe Robot-assisted Retinal Surgery*



Michael Miga

*Title: A Data-Driven Image-Guided Framework for Use in End-effector Navigation: The Soft Tissue Problem*

## Speakers

### 2021 International Symposium on Medical Robotics



Marcia O'Malley

*Title: Guiding with Touch: Objective Assessment and Haptic Cueing to Improve Surgical Performance on Virtual and Robotic Platforms*

**Bio:** Marcia O'Malley is the Thomas Michael Panos Family Professor in Mechanical Engineering, Computer Science, and Electrical and Computer Engineering, and the Associate Dean for Research and Innovation in the George R. Brown School of Engineering at Rice University. She is also an Adjunct Associate Professor in the Departments of Physical Medicine and Rehabilitation at both Baylor College of Medicine and the University of Texas Medical School at Houston. She received her BS in Mechanical Engineering from Purdue University, and her MS and PhD in Mechanical Engineering from Vanderbilt University. Her research is in the areas of haptics and robotic rehabilitation, with a focus on the design and control of wearable robotic devices for training and rehabilitation. She has twice received the George R. Brown Award for Superior Teaching at Rice University. O'Malley was a recipient of both the ONR Young Investigator award and the NSF CAREER Award. She is a Fellow of both the American Society of Mechanical Engineers and the Institute of Electrical and Electronics Engineers. She currently serves as associate editor-in-chief for the IEEE Transactions on Haptics and as the Editor-in-Chief of the IEEE International Conference on Robotics and Automation Conference Editorial Board.



Kevin Cleary

*Title: Low profile MRI-compatible robotic systems for minimally invasive interventions in the bore of the magnet*

**Bio:** Kevin Cleary PhD is the Scientific Lead of the Sheikh Zayed Institute for Pediatric Surgical Innovation in Washington DC. He leads a team of engineers and scientists working with their clinical colleagues to develop biomedical devices for pediatric care. He is internationally recognized for his research in medical robotics and image-guided navigation. Previously he was at Georgetown University Medical Center in the Imaging Science and Information Systems Center, where he developed systems for minimally invasive procedures. He received his BS and MS degrees from Duke University and a PhD from the University of Texas at Austin, all in mechanical engineering. He was also an NSF-sponsored postdoctoral scientist in Japan.

# FSMR: November 15-16

## At-A-Glance

Monday, November 15, 2021			Tuesday, November 16, 2021		
Time	Speaker	Location	Time	Speaker	Location
8:00am - 8:30am	Registration	Marcus Nanotechnology Building, Georgia Institute of Technology, USA	8:00am - 8:30am	Registration	Marcus Nanotechnology Building, Georgia Institute of Technology, USA
8:30am - 9:15am	Emmanuel Vander Poorten, KU Leuven, Belgium		8:30am - 9:15am	Jaydev Desai, Georgia Institute of Technology, USA	
9:15am - 10:00am	Jessica Burgner-Kahrs, University of Toronto Mississauga, Canada		9:15am - 10:00am	Paolo Fiorini, University of Verona, Italy	
10:00am - 10:45am	Elena de Momi, Politecnico di Milano, Italy		10:00am - 10:45am	Mahdi Tavakoli, University of Alberta, Canada	
10:45am - 11:15am	Break and Refreshments		10:45am - 11:15am	Break and Refreshments	
11:15am - 12:00pm	Arianna Menciassi, Sant'Anna School of Advanced Studies - Pisa, Italy		11:15am - 12:00pm	Russell Taylor, Johns Hopkins University, USA	
12:00pm - 1:00pm	Lunch		12:00pm - 1:00pm	Lunch	
1:00pm - 1:45pm	Kimberly Hoang, Emory University, USA		1:00pm - 1:45pm	Shaneeta Johnson, Morehouse School of Medicine, USA	
1:45pm - 2:30pm	Greg Sawicki, Georgia Institute of Technology, USA		1:45pm - 2:30pm	Ann Majewicz Fey, University of Texas at Austin, USA	
2:30pm - 3:15pm	Zachary Bercu, Emory University, USA		2:30pm - 3:15pm	Robert Webster, Vanderbilt University, USA	
3:15pm - 3:45pm	Break and Refreshments		3:15pm - 3:45pm	Break and Refreshments	
3:45pm - 4:30pm	Nabil Simaan, Vanderbilt University, USA		3:45pm - 4:30pm	Iulian Iordachita, Johns Hopkins University, USA	
4:30pm - 5:15pm	Cameron Riviere, Carnegie Mellon University, USA		4:30pm - 5:15pm	Michael Miga, Vanderbilt University, USA	

# FSMR & ISMR Workshops: November 17

## At-A-Glance

Wednesday, November 17, 2021					
Time	Workshops for 2021 FSMR and 2021 ISMR				
8:00am - 8:30am	Registration				
8:30am - 12:00pm	Challenges and Outlook in Model-based Design, Sensing, and Control of Continuum Manipulators and Robotic Flexible Instruments	Building Software Systems for Image-Guided Robot-Assisted Interventions	ISMR Workshop on Diversity in Medical Robotics	Data-Driven Methods for Robotic Minimally-Invasive Surgery	Intelligent Human Augmentation in Medical Robotic Systems
	Location: Marcus 1116	Location: Marcus 1117	Location: EBB CHOA Room	Location: Marcus 1118	Location: IBB 1128 Suddath Room
10:00am - 10:30am	Break and Refreshments				
12:00pm - 1:00pm	Lunch				
1:30pm - 5:00pm	Improving Clinical Outcomes of Image-guided Needle-based Interventions: Development and Clinical Translation of New Approaches	Sensing and Feedback in Dexterous Medical/Surgical Robotics	ISMR Workshop on Diversity in Medical Robotics	Data-Driven Methods for Robotic Minimally-Invasive Surgery	Intelligent Human Augmentation in Medical Robotic Systems
	Location: Marcus 1116	Location: Marcus 1117	Location: EBB CHOA Room	Location: Marcus 1118	Location: IBB 1128 Suddath Room
3:00pm - 3:30pm	Break and Refreshments				
5:30pm - 7:00pm	2021 FSMR and 2021 ISMR Reception				
7:30pm - 10:00pm	2021 FSMR and 2021 ISMR Dinner (By Invitation Only)				

# ISMR: November 18-19

## At-A-Glance

Thursday, November 18, 2021		Friday, November 19, 2021	
8:00am - 8:30am	Registration	8:00am - 8:30am	Registration
8:30am - 8:45am	Welcome and Opening Remarks	8:30am - 9:15am	Keynote
8:45am - 9:30am	Keynote	9:15am - 11:00am	Oral Presentations - Session 5
9:30am - 10:45am	Oral Presentations - Session 1		Paper 47
	Paper 14		Paper 60
	Paper 2		Paper 28
	Paper 42		Paper 13
	Paper 17		Paper 8
	Paper 12		Paper 4
10:45am - 11:00am	Rapid Fire Poster Presentations		Paper 41
11:00am - 11:25am	Break and Refreshments	11:00am - 11:20am	Break and Refreshments
11:25am - 12:55pm	Oral Presentations - Session 2	11:20am - 12:50pm	Oral Presentations - Session 6
	Paper 27		Paper 11
	Paper 18		Paper 15
	Paper 61		Paper 44
	Paper 65		Paper 30
	Paper 34		Paper 48
	Paper 6		Paper 38
12:55pm - 1:55pm	Lunch	12:50pm - 1:50pm	Lunch
1:55pm - 3:25pm	Oral Presentations - Session 3	1:50pm - 3:35pm	Oral Presentations - Session 7
	Paper 56		Paper 37
	Paper 46		Paper 43
	Paper 35		Paper 54
	Paper 23		Paper 55
	Paper 51		Paper 59
	Paper 20		Paper 63
3:25pm - 3:50pm	Break and Refreshments		Paper 66
3:50pm - 5:35pm	Oral Presentations - Session 4	3:35pm - 3:55pm	Break and Refreshments
	Paper 3	3:55pm - 4:40pm	Oral Presentations - Session 8
	Paper 5		Paper 58
	Paper 32		Paper 24
	Paper 33		Paper 9
	Paper 40	4:40pm - 5:00pm	Closing Remarks
	Paper 52		
	Paper 53		

# Monday November 15, 2021

**Location:** Marcus Nanotechnology Building,  
Georgia Institute of Technology

8:00am - 8:30am

Registration

## SESSION 1

8:30am - 9:15am

**Emmanuel Vander Poorten,**  
KU Leuven, Belgium

9:15am - 10:00am

**Jessica Burgner-Kahrs,**  
University of Toronto, Mississauga, Canada

10:00am - 10:45am

**Elena de Momi,**  
Politecnico di Milano, Italy

10:45am - 11:15am

Break and Refreshments

## SESSION 2

11:15am - 12:00pm

**Arianna Medciassi,**  
Sant'Anna School of Advanced Studies -  
Pisa, Italy

12:00pm - 1:00pm

Lunch

## SESSION 3

1:00pm - 1:45pm

**Kimberly Hoang,**  
Emory University, USA

1:45pm - 2:30pm

**Nabil Simaan,**  
Vanderbilt University, USA

2:30pm - 3:15pm

**Zachary Bercu,**  
Emory University, USA

3:15pm - 3:45pm

Break and Refreshments

## SESSION 4

3:45pm - 4:30pm

**Greg Sawicki,**  
Georgia Institute of Technology, USA

4:30pm - 5:15pm

**Ann Majewicz Fey,**  
University of Texas at Austin, USA

# Tuesday November 16, 2021

**Location:** Marcus Nanotechnology Building,  
Georgia Institute of Technology

8:00am - 8:30am Registration

## SESSION 5

8:30am - 9:15am

**Jaydev Desai,**  
Georgia Institute of Technology, USA

9:15am - 10:00am

**Paolo Fiorini,**  
University of Verona, Italy

10:00am - 10:45am

**Mahdi Tavakoli,**  
University of Alberta, Canada

10:45am - 11:15am Break and Refreshments

## SESSION 6

11:15am - 12:00pm

**Russell Taylor,**  
Johns Hopkins University, USA

12:00pm - 1:00pm Lunch

## SESSION 7

1:00pm - 1:45pm

**Shaneeta Johnson,**  
Morehouse School of Medicine, USA

1:45pm - 2:30pm

**Cameron Riviere,**  
Carnegie Mellon University, USA

2:30pm - 3:15pm

**Robert Webster,**  
Vanderbilt University, USA

3:15pm - 3:45pm Break and Refreshments

## SESSION 8

3:45pm - 4:30pm

**Iulian Iordachita,**  
Johns Hopkins University, USA

4:30pm - 5:15pm

**Michael Miga,**  
Vanderbilt University, USA

# Wednesday November 17, 2021

Workshops for 2021 FSMR and 2021 ISMR

8:00am - 8:30am

Registration

## Morning Session: 8:30am - 12:00pm

Title: Model-based Design, Sensing, and Control of Continuum Manipulators and Robotic Flexible Instruments

Location: Marcus 1116

Title: Building Software Systems for Image-Guided Robot-Assisted Interventions

Location: Marcus 1117

Title: Sensing and Feedback in Dexterous Medical/Surgical Robotics

Location: EBB CHOA Room

Title: Data-Driven Methods for Robotic Minimally-Invasive Surgery

Location: Marcus 1118

Title: Intelligent Human Augmentation in Medical Robotic Systems

Location: IBB 1128 Suddath Room

10:00am - 10:30am

Break and Refreshments

12:00pm - 1:00pm

Lunch

## Afternoon Session: 1:30pm - 5:00pm

Title: Improving clinical outcomes of image-guided needle-based interventions: development and clinical translation of new approaches

Location: Marcus 116

Title: ISMR Workshop on Diversity in Medical Robotics

Location: Marcus 1117

Title: Data-Driven Methods for Robotic Minimally-Invasive Surgery

Location: Marcus 1118

Title: Intelligent Human Augmentation in Medical Robotic Systems

Location: IBB 1128 Suddath Room

3:00pm - 3:30pm

Break and Refreshments

5:30pm - 7:00pm

2021 FSMR and ISMR Reception

7:30pm - 10:00pm

2021 FSMR and ISMR Dinner (By Invitation only)

# Thursday November 18, 2021

Location: IBB 1128 Suddath Room

8:00am - 8:30am

Registration

## Welcome and Opening Remarks

8:30am - 8:45am

## Keynote

8:45am - 9:30am

**Marcia O'Malley,**  
Rice University

## Oral Presentations - Session 1

9:30am - 10:45am

- Matsuno, Takayuki; Murakami, Hikaru; Kamegawa, Tetsushi; Miyamoto, Takaaki; Sakai, Nanako; Minami, Mamoru; Hiraki, Takao. *The Study to Estimate Form of Puncturing Needle Based on Force Information during Slight Movement*
- Zhu, Shijie; Zhao, Zhe; Chen, Yu; Deng, Jiuzheng; Zhu, Jiajin; Pan, Yongwei; Zheng, Gangtie. *Development of a Surgeon and Patient-Friendly Orthopedic Surgical Robot*
- Lathrop, Robert; OURAK, Mouloud; Russo, Francesca; Deprest, Jan; Vander Poorten, Emmanuel B. *Design and Characterization of a Miniature Dual-chamber Pneumatic Actuator for Minimally Invasive Surgical Devices*
- HALIMA, BEN; Bert, Julien; Visvikis, Dimitris; CLEMENT, JEAN FRANCOIS. *Development of a 6-DOF Prostate Brachytherapy Robot with Integrated Gravity Compensation System*
- Fasel, Lorin; Gerig, Nicolas; C.Cattin, Philippe; Rauter, Georg. *The SEA-scope: Torque-limited endoscopic joint control for telemanipulation or visual servoing through tendon force control with series elastic actuation*

## Rapid Fire Poster Session

10:45am - 11:00am

- Raman, Karthik; Ringe, Prathamesh; Subhedar, Sania; Shah, Sushlok; Devada, Yagnesh; Fadia, Aayush; Srivastava, Kushagra; Vaidya, Varad; Zade, Harshad; Chiddarwar, Shital. *Sahayak - An Autonomous COVID Aid Bot*
- Draelos, Mark; Ortiz, Pablo; Viehland, Christian; McNabb, Ryan P.; Kuo, Anthony N.; Izatt, Joseph A.. *Autonomous Optical Coherence Tomography Imaging of Eyes of Freestanding Human Subjects*
- Sadati, S.M.Hadi; Mitros, Zisos; Henry, Ross; Cruz, Lyndon Da; Bergeles, Christos. *Real-Time Dynamics of Concentric Tube Robots with Reduced-Order Kinematics Based on Shape Interpolation*
- Lee, Kyungjoon; Realmuto, Jonathan; Sheng, Jun. *Composite Soft Actuators for Limb Assistance with Variable Impedance*
- Sheng, Jun; Li, Chen; Hernandez-Cordero, Juan; Badie, Behnam. *Robot-Assisted Glioma Biopsy via a Multifunctional Robotic Needle*
- Konh, Bardia; Padasdao, Blayton; Batsaikhan, Zolboo; Lederer, John. *Development of a portable robotic tendon-driven needle insertion system to perform high-dose-rate prostate brachytherapy for patients with pubic arch interference*

11:00am - 11:25am

Break and Refreshments

### Oral Presentations - Session 2

11:25am - 12:55pm

- Aarsvold, Alex Tinggaard; Zeltner, Andreas; Cheng, Zhuoqi; Schwaner, Kim Lindberg; Savarimuthu, Thiusius Rajeeth. *Lymph Node Detection Using Robot Assisted Electrical Impedance Scanning and an Artificial Neural Network*
- Mariani, Andrea; Conti, Matteo; Gandah, Simona; Galli de Paratesi, Chiara; Menciasci, Arianna. *A sensorized tool wristband for objective skill assessment and feedback during training in minimally invasive surgery*
- Soleymani, Abed; Sadat Asl, Ali Akbar; Yeganejou, Mojtaba; Dick, Scott; Tavakoli, Mahdi; Li, Xingyu. *Surgical Skill Evaluation From Robot-Assisted Surgery Recordings*
- Ravigopal, Sharan; Brumfiel, Timothy; Desai, Jaydev P. *Automated Motion Control of the COAST Robotic Guidewire under Fluoroscopic Guidance*
- Wu, Jie Ying; Yilmaz, Nural; Tumerdem, Ugur; Kazanzides, Peter. *Robot Force Estimation with Learned Intraoperative Correction*
- Huang, Kevin; Chitrakar, Digesh; Jiang, Wenfan; Su, Yun-Hsuan. *Enhanced U-Net Tool Segmentation using Hybrid Coordinate Representations of Endoscopic Images*

12:55pm - 1:55pm

Lunch

### Oral Presentations - Session 3

1:55pm - 3:25pm

- Zevallos, Nico; Harber, Evan; Singh, Abhimanyu; Patel, Kirtan; Gu, Yizhu; Sladick, Kenneth; Guyette, Francis; Weiss, Leonard; Gomez, Hernando; Pinsky, Michael; Galeotti, John; Choset, Howie. *Toward Robotically Automated Femoral Vascular Access*
- Huang, Yixuan; Bentley, Michael; Hermans, Tucker; Kuntz, Alan. *Toward Learning Context-Dependent Tasks from Demonstration for Tendon-Driven Surgical Robots*
- Lewis, Andrew; Gong, Chen; Zhou, Yaxuan; Chen, Pengcheng; Porter, Michael P.; Hannaford, Blake; Seibel, Eric J.. *Real Time Localization of Cystoscope Angulation in 2D Bladder Phantom for Telecystoscopy*
- Zheng, Yi; Leonard, Grey; Tellez, Juan; Zeh, Herbert; Majewicz Fey, Ann. *Identifying Kinematic Markers Associated with Intraoperative Stress during Surgical Training Tasks*
- Sayadi, Amir; Nourani, Hamid; Jolaei, Mohammad; Dargahi, Javad; Hooshiar, Amir. *Force Estimation on Steerable Catheters through Learning-from-Simulation with ex-vivo Validation*
- Konh, Bardia; Padasdao, Blayton; Batsaikhan, Zolboo; Lederer, John. *Steering a Tendon-Driven Needle in High-Dose-Rate Prostate Brachytherapy for Patients with Pubic Arch Interference*

3:25pm - 3:50pm

Break and Refreshments

## Oral Presentations - Session 4

3:50pm - 5:35pm

- Gao, Jianxin; Lin, Ju; Kil, Irfan; Singapogu, Ravikiran B.; Groff, Richard. *Deep Learning for Needle Detection in a Cannulation Simulator*
- Abah, Colette; Chitale, Rohan; Simaan, Nabil. *Image-Guided Optimization of Robotic Catheters for Patient-Specific Endovascular Intervention*
- Musa, Mishek; Sengupta, Saikat; Chen, Yue. *Design of a 6 DoF Parallel Robot for MRI-guided Interventions*
- Tavakkolmoghaddam, Farid; Kool Rajamani, Dhruv; Szewczyk, Benjamin; Zhao, Zhanyue; Gandomi, Katie; Shreyas Sekhar, Shreyas; Pilitsis, Julie; Nycz, Christopher J; Fischer, Gregory Scott. *NeuroPlan: A Surgical Planning Toolkit for an MRI-Compatible Stereotactic Neurosurgery Robot*
- Wu, Jie Ying; Munawar, Adnan; Unberath, Mathias; Kazanzides, Peter. *Learning Soft-Tissue Simulation from Models and Observation*
- Harrison, Pratibha; Park, Kihan. *Tumor Detection In Breast Histopathological Images Using Faster R-CNN*
- Cho, Brian Y; Hermans, Tucker; Kuntz, Alan. *Planning Sensing Sequences for Subsurface 3D Tumor Mapping*

**Friday**  
**November 19, 2021**

**Location:** IBB 1128 Suddath Room

**8:00am - 8:30am**

**Registration**

**Keynote**

**8:30am - 9:15am**

**Kevin Cleary,**  
Children's National Hospital, USA

**Oral Presentations - Session 5**

**9:15am - 10:45am**

- Kim, Dayeon; Joo, Subin; Seo, Joonho; Kazanzides, Peter. *A Bi-directional User Interface for a Prosthetic Hand Using a Head-Mounted Display*
- Raina, Deepak; Singh, Hardeep; Saha, Subir Kumar; Arora, Chetan; Agarwal, Ayushi; Chandrashekhara, SH; Rangarajan, Krithika; Nandi, Suvayan. *Comprehensive Telerobotic Ultrasound System for Abdominal Imaging: Development and in-vivo Feasibility Study*
- Schwaner, Kim Lindberg; Iturrate, Iñigo; Andersen, Jakob Kristian Holm; Dam, Christian; Jensen, Pernille Tine; Savarimuthu, Thiusius Rajeeth. *MOPS: A Modular and Open Platform for Surgical Robotics Research*
- Pore, Ameya; Tagliabue, Eleonora; Piccinelli, Marco; Dall'Alba, Diego; Casals, Alicia; Fiorini, Paolo. *Learning from Demonstrations for Autonomous Soft-tissue Retraction\**
- Lagomarsino, Marta; Groenhuis, Vincent; Casadio, Maura; Welleweerd, Marcel Klaas; Siepel, Françoise J; Stramigioli, Stefano. *Image-guided Breast Biopsy of MRI-visible Lesions with a Hand-Mounted Motorised Needle Steering Tool*
- Li, Zhen; Mancini, Maria Elisabetta; Monizzi, Giovanni; Andreini, Daniele; Ferrigno, Giancarlo; Dankelman, Jenny; De Momi, Elena. *Model-to-Image Registration via Deep Learning towards Image-Guided Endovascular Interventions*
- Huber, Martin; Bason Mitchell, John Charles; Henry, Ross; Ourselin, Sebastien; Vercauteren, Tom; Bergeles, Christos. *Homography-based Visual Servoing with Remote Center of Motion for Semi-autonomous Robotic Endoscope Manipulation*

**11:00am - 11:20am**

**Break and Refreshments**

**Oral Presentations - Session 5**

**11:20am - 12:50pm**

- Roth, Robert; Wu, Jiahao; Alamdar, Alireza; Taylor, Russell H.; Gehlbach, Peter; Iordachita, Ioan Iulian. *Towards a Clinically Optimized Tilt Mechanism for Bilateral Micromanipulation with Steady-Hand Eye Robot*
- Meli, Daniele; Tagliabue, Eleonora; Dall'Alba, Diego; Fiorini, Paolo. *A cognitive framework for surgical task automation in deformable anatomical environment*
- Roberti, Andrea; Piccinelli, Nicola; Falezza, Fabio; De Rossi, Giacomo; Bonora, Stefano; Setti, Francesco; Fiorini, Paolo; Muradore, Riccardo. *A Time-of-Flight Stereoscopic Endoscope for Anatomical 3D Reconstruction*
- Li, Ruixuan; Niu, Kenan; Vander Poorten, Emmanuel B. *A Framework for Fast Automatic Robot Ultrasound Calibration*

- Song, Kefan; Lezcano, Dimitri A.; Sun, Ge; Kim, Jin Seob; lordachita, Ioan Iulian. *Towards Automatic Robotic Calibration System for Flexible Needles with FBG Sensors*
- Kaplan, Jack; Sosnovskaya, Yana; Arnold, Matthew; Hannaford, Blake. *Sensor Fusion for Force and Position Calibration of a Motorized Surgical Smart Grasper*

12:50pm - 1:50pm

Lunch

### Oral Presentations - Session 7

1:50pm - 3:35pm

- Tsabedze, Thulani; Hartman, Erik; Brennan, Cianan; Zhang, Jun. *A Compliant Robotic Wrist Orthosis Driven by Twisted String Actuators*
- Rabe, Kaitlin G.; Fey, Nicholas. *Continuous Prediction of Leg Kinematics During Ambulation using Peripheral Sensing of Muscle Activity and Morphology*
- Chen, Le; Qi, Boshen; Sheng, Jun. *A Pneumatic Optical Soft Sensor for Fingertip Force Sensing*
- Zamani, Naghmeh; Pourkand, Ashkan; Culbertson, Heather; Grow, David. *Plate-and-Cable (PAC) Haptic Device for Orthopaedic Training*
- Milanezi de Andrade, Rafael; Sapienza, Stefano; Fabara, Eric Eduardo; Bonato, Paolo. *Trajectory Tracking Impedance Controller in 6-DoF Lower-Limb Exoskeleton for Over-Ground Walking Training: Preliminary Results*
- Novelli, Guilherme Lucchini; Milanezi de Andrade, Rafael. *Towards an Active Ankle-Foot Prosthesis Powered by Dielectric Elastomer Actuators in Antagonistic Pairs*
- Quintero, David; sherpa, Pemba. *A Unified Control Framework with Continuous Speed Adaptation used for Powered Prostheses Control*

3:35pm - 3:55pm

Break and Refreshments

### Oral Presentations - Session 8

3:55pm - 4:40pm

- Galvan, Aldo; Madan, Anurag; Narayan, Meenakshi; Kalva, Sanjeeva; Majewicz Fey, Ann. *Design and Evaluation of a Soft Robotic Catheter Tip Prototype with Self-Propulsion and Shape Changeable Teleoperation*
- Richter, Florian; Funk, Emily; Park, Won Seo; Orosco, Ryan; Yip, Michael C.. *From Bench to Bedside: The First Live Robotic Surgery on the dVRK to Enable Remote Telesurgery with Motion Scaling*
- Hwee, Joel; Lewis, Andrew; Bly, Randall; Moe, Kris; Hannaford, Blake. *An Everting Emergency Airway Device*

### Closing Remarks

4:40pm - 5:00pm

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**2021 FSMR and 2021 ISMR**

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2021 FSMR and  
2021 ISMR  
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Auris Health, Inc., part of the Johnson & Johnson family of companies, is redefining medical interventions. By combining advancements in medical robotics, instrumentation, navigation, and data science, we are building intelligence platforms capable of growing the applicability of robotics to a new spectrum of medical procedures.

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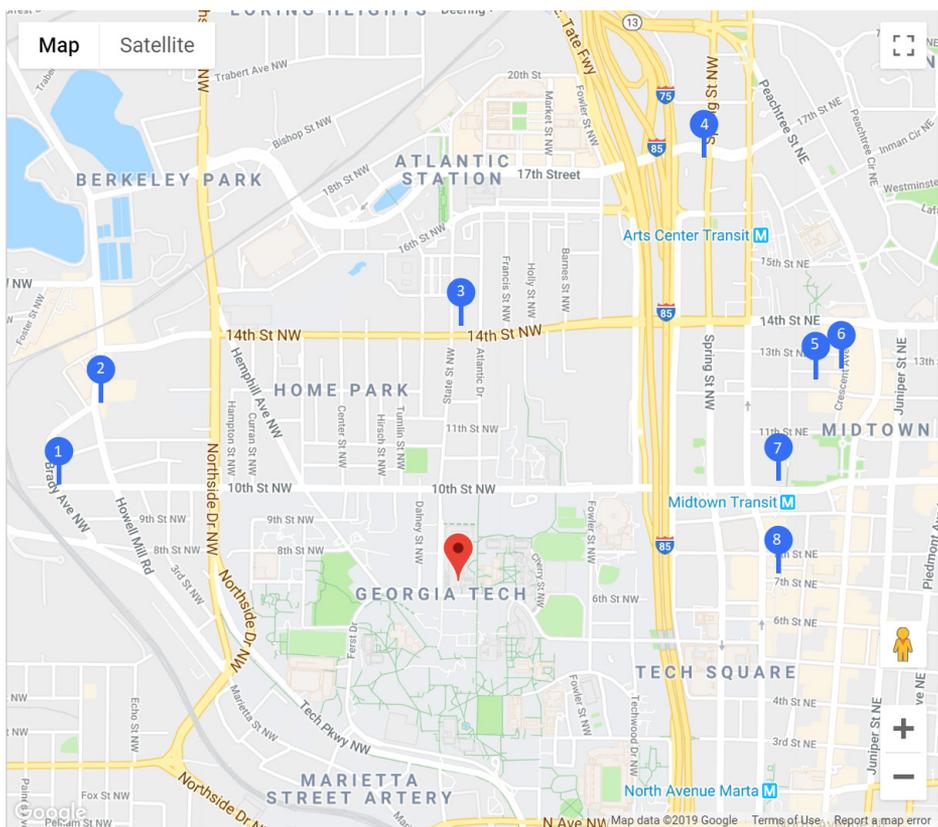


Georgia Center for  
Medical Robotics



## Notes

# Restaurants



1. Miller Union - 999 Brady Ave. NW - American Restaurant - (678)733-8550
2. Barcelona Wine Bar - 1085 Howell Mill Rd. (Inside Westside Ironworks) - Spanish Restaurant - (404)872-8000
3. Wagaya Westside - 339 14th St. NW - Japanese Restaurant - (470)575-5799
4. Nan Thai Fine Dining - 1350 Spring St. NW #1 - Thai Restaurant - (404)870-9933
5. Tabla - 77 12th St. NE #2 - Indian Restaurant - (404)464-8571
6. Lure - 1106 Crescent Ave. NE - Seafood Restaurant - (404)817-3650
7. The Consulate - 10 10th St. NW - Tapas Restaurant - (404)254-5760
8. Ecco Midtown - 40 7th St. NE - European Restaurant - (404)347-9555



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