SMRA 2021

33rd Annual International Conference

Communication & Collaboration through Connection

Virtual Meeting
Pheedloop & GATHER.TOWN

Reception
Thursday, September 9

Main Conference
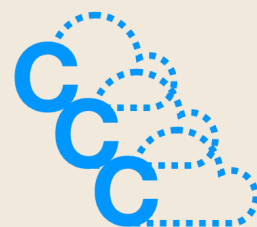Friday, September 10 - Sunday, September 12

President
Giles Roditi

Chair of Program Committee
Chun Yuan, Xihai Zhao

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ANNUAL CONFERENCE INTRODUCTION

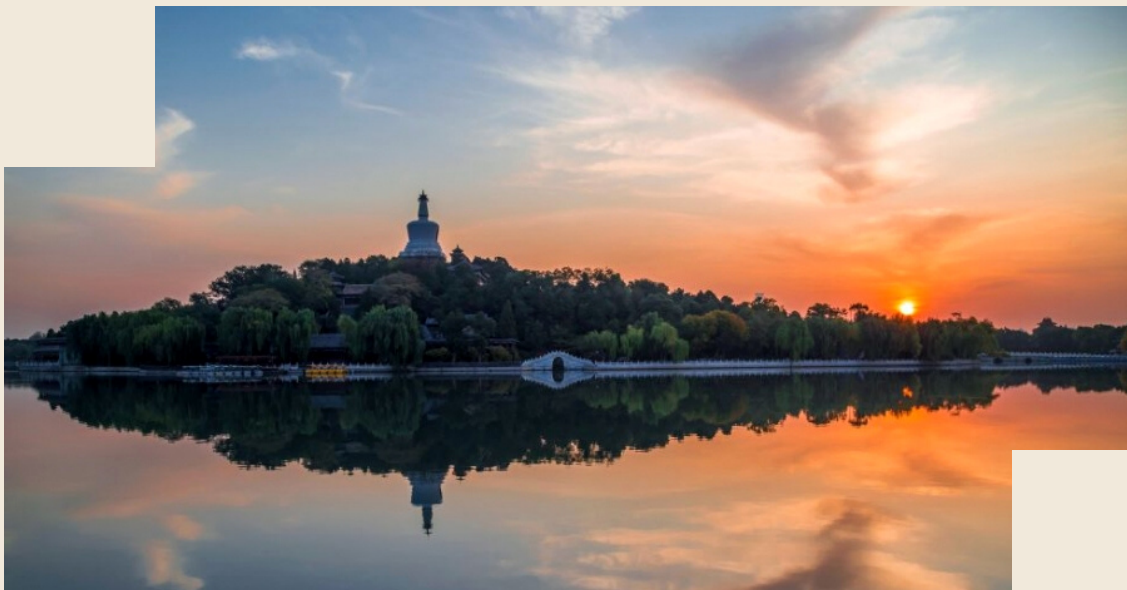## Update: SMRA All Virtual Meeting

As you may have heard, in order to prioritize the health and safety of our community, we have made the difficult decision to transition our 33rd International SMRA Conference from hybrid to fully virtual. We are leaving pictures of **Beijing** and the beautiful **Tsinghua campus** throughout this brochure to honor the city and the University who had graciously planned on hosting us this year.

SMRA Mission Statement

An international group of scientists and clinicians devoted to the development, application and promotion of MR imaging techniques to visualize the cardiovascular system and to improve patient care.

Annual Conference Objectives

This meeting is aimed at radiologists, technologists, physicists and other imaging scientists who want to increase their knowledge of Magnetic Resonance Angiography and Vascular Imaging. Plenary sessions with panel discussions will be focused on international collaboration, and clinical and basic research communication. Our Scientific program will run in tandem with educational sessions, 'hot-topic' discussions, and mentoring/career advice, as well as sessions dedicated to diversity and equality within the wider MRA community. In partnership with MICCAI, our Grand Challenge on "Machine Learning in Vascular Image Analysis" final winner will be selected at the meeting.

Thursday, September 9

Time: UTC	Topics	Speaker/Moderator
15:00-16:00	**Reception**	**GATHER.TOWN**

Friday, September 10

Time: UTC	Topics	Speaker/Moderator
Joint Symposium 1	**Asia-Europe Symposium**	**Moderators: Aleksandra Radjenovic, Huilin Zhao**
8:00-8:30	Intracranial Artery MRA and Vessel Wall Imaging	Bum-Soo Kim & Anja van der Kolk
8:30-9:00	MRI-based Multicenter Study	Xihai Zhao & Eline Kooi
9:00-9:30	Cardiac Imaging	Haiyan Ding & Claudia Prieto
9:30-9:45	Platinum Sponsor Presentation - Bayer	Valentina Püntmann
9:45-10:00	Discussion	
Educational Session 1	**CE-MRA and Vessel Wall Imaging**	**Moderators: Kevin DeMarco, Matt Alexander**
13:30-14:30	Summary of CE-MRA	Aart van der Molen, Giles Roditi, Alexander Radbruch
	Q & A	Kim-Lien Nguyen, Jeff Maki, Tim Leiner
14:30-15:00	Summary of Vessel Wall Imaging	Mahmud Mossa-Basha, Baocheng Chu, Niranjan Balu
	Q & A	
Plenary Session 1	**Opening**	**Moderators: Giles Roditi, Elizabeth Hecht**
15:00-15:10	Opening Remarks	Giles Roditi
15:10-15:40	Martin R Prince, MD, PhD Lecture	Martin R Prince
15:40-16:28	Competition for **Potchen & Passariello Awards**	Judges & Finalists
Scientific Session 1	**Artificial Intelligence**	**Moderators: Zechen Zhou, Anthony Christodoulou**
17:00-18:24	Oral Presentation	7 Presenters
18:24-18:44	Power Pitch	5 Presenters
18:45-18:55	Gold Sponsor Presentation - Philips	Xiaoyong Zhang
ECC Session 1		**GATHER.TOWN**
19:30-20:30	Speed Networking	Peter Douglas, Yalei Yang

Saturday, September 11

Time: UTC	Topic	Speaker/Moderator
Joint Symposium 2	**Asia-North America Symposium**	**Moderators: Michael Markl, Hideki Ota**
0:00-0:30	Coronary MRA	Masaki Ishida & Paul Finn
0:30-1:00	Flow Imaging	Rui Li & Laura Eisenmenger
1:00-1:30	Quantitative Plaque Imaging	Huijun Chen & Zhaoyang Fan
1:30-1:45	Platinum Sponsor Presentation – Siemens Healthineers	Qi Yang
1:45-2:00	Discussion	
Educational Session 2	**Artificial Intelligence**	**Moderators: Niranjan Balu, Feng Huang**
2:00-2:30	Summary and Q&A	Dinggang Shen, Greg Zaharchuk, Chun Yuan
2:30-3:29	Competition for Awards of Grand Challenge	Finalists
3:30-3:45	Platinum Sponsor Presentation - TSimaging Healthcare	Shuo Chen
Scientific Session 2	**Neurovascular-Clinical**	**Moderators: Ye Qiao, Hediyeh Baradaran**
12:00-13:00	Oral Presentation	5 Presenters
13:00-13:28	Power Pitch	7 Presenters
13:30-13:40	Gold Sponsor Presentation – GE Healthcare	Weiqiang Dou
ECC Session 2		**GATHER.TOWN**
13:45-14:15	Mentor/Mentee Communication	Nan Wang, Carson Hoffman
14:15-15:00	Fireside Chat with Martin Prince	Liliana Ma, Matthew Lanier
Scientific Session 3	**Cardiac MRI, Coronary and Aortic MRA – Joint session with SCMR**	**Moderators: Caroline Colbert, Julia Geiger**
15:00-16:36	Oral Presentation	8 Presenters
16:36-16:52	Power Pitch	4 Presenters
16:52-17:02	Gold Sponsor Presentation – United Imaging	Jian Xu
ECC Session 3		**GATHER.TOWN**
17:30-18:30	Fireside Chat: Chun Yuan, Mahmud Mossa-Basha, Dennis Parker	Matthew Alexander, Trisha Roy

Sunday, September 12

Time: UTC	Topic	Speaker/Moderator
Scientific Session 4	**Neurovascular- Technical**	**Moderators: Leonardo Rivera-Rivera, Maria Aristova**
0:00-1:12	Oral Presentation	6 Presenters
1:12-1:28	Power Pitch	4 Presenters
1:28-1:40	Gold Sponsor Presentation – Circle Cardiovascular Imaging	Michael Markl
ECC Session 4		**GATHER.TOWN**
2:00-3:00	Speed Networking	Carson Hoffman, Yin Guo
Scientific Session 5	**Flow Imaging**	**Moderators: Grant Roberts, Liliana Ma**
12:00-13:24	Oral Presentation	7 Presenters
13:24-13:48	Power Pitch	6 Presenters
13:50-14:00	Gold Sponsor Presentation – Pie Medical Imaging	Ir. Jos Westenberg
ECC Session 5		**GATHER.TOWN**
14:00-15:00	Open Poster Viewing	
Plenary Session 2	**Closing**	**Moderators: Richard Frayne, Dennis Parker**
15:00-15:05	Introduction of Sadamoto Lecture	Dennis Parker
15:00-15:30	Kazuhiko Sadamoto, MD lecture	Yilong Wang
15:30-15:50	Announcement of Awards & Closing Remarks	Chun Yuan, Xihai Zhao
15:50-16:00	Next Year Meeting Announcement	Debiao Li
ECC Session 6		**GATHER.TOWN**
16:00-17:00	Meeting the Rising Stars	Mohammed Elbaz, David Marlevi

ALL-VIRTUAL CONFERENCE VENUE

This year's meeting will be **fully virtual** and the committee has taken advantage of the interesting capabilities enabled by **Pheedloop** and **GATHER.TOWN**.

Pheedloop Introduction and Use

Pheedloop, an innovative browser-based program, will be used to host the majority of this year's meeting.

- **We prepared an instructional video with a quick tour of the platform, viewable in the "Help" tab.**
- A week before the conference begins, attendees will be given access to the platform by email. Participants will enter the Pheedloop platform via a virtual meeting **"Lobby"**.
- **"Long Videos"** in Educational Sessions are intended to be watched before the actual conference! Only the summary versions will be shown during the meeting.
- Each of the main **"Sessions"** will have an embedded zoom webinar. You will join automatically whenever you enter an ongoing session.
- Select **"Sponsor Booths"** to bring up the list of sponsors. You can view the posted material or send them a message via the public chat box on the right-hand side of the screen.
- **"Poster Pitch"** is a combination of an electronic poster and a four-minute talk.
- In **"Networking"**, you can start a private conversation with any one of the attendees.
- Attendees can edit your profile under the **"Account"** tab. We ask all participants to complete the basic Account information and upload a photo.

Click this link to access Pheedloop
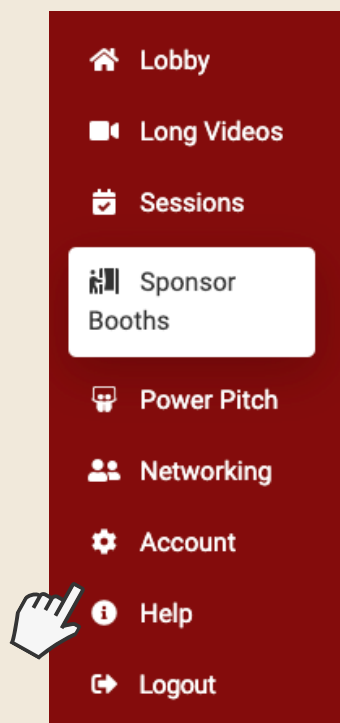
ALL-VIRTUAL CONFERENCE VENUE

GATHER.TOWN

We will use **GATHER.TOWN** as the main venue for social gathering, Early Career Committee (ECC) events, sponsor booths and games and other activities. Make sure to set up a profile including your name and character before entering the SMRA 2021 main lobby.

Please visit as often as you can!

Click this link to access GATHER.TOWN

ECC Room
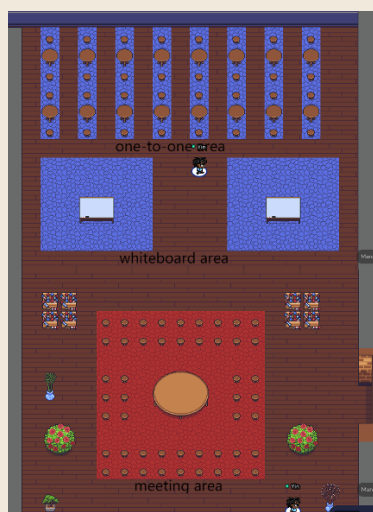
Poster Room
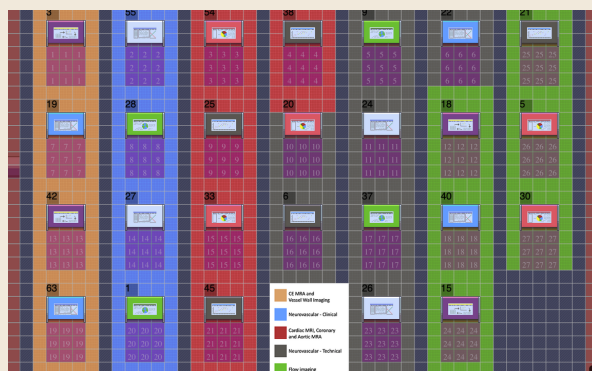
Tsinghua Lounge

Main Room (Sponsor Booths)

Foyer

Welcome to our **33rd Annual SMRA 2021 International Conference** and following last year's fully virtual event the first year we are hosting a form of hybrid meeting.

We are hoping this event provides a forum for great **Communication, Collaboration And Connection**. We realize nothing compares to a full in- person meeting and having those invaluable, serendipitous conversations. However, we are confident that the delegates that cannot attend in person, (most of us), will still feel connected using both the Pheedloop and GatherTown platforms.

I would like to thank and acknowledge the Scientific Co-Chairs: Dr. Xihai Zhao (Tsinghua University) and Dr. Chun Yuan (University of Washington) and their support teams who have worked so hard to make this **conference** a truly successful one. They have continued the tradition of hosting a great conference as we have had the 32 years before them.

This year a very exciting program has been constructed including a Carotid Vessel Wall Segmentation Challenge in partnership with MICCAI, symposiums that emphasize the 3Cs of Europe, Asia and North America, the inaugural eponymous Martin Prince lecture, and an enhanced fire-side series of events in a newly designed GatherTown with gaming planned for better communication.

Your presence is an indication that you are committed to making a positive difference in the SMRA community.

Enjoy the conference and we look forward to seeing you in **Los Angeles, California in 2022** for a much needed in person meeting.

Warm regards,

Dr. Giles Roditi
SMRA President
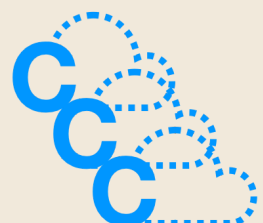
SMRA COMMITTEE

Executive Committee

President

Giles Roditi

President Elect

Chun Yuan

Secretary

Charles (Chuck) Dumoulin

Treasurer

Michael Markl

Manuela Aschauer

Aleksandra Radjenovic

Xihai Zhao

Elizabeth Hecht

Richard Frayne

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Chair
- **Chun Yuan**, University of Washington
- **Xihai Zhao**, Tsinghua University

Member
- **Richard Frayne**, University of Calgary
- **Niranjan Balu**, University of Washington
- **Elizabeth M. Hecht**, Weill Cornell Medical College
- **Anthony G. Christodoulou**, Cedars-Sinai Medical Center
- **Carson Hoffman**, University of Wisconsin
- **Giles Roditi**, University of Glasgow
- **Aleksandra Radjenovic**, University of Glasgow
- **Hideki Ota**, Tohoku University Hospital

SMRA COMMITTEE

Organizing Committee

SMRA Secretariat
- **Janette Wallace**, Board Secretariat & Conference Manager
- **Johanne Langford**, Conference Coordinator
- **Anna Van Vilet**, Society & Conference Assistant
- **Jessica Guillemette**, Pheedloop Coordinator

Local Organizer
- **Xihai Zhao**

Judges for Potchen (Clinical) Awards
- **Kevin DeMarco**
- **Philippe Douek**
- **James Carr**
- **Aschauer Manuela**

Judges for Passariello (Basic Science) Awards
- **Debiao Li**
- **Zhongzhao Teng**
- **Chuck Dumoulin**

Volunteer
- **Kaiyu Zhang**, University of Washington
- **Rui Shen**, Tsinghua University
- **Yalei Yang**, University of Glasgow
- **Yin Guo**, University of Washington
- **Zihan Ning**, Tsinghua University
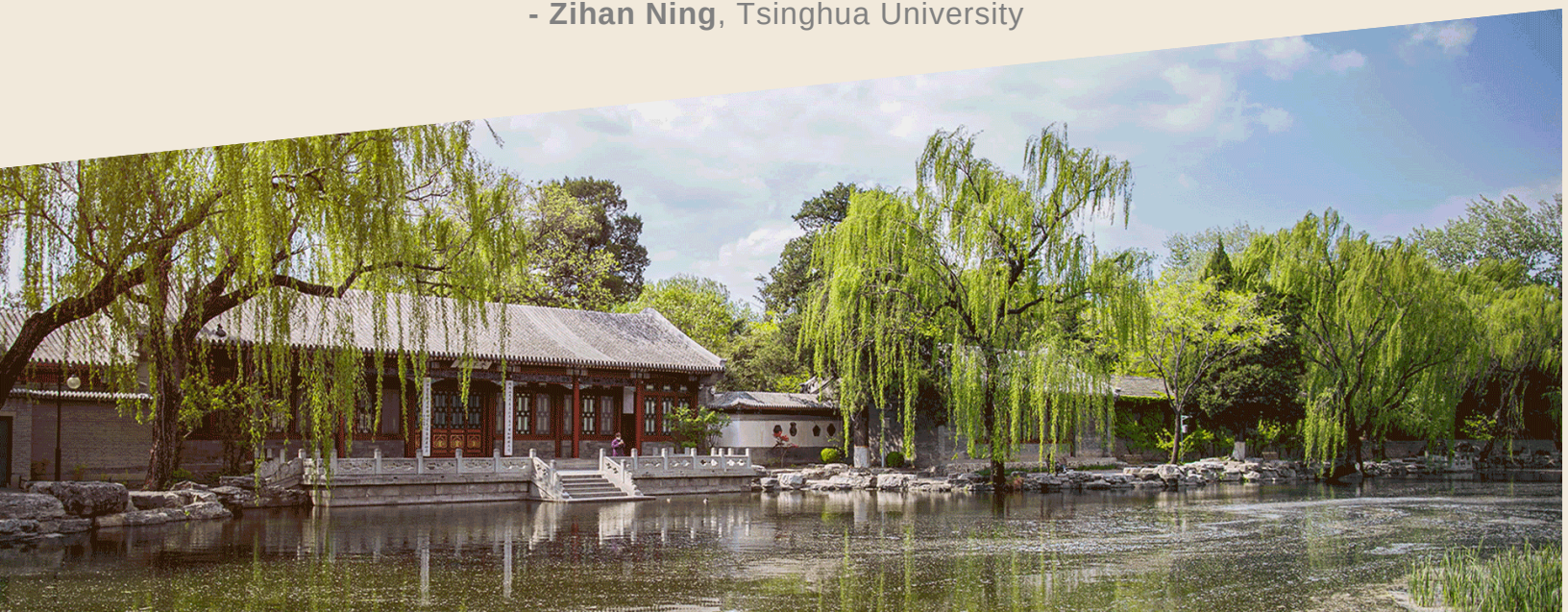
SMRA COMMITTEE

Organizing Committee

Early Career Committee (ECC)

- **Carson Hoffman**, Co-Chair
- **Matthew Lanier**, Co-Chair

- **Nan Wang**, Member
- **David Marlevi**, Member
- **Liliana Ma**, Member
- **Matthew Alexander**, Member
- **Trisha Roy**, Member
- **Peter Douglas**, Member
- **Mohammed Elbaz**, Member

- **Giles Roditi**, Board Member
- **Aschauer Manuela**, Board Member
- **Xihai Zhao**, Board Member

ABSTRACT REVIEWERS

Manuela Aschauer, Medical University of Graz
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Niranjan Balu, University of Washington
Rene Botnar, King's College London
Anthony G. Christodoulou, Cedars-Sinai Medical Center
Jeremy Collins, Northwestern University
Charles Dumoulin, Cincinnati Children's Hospital Medical Center
Mohammed S. M. Elbaz, Northwestern University
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Lien Nguyen, University of California, Los Angeles
Hideki Ota, Tohoku University Hospital
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Dana Peters, Yale University
Haikun Qi, ShanghaiTech University
Aleksandra Radjenovic, University of Glasgow
Giles Roditi, NHS Greater Glasgow and Clyde
Binbin Sui, Beijing Tiantan Hospital
Mark Schiebler, University of Wisconsin-Madison
Monica Sigovan, University of Lyon
Chun Yuan, University of Washington
Xihai Zhao, Tsinghua University

PLENARY PROGRAM

Plenary Session 1: Opening Lecture, Potchen & Passariello Awards Candidate Presentation

Time: 15:00 - 16:30 (UTC) - Friday, September 10

Moderators: Giles Roditi, Elizabeth Hecht

Time: UTC	Topic	ID
15:00 - 15:10	**Opening Remarks - Giles Roditi**	
15:10 - 15:40	**The Inaugural Martin R. Prince, MD, PhD Lecture:**	
	CE-MRA - Past, Present and Future - Martin R. Prince	
	Competition for Potchen & Passariello Awards - Finalist Presentation	
15:40 - 15:48	Placental Maternal Blood Volume Measurements in Rhesus Macaques Using Variable Flip Angle T1 Mapping - **Ruiming Chen**, University of Wisconsin - Madison	58
15:48 - 15:56	Saturated Multi-delay Arterial Spin Labeling (SAMURAI) Technique for Multiparametric Kidney MRI - **Zihan Ning**, Tsinghua University	8
15:56 - 16:04	Vascular Mapping of the Human Hippocampus in vivo Using MICRO Imaging - **Sagar Buch**, Wayne State University	13
16:04 - 16:12	Evaluation of Pulmonary Hypertension Using 4D Flow MRI - **John Cerne**, Northwestern University	34
16:12 - 16:20	Assessing the Mechanism of Action of Sodium-glucose Co-transporter 2 Inhibition Using Quantitative Interleaved Cardio-renal MRI: Pre-treatment Findings in SUGAR-DM-HF study - **Matthew MY Lee,** University of Glasgow	46
16:20 - 16:28	Non-contrast Enhanced 3D Cartesian MRA of the Thoracic Aorta in 3 min: Preliminary Clinical Evaluation - **Anastasia Fotaki**, King's College London	11

Plenary Session 2: Closing Lecture and Awards

Time: 15:00 - 16:00 (UTC) - Sunday, September 12

Moderators: Richard Frayne, Dennis Parker

Time: UTC	Topic
15:00 - 15:05	**Introduction of Sadamoto Lecture - Dennis Parker**
15:05 - 15:30	**Kazhuhiko Sadamoto, MD Lecture: Treatment of Intracranial Arterial Stenosis - Yilong Wang**
15:30 - 15:50	**Announcement of Awards & Closing Remarks - Chun Yuan, Xihai Zhao**
15:50 - 16:00	**Next Year Meeting Announcement - Debiao Li**

Bracco - Platinum Sponsor

JOINT SYMPOSIUM

Asia-Europe Symposium

Time: 8:00 - 10:00 (UTC) - Friday, September 10

Moderators: Aleksandra Radjenovic, Huilin Zhao

Time: UTC	Topic	Speaker
8:00-8:15	MR-based Collateral Imaging in Stroke	Bum-Soo Kim
8:15-8:30	Intracranial vessel wall MRI: Standard of Care or Specialized Medicine?	Anja van der Kolk
8:30-8:45	Chinese Atherosclerosis Risk Evaluation (CARE-II): A MR Vessel Wall Imaging-Based Multicenter Study	Xihai Zhao
8:45-9:00	Plaque At RISK (PARISK): prospective multicenter study to improve diagnosis of high-risk carotid plaques	Eline Kooi
9:00-9:15	3D Dark-blood Phase Sensitive Inversion Recovery Imaging for Atrium	Haiyan Ding
9:15-9:30	Brief Introduction of Cardiac MRI and its Challenges	Claudia Prieto
9:30-9:45	Platinum Sponsor Presentation by **Bayer**: 'COVID and the HEART'	Valentina Püntmann
9:45-10:00	Discussion	

Asia-North America Syposium

Time: 0:00- 2:00 (UTC) - Saturday, September 11

Moderators: Michael Markl, Hideki Ota

Time: UTC	Topic	Speaker
0:00-0:15	Clinical Utility of Whole-heart Coronary MRA: Asian Approaches	Masaki Ishida
0:15-0:30	Multi-Dimensional Coronary MRA in Children	Paul Finn
0:30-0:45	Asian Approach to Blood Flow Imaging	Rui Li
0:45-1:00	North American Approach to Blood Flow Imaging	Laura Eisenmenger
1:00-1:15	Quantitative Vascular Imaging – Asian Approach	Huijun Chen
1:15-1:30	Quantitative Vascular Imaging – North America Approach	Zhaoyang Fan
1:30-1:45	Platinum Sponsor Presentation by **Siemens Healthineers** - "Whole Brain Vessel Wall Imaging in Stroke Patients (WISP): An International Multi-Center Registry"	Qi Yang
1:45-2:00	Discussion	

Siemens Healthineers - Platinum Sponsor
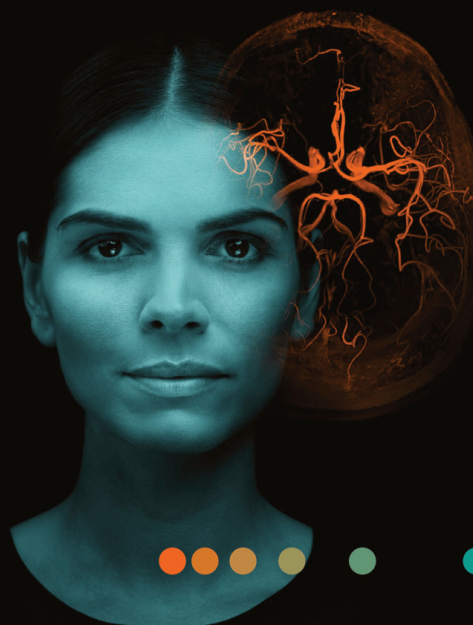
EDUCATIONAL PROGRAM

Each invited speaker will upload a pre-recorded talk that covers their topic at length. **Please watch these presentations before attending the Educational sessions.**
During the scheduled Educational sessions, the speakers will **only give a brief summary** of the pre-recorded lecture to allow for plenty of time for Q&A.

Educational Session 1: CE-MRA and Vessel Wall Imaging
Time: 13:30 - 15:00 (UTC) - Friday, September 10
Moderators: Kevin DeMarco, Matt Alexander

Summary of CE-MRA and Q&A   (UTC 13:30 - 14:30)

Safety of the Gadolinium-Based Contrast Agents: GBCA Phamacokinetics and Prevention of Hypersensitivity Reactions and post-contrast acute kidney injury	Aart van der Molen
NSF - RIP	Giles Roditi
Current State on Gadolinium Deposition	Alexander Radbruch
Ferumoxytol Administration for CE-MRA - Principles & Safety	Kim-Lien Nguyen
Predicting In Vivo Gadolinium-Based Contrast Agent Concentration in Contrast Enhanced MRA Based on Blood Signal Intensity	Jeffrey Maki
CE-MRA - Current and Future Clinical Status	Tim Leiner

Summary of Vessel Wall Imaging and Q&A   (UTC 14:30 - 15:00)

Clinical Implications of Vessel Wall Imaging and Applications	Mahmud Mossa-Basha
Intracranial and Extracranial Vessel Wall Imaging: How Do We Do It?	Baocheng Chu
Vessel Wall MR Imaging Techniques	Niranjan Balu

EDUCATIONAL PROGRAM

Educational Session 2: Artificial Intelligence

Time: 2:00 - 3:30 (UTC) - Saturday, September 11

Moderators: Niranjan Balu, Feng Huang

Summary of Artificial Intelligence and Q&A (UTC 2:00 - 2:30)	
AI in MRI Techniques	Dinggang Shen
AI in Vascular Imaging Clinical Application	Greg Zaharchuk
AI in Vascular Disease Screening and Large Clinical Trial Applications	Chun Yuan

Time: UTC	Platinum Sponsor Presentation	Speaker
3:30-3:45	Platinum Sponsor Presentation by **TSimaging Healthcare** - "Vessel Wall MRI moves from Lab to Clinic: TSimaging Solution"	Shuo Chen

TSImaging Healthcare Technology - Platinum Sponsor

TSimaging Healthcare is founded in 2016 by Tsinghua University and world-renowned scientists and experts in the industry. The company aims to transform the scientific research results of the Tsinghua University Biomedical Imaging Research Center, adhering to the advanced medical solutions to serve doctors and aid patients with precise imaging based on the concept of diagnostic methods, a series of advanced imaging solutions.

Our Mission
Clear Images for Better Healthcare

Our Vision
Improve Diagnosis with Precise Imaging.
Serve People with Advanced Technology

Our Goal
Be the World-class Innovative
Medical Imaging Company

Where are we from

Center for Biomedical Imaging Research (CBIR), Tsinghua University.
Vascular Imaging Laboratory, UW Seattle

What we have

Expertise and experiences in medical science,
imaging technology and manufacturing industry

What we do

One-stop solution for clinical practice and scientific research

High Resolution Vessel Wall Imaging Solution

Standardized Protocol

AI

Clear Plaque Images

Accurate Quantitative Analysis

Precision Diagnosis

Dedicated Coil
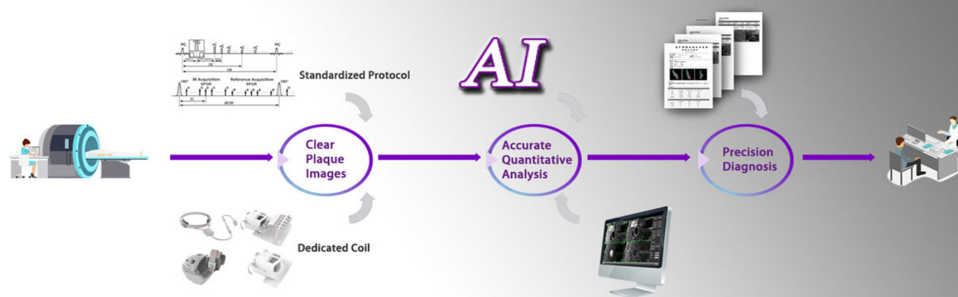
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TSimaging Healthcar

CBIR

SCIENTIFIC PROGRAM

Scientific Session 1: Artificial Intelligence
Time: 17:00 - 18:55 (UTC) - Friday, September 10
Moderators: Zechen Zhou, Anthony Christodoulou

Time: UTC	Oral Presentation	ID
17:00-17:12	Low Rank Motion Correction for Free-breathing First Pass MR Myocardial Perfusion Imaging - **Gastao Cruz**, King's College London	29
17:12-17:24	Automatic Time-resolved Cardiovascular Segmentation of 4D Flow MRI Using Deep Learning - **Mariana Bustamante**, Linköping University	12
17:24-17:36	Deep Learning Automated Segmentation of CE-MRA Left Atrial Structures of AF Patients - **Justin J Baraboo**, Northwestern University	36
17:36-17:48	Joint Learning of Group-wise Diffeomorphic Registration and Reconstruction of Cardiac Cine MRI - **Haikun Qi**, ShanghaiTech University	2
17:48-18:00	Deep-Learning Based Reconstruction of Highly Accelerated 4D Flow MRI - **Haben Berhane**, Northwestern University	17
18:00-18:12	Decomposition-Recomposition: Memory Efficient Deep Learning Reconstruction for High Resolution, 3D, Non-Cartesian Pulmonary Magnetic Resonance Angiography (MRA) - **Zachary Miller**, University of Wisconsin-Madison	50
18:12-18:24	Neurovascular 4D-Flow Using Motion Correction and Deep Learning Denoising - **Steve Kecskemeti**, University of Wisconsin - Madison	65

Time: UTC	Power Pitch	ID
18:24-18:28	A Deep Learning-Based Approach to Identify Patients without Myocardial Scar to Reduce Unnecessary Gadolinium Administration in Cardiac MRI - **Ahmed Fahmy**, BIDMC	54
18:28-18:32	Deep Learning Performs Flow Quantification of Cardiovascular 2D Phase Contrast MRI at Human Level - **Maurice Pradella**, Northwestern University	25
18:32-18:36	Convolutional Neural Network for Autonomous Segmentation of Intracerebral Hemorrhage Components for Image Guidance in Minimally-Invasive Surgical Evacuation - **Thomas Lilieholm**, University of Wisconsin - Madison	33
18:36-18:40	Impact of Loss Function in Phase-contrast MRI Reconstruction Using Deep Learning - **Gael Touquet**, CREATIS	45
18:40-18:44	A Study on the Size of 3D Patch in the Vascular Segmentation of Neck TOF MRA Images Based on 3D ResUnet - **Wei Qiu**, Tsinghua University	38

Time: UTC	Gold Sponsor Presentation	Speaker
18:45-18:55	Gold Sponsor Presentation by **Philips** - "Frontiers of Philips Cardiovascular MR Research"	Xiaoyong Zhang

SCIENTIFIC PROGRAM

Scientific Session 2: Neurovascular-Clinical

Time: 12:00 - 13:40 (UTC) - Saturday, September 11

Moderators: Ye Qiao, Hediyeh Baradaran

Time: UTC	Oral Presentation	ID
12:00-12:12	Carotid Atherosclerosis is Associated with Brain Infarcts and Cognitive Decline - **Niranjan Balu**, University of Washington	51
12:12-12:24	Risk Factors of New Ipsilateral Ischemic Lesions after Carotid Artery Stenting: A MRI and Clinical Study Based on High-resolution Carotid Plaque Images - **Ranying Zhang**, Zhongshan Hospital, Fudan University	7
12:24-12:36	Shorter Length of Visible Intracranial Arteries on Non-contrast Enhanced MRA is Associated with Cognitive Impairment - **Zhensen Chen**, University of Washington	43
12:36-12:48	Clinical and Morphological Characteristics Predicting Recurrent Ischemic Stroke after Intensive Medical Management: A Prospective Analysis of Intracranial Atherosclerosis Using High-resolution Magnetic Resonance Imaging - **Zhang Shi**, Changhai Hospital	23
12:48-13:00	Guidelines for Institutional Policy Regarding the Safe Use of Ferumoxytol for MRI and MRA - **Yasaman Soltani**, University of Texas at Austin	62

Time: UTC	Power Pitch	ID
13:00-13:04	In-vivo Magnetic Resonance Histology of Peripheral Arterial Chronic Total Occlusions in Chronic Limb Threatening Ischemia Patients - **Kavya Sinha**, Houston Methodist Hospital	20
13:04-13:08	Analysis of the Value of High Resolution-Vessel Wall Imaging in the Etiology of Single Small Subcortical Infarction - **Yutian Li**, Huanhu Hospital, Tianjin University	6
13:08-13:12	Hemodynamic Difference between Borderzone Infarct and non-Borderzone Infarct in Patients with Middle Cerebral Artery Atherosclerosis - **Wenwen Chen**, Tsinghua University	22
13:12-13:16	Comparison of MRI, MRA, and Vessel Wall Imaging Features of Cerebral Amyloid Angiopathy and Cerebral Amyloid Angiopathy-Related Inflammation - **Vance Lehman**, Mayo Clinic	9
13:16-13:20	Visualization of Lenticulostriate Arteries on Intracranial VW-MRI: Relationship between MCA Atherosclerotic Plaque and Infarction Types - **Li Qian**, Zhongda Hospital Affiliated to Southeast University	24
13:20-13:24	The Research of Relationship between the Left or Right Hemisphere Ischemic Stroke and Left Ventricular Systolic Function - **Lijuan Zheng,** Jinling Hospital	37
13:24-13:28	Plaque Location Distribution in Patients with Intracranial Atherosclerotic Plaques with Fetal Posterior Cerebral Artery - **Dingqi Liu**, Zhongda Hospital, Medical School of Southeast University	26

Time: UTC	Gold Sponsor Presentation	Speaker
13:30-13:40	Gold Sponsor Presentation by **GE Healthcare** - "Advanced MR Vascular Imaging in Novel Clinical Applications At GE Platform"	Weiqiang Dou

Philips - Gold Sponsor

GE Healthcare - Gold Sponsor

SCIENTIFIC PROGRAM

Joint Scientific Session 3: SCMR & Cardiac MRI, Coronary and Aortic MRA
Time: 15:00 - 17:02 (UTC) - Saturday, September 11
Moderators: Rene Botnar, Caroline Colbert

Society for
Cardiovascular
Magnetic
Resonance

Time: UTC	Oral Presentation	ID
15:00-15:12	Non-ECG, Free-breathing Cine T1/T2/T2*/Fat-fraction Mapping for Comprehensive Myocardial Tissue Characterization with MR Multitasking - **Tianle Cao**, Cedars Sinai Medical Center	32
15:12-15:24	An Investigation on the Similarity-driven Multi-dimensional Binning Algorithm Using a Numerical Phantom Simulation - **Ludovica Romanin**, Siemens Healthcare	39
15:24-15:36	Predicting In Vivo Gadolinium-Based Contrast Agent Concentration in Contrast Enhanced MRA Based on Blood Signal Intensity - **Evan Norris**, University of Colorado Anschutz Medical	60
15:36-15:48	Non-rigid Motion-compensated Whole-heart 3D T2 Mapping in a Hybrid PET-MR - **Alina Psenicny**, King's College London	49
15:48-16:00	Free-Breathing, Multiple Overlapping Thin-Slab Stack-of-Stars Balanced Steady-State Free-Precession MR Angiography: a Non-contrast Alternative to CT Angiography for TAVR Planning - **Bradley Allen**, Northwestern University	52
16:00-16:12	Shortening the Saturation Recovery Time Improves Accuracy for Quantification of Arterial Input Function and Myocardial Blood Flow from Cardiac Perfusion MRI - **Lexiaozi Fan**, Northwestern University	56
16:12-16:24	Simultaneous Non-contrast Enhanced 3D Coronary MRA and Plaque Imaging in Patients with Acute Coronary Syndrome - **Reza Hajhosseiny**, King's College London	16
16:24-16:36	Simultaneous Multi-slice Cardiac MR Multitasking for Motion-Resolved, Non-ECG, Free-Breathing Joint T1-T2 Mapping - **Xianglun Mao**, Cedars-Sinai Medical Center	47

Time: UTC	Power Pitch	ID
16:36-16:40	Free-running 3D Simultaneous T1/T2 Myocardial Mapping in Less than 5 min with Low-rank Non-rigid Cardiac Motion-corrected Reconstruction - **Andrew Phair**, King's College London	55
16:40-16:44	Free-breathing 3D Whole-heart Joint T1/T2 Quantification with Isotropic Resolution: Preliminary Clinical Evaluation - **Carlos Velasco**, King's College London	28
16:44-16:48	Myocardial T1 Mapping Using Semi-supervised Deep Learning Motion Correction Method - **Chunyan Wu**, Tsinghua University	27
16:48-16:52	A Cardiac MRI Investigation of the Correlation between Left Ventricular Function and Myocardial Strain in Hypertrophic Cardiomyopathic Patients - **Shaotong Feng**, General Hospital of Ningxia Medical University	1

Time: UTC	Gold Sponsor Presentation	Speaker
13:30-13:40	Platinum Sponsor Presentation by **United Imaging** - "Cardiac MR: Exploration through Global Industrial-Academic Partnerships"	Jian Xu

SCIENTIFIC PROGRAM

Scientific Session 4: Neurovascular- Technical

Time: 0:00 - 1:40 (UTC) - Sunday, September 12

Moderators: Leonardo Rivera-Rivera, Maria Aristova

Time: UTC	Oral Presentation	ID
0:00-0:12	Multi-planar, Multi-contrast and Multi-time Point Analysis Tool (MOCHA) for Intracranial Vessel Wall Imaging Analysis - **Yin Guo**, University of Washington	35
0:12-0:24	Multi-echo 3D-MERGE for Large-coverage Quantitative Carotid Vessel Wall Imaging - **Zechen Zhou,** Philips Healthcare	59
0:24-0:36	Quantification of Cerebral Oxygen Extraction Fraction of the Medial Temporal Lobe - **Dengrong Jiang**, John Hopkins University	14
0:36-0:48	Standardization of the Intracranial Atherosclerotic Plaque Enhancement Measurement by Using Multi-phase Contrast-enhanced Vessel Wall MRI - **Beibei Sun**, Renji Hospital, Shanghai Jiaotong University	41
0:48-1:00	What's Wrong with our MRAs? The Lightbulb Moment! - **Rosario Lopez-Gonzalez**, NHS Greater Glasgow & Clyde	48
1:00-1:12	Simultaneous T1, T2 and T2* Mapping of the Carotid Plaque Using Combined Single- and Multi-echo Three dimensional Golden Angle Radial Acquisition - **Yajie Wang**, Tsinghua University	4

Time: UTC	Power Pitch	ID
1:12-1:16	Automated 3D Modeling and Analysis of Cerebral Small Vessels with MR Angiography at 7 Tesla - **Zhixin Li**, State Key Laboratory of Brain and Cognitive Science, Chinese Academy of Sciences	3
1:16-1:20	Simultaneous Multi-contrast MRI for Carotid Plaque Assessment in One Sequence - **Jiaqi Dou**, Tsinghua University	19
1:20-1:24	Standardization of Intracranial Aneurysm Enhancement Measurement by Using Multi-phase Contrast-enhanced Vessel Wall MRI - **Xiao Li**, Renji Hospital, Shanghai Jiaotong University	42
1:24-1:28	Prototype Platform for Real-time MR-guided Brain Clot Evacuation - **Robert Moskwa**, University of Wisconsin-Madison	63

Time: UTC	Gold Sponsor Presentation	Speaker
1:30-1:40	Platinum Sponsor Presentation by **Circle Cardiovascular Imaging** - "4D Flow MRI in Bicuspid Arctic Valve Disease"	Michael Markl

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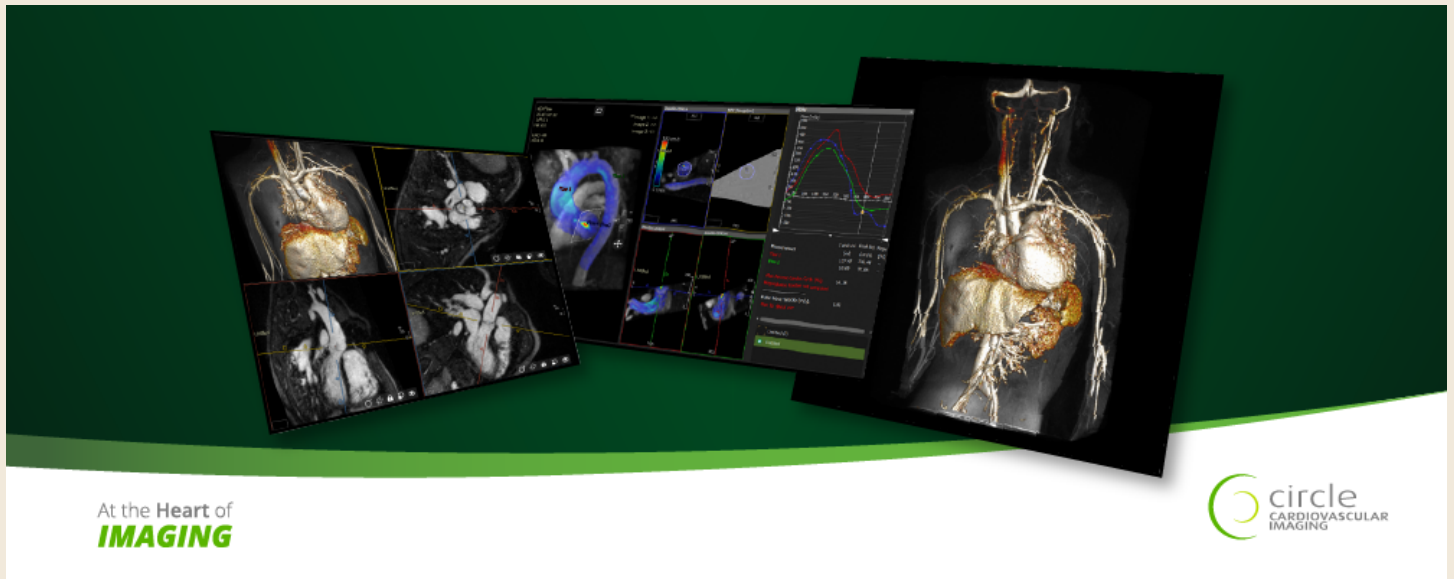
United Imaging Shanghai - Gold Sponsor

Scientific Session 5: Flow Imaging

Time: 12:00 - 14:00 (UTC) - Sunday, September 12

Moderators: Liliana Ma, Grant Roberts

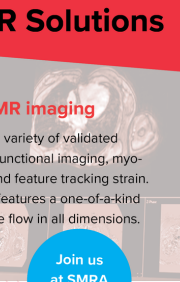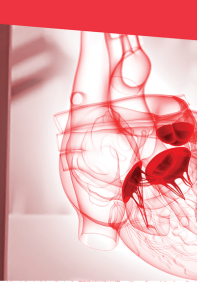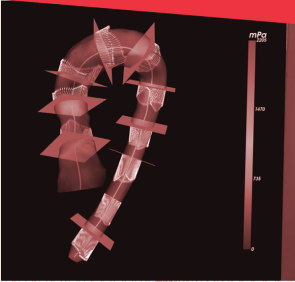| Time: UTC	Oral Presentation	ID
12:00-12:12	Thin-Slab Stack-of-Stars Multi-echo Quantitative Time-of-Flight (qTOF) MRA for Simultaneous Luminal and Hemodynamic Evaluation of the Intracranial Arteries - **Ioannis Koktzoglou**, NorthShore University HealthSystem	44
12:12-12:24	Self-calibrating Method to Simultaneously Optimize 4D Flow Eddy Current Correction & Detect Wraparound Artifacts Using a Novel Stochastic 4D flow-field Disparity Signature Technique - **Thara Nallamothu**, Northwestern University	57
12:24-12:36	Velocity-based Cardiac Self-gating in Free-running Radial 4D Flow MRI - **Monica Sigovan**, CNRS	10
12:36-12:48	4D Flow MRI of Porcine Pulmonary Hypertension Induced via Pulmonary Vein Banding - **Daniel Seiter**, University of Wisconsin-Madison	53
12:48-13:00	Automated Cerebral Vascular Function Estimation for Permeability Estimation - **Wallace S Loos**, University of Calgary	61
13:00-13:12	Abdominal 4D Flow MRI in Obese Patients – A Pilot Study - **Alma Spahic**, University of Wisconsin-Madison	64
13:12-13:24	Magnetic Resonance Imaging of Aortitis - **Shivam Kaushik**, Rowan SOM	31

Time: UTC	Power Pitch	ID
13:24-13:28	Associations between Carotid Plaque Characteristics and Perioperative Cerebral Blood flow Determined by Arterial Spin Labeling Imaging in Patients with Moderate-to-severe Stenosis Undergoing Carotid Endarterectomy - **Ran Huo**, Pekinng University Third Hospital	30
13:28-13:32	Respiratory Resolved Flow in the Fontan Circulation: A 5D Flow MRI Case Study - **Elizabeth Weiss**, Northwestern University	18
13:32-13:36	Cerebral Blood Flow Distribution at Different Phases in Different Types of Circle of Willis Using 4D Flow Imaging - **Xiaoyan Bai**, Beijing Tiantan hospital	40
13:36-13:40	Predicting Delayed In-Stent Stenosis following Flow Diversion of Unruptured Aneurysms Using Vessel Wall MRI - **Justin Costello**, Walter Reede Medical Center	15
13:40-13:44	Time-Average Wall Shear Stress in Normal Subjects, Subjects with Atherosclerotic Lesions and Subjects with Carotid Webs - **Retta El Sayed**, Emory university	21
13:44-13:48	Quescient-Interval Slice-Selective - Magnetic Resonance Angiography and other Flow Related Magnetic Resonance Angiography-sequences at 3 Tesla in Comparison to Contrast Enhanced - Magnetic Resonance Angiography/-Magnetic Resonance Imaging for Evaluation and Quantification of the Thoracic Aorta after Therapy – Preliminary Results - **Tamara Sand**, Medical University of Graz	5

Time: UTC	Gold Sponsor Presentation	Speaker
13:50-14:00	Platinum Sponsor Presentation by **Pie Medical Imaging** - "Cardiovascular 4D Flow MRI in the clinic"	Ir. Jos Westenberg

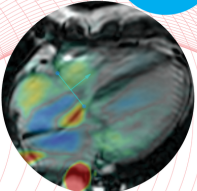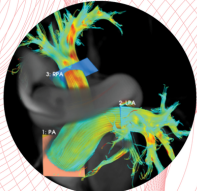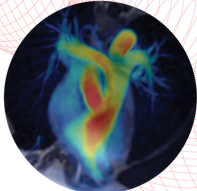# SPONSOR ADVERTISEMENTS

Pie Medical Imaging - Gold Sponsor

Thanks for all the sponsors!

EARLY CAREER COMMITTEE (ECC) PROGRAM

All ECC events will take place in <u>GATHER.TOWN</u> !

Fireside talks - Saturday, September 11

        14:15 – 15:00 (UTC) - Martin Prince

             - Moderators: Liliana Ma, Matthew Lanier

        17:30 – 18:30 (UTC) - Chun Yuan, Dennis Parker, Mahmud Mossa-Basha

             - Moderators: Matthew Alexander, Trisha Roy

These sessions will focus on connecting early-career attendees with individuals who have expertise in magnetic resonance angiography.

Mentor/Mentee - 13:45 - 14:15 (UTC) - Saturday, September 11

        - Moderator: Nan Wang, Carson Hoffman

These sessions will focus on highlighting successful mentor/mentee relationships within the SMRA. The Mentor/Mentee pair will discuss both the successes and challenges encountered while working together. A live discussion will follow the talk allowing for an open exchange of ideas between mentors and mentees.

Speed Networking - 19:30 - 20:30 (UTC) - Friday, September 10

        - Moderator: Peter Douglas, Yalei Yang

        - 2:00 - 3:00 (UTC) - Sunday, September 12

        - Moderator: Carson Hoffman, Yin Guo

The speed networking sessions are designed to allow members of all experience levels to broaden their professional and social networks. Each session will consist of a series of brief one-on-one chats followed by time for open networking. A variety of SMRA members with different expertise and career levels will be available to chat in each session. If you are not available for the speed networking sessions but are still interested in meeting someone new, please reach out to the Early Career Committee and we will do our best to help.

Meet the Rising Stars - 16:00 - 17:00 (UTC) - Sunday, September 12

        - Moderator: Mohammed Elbaz, David Marlevi

This session recognizes the cutting-edge work presented by the Potchen and Passariello award winners. During this session awardees will be invited to take part in a panel discussion fielding questions about their work and their thoughts on the future of MRA.

Luminary Interview

This interview series was created to highlight the guiding lights of magnetic resonance angiography. Many longtime members of the SMRA have made pioneering discoveries in the realm of angiographic imaging. Here, we sit down with them and chat about topics ranging from their initial start in imaging to the development of the angiographic techniques we use today.

EARLY CAREER COMMITTEE (ECC) PROGRAM

Open Poster Viewing - 14:00 - 15:00 (UTC) - Sunday, September 12

Title / First Author / Affiliation	ID
Automated 3D modeling and analysis of cerebral small vessels with MR angiography at 7 Tesla - **Zhixin Li**, Chinese Academy of Sciences	3
Simultaneous Multi-contrast MRI for Carotid Plaque Assessment in One Sequence - **Jiaqi Dou**, Tsinghua University	19
Standardization of Intracranial Aneurysm Enhancement Measurement by Using Multi-phase Contrast-enhanced Vessel Wall MRI - **Xiao Li**, Renji Hospital, Shanghai Jiaotong University	42
Prototype Platform for Real-time MR-guided Brain Clot Evacuation - **Robert T Moskwa**, University of Wisconsin-Madison	63
Free-running 3D Simultaneous T1/T2 Myocardial Mapping in Less than 5 min with Low-rank Non-rigid Cardiac Motion-corrected Reconstruction - **Andrew Phair**, King's College London	55
Free-breathing 3D whole-heart joint T1/T2 quantification with isotropic resolution: preliminary clinical evaluation - **Carlos Velasco**, King's College London	28
Myocardial T1 Mapping using Semi-supervised Deep Learning Motion Correction Method - **Chunyan Wu**, Tsinghua University	27
A Cardiac MRI investigation of the correlation between left ventricular function and myocardial strain in hypertrophic cardiomyopathic patients - **Shaotong Feng**, General Hospital of Ningxia Medical University	1
A Deep Learning-Based Approach to Identify Patients without Myocardial Scar to Reduce Unnecessary Gadolinium Administration in Cardiac MRI - **Ahmed S Fahmy**, BIDMC	54
Deep Learning Performs Flow Quantification of Cardiovascular 2D Phase Contrast MRI at Human Level - **Maurice Pradella**, Northwestern University	25
Convolutional Neural Network for Autonomous Segmentation of Intracerebral Hemorrhage Components for Image Guidance in Minimally-Invasive Surgical Evacuation - **Thomas Lilieholm**, University of Wisconsin-Madison	33
Impact of loss function in phase-contrast MRI reconstruction using deep learning - **Gaël Touquet**, CREATIS	45
A study on the size of 3D patch in the vascular segmentation of neck TOF MRA images based on 3D ResUnet - **Wei Qiu**, Tsinghua University	38

EARLY CAREER COMMITTEE (ECC) PROGRAM

Open Poster Viewing - 14:00 - 15:00 (UTC) - Sunday, September 12

Title / First Author / Affiliation	ID
In-vivo Magnetic Resonance Histology of Peripheral Arterial Chronic Total Occlusions in Chronic Limb Threatening Ischemia Patients - **Kavya Sinha**, Houston Methodist Hospital	20
Analysis of the value of High Resolution-Vessel Wall Imaging in the etiology of single small subcortical infarction - **Yu Tian Li**, Tianjin Huanhu Hospital	6
Hemodynamic Difference between Borderzone Infarct and non-Borderzone Infarct in Patients with Middle Cerebral Artery Atherosclerosis - **Wenwen Chen**, Tsinghua University	22
Comparison of MRI, MRA, and Vessel Wall Imaging features of Cerebral Amyloid Angiopathy and Cerebral Amyloid Angiopathy-Related Inflammation - **Vance Lehman**, Mayo Clinic	9
Visualization of lenticulostriate arteries on intracranial VW-MRI: relationship between MCA atherosclerotic plaque and infarction types - **Li Qian**, Zhongda Hospital Affiliated to Southeast University	24
The Research of relationship between the left or right hemisphere ischemic stroke and left ventricular systolic function - **Zheng Lijuan**,	37
Plaque location distribution in patients with intracranial atherosclerotic plaques with fetal posterior cerebral artery - **Dingqi Liu**, Zhongda Hospital, Medical School of Southeast University	26
Associations between carotid plaque characteristics and perioperative cerebral blood flow determined by arterial spin labeling imaging in patients with moderate-to-severe stenosis undergoing carotid endarterectomy - **Ran Huo**, Peking University Third Hospital	30
Respiratory Resolved Flow in the Fontan Circulation: A 5D Flow MRI Case Study - **Elizabeth Weiss**, Northwestern University	18
Cerebral blood flow distribution at different phases in different types of Circle of Willis using 4D Flow imaging - **Xiaoyan Bai**, Beijing Tiantan Hospital	40
Predicting Delayed In-Stent Stenosis following Flow Diversion of Unruptured Aneurysms using Vessel Wall MRI - **Matthew D Alexander**, University of Utah	15
Time-Average Wall Shear Stress in Normal subjects, Subjects with Atherosclerotic Lesions and Subjects with Carotid Webs - **Retta El Sayed**, Emory University	21
Quescient-Interval Slice-Selective - Magnetic Resonance Angiography and other flow related Magnetic Resonance Angiography-sequences at 3 Tesla in comparison to contrast enhanced - Magnetic Resonance Angiography/-Magnetic Resonance Imaging for evaluation and quantification of the thoracic aorta after therapy – preliminary results - **Tamara Sand**, Medical University of Graz	5

MICCAI GRAND CHALLENGE

SMRA Carotid Artery Vessel Wall Segmentation Challenge

In partnership with MICCAI, the Grand Challenge for this year was to automatically segment the lumen and outer wall boundaries of black-blood 3D carotid vessel wall MRI (from the 3D-MERGE sequence).

The top Challenge teams will be invited to present at SMRA 2021 and their reports will be evaluated by a panel of experts to select the winner.

Detailed and updated instructions for participation are hosted on the Grand Challenge Website.

Click this link to Grand Challenge website

Grand Challenge Committee

Organizer - **Chun Yuan**, University of Washington

- **Li Chen**, University of Washington

- **Niranjan Balu**, University of Washington

Judge - **Peter Douglas**, University of Glasgow

- **Jenqneg Hwang**, University of Washington

- **David Saloner**, University of California San Francisco

- **Li Chen**, University of Washington

- **Mahmud Mossa-Basha**, University of Washington

- **Jie Sun**, University of Washington

MICCAI GRAND CHALLENGE

Important dates

- Presentation by TOP 10 at SMRA: Saturday, September 11, 2021
- **Final 3 winners** announced at SMRA: Sunday, September 12, 2021
- MICCAI online event at MICCAI 2021: October 1, 2021
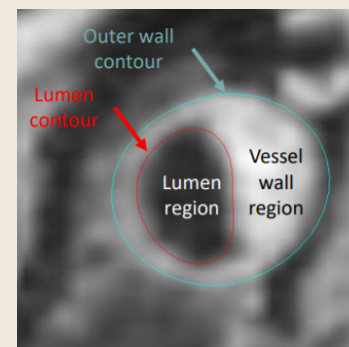
Competition for Awards of Grand Challenge - 2:30 - 3:20 (UTC) - Saturday, September 11

Time: UTC	Team	Speaker
2:30-2:35	Introduction	Niranjan Balu
2:35-2:41	Team Name: Wall-E	Dieuwertje Alblas
2:41-2:47	Team Name: grox167	Zhuoan Li
2:47-2:53	Team Name: song (jiaqithu)	Jiaqi Dou
2:53-2:59	Team Name: nvauto	Andriy Myronenko
2:59-3:05	Team Name: bydctrl	Shuai Shen
3:05-3:11	Team Name: LAVA	Florian Thamm
3:11-3:17	Team Name: mingjiang	Mingjie Jiang
3:17-3:23	Team Name: Procrastinators	Wei Ren
3:23-3:29	Team Name: YunNGOTHK	Ruiyun Zhu

Prizes

The Society of Magnetic Resonance Angiography (SMRA) is providing three cash awards to the top three teams. The award is sponsored by TS Imaging. Award amounts will be as follows: **First place: $4000; Second place: $1500; Third place: $500**.

Endorsed by:

SPONSOR PRESENTATIONS

This year 3 of our Platinum Sponsors and 5 of our Gold Sponsors will have presentations as follows -

Friday, September 10

9:30-9:45

Platinum Sponsor presentation by Bayer
- "COVID and the HEART"

Valentina Püntmann

18:45-18:55

Gold Sponsor presentation by Philips
- "Frontiers of Philips Cardiovascular MR Research"

Xiaoyong Zhang

Saturday, September 11

1:30-1:45

Platinum Sponsor presentation by Siemens Healthineers GmbH - "Whole brain vessel wall imaging in stroke patients (WISP): An International Multi-center Registry"

Qi Yang

3:30-3:45

Platinum Sponsor presentation by TSimaging Healthcare - "Vessel Wall MRI moves from Lab to Clinic: TSimaging Solution"

Shuo Chen

SPONSOR PRESENTATIONS

Saturday, September 11

13:30-13:40

Gold Sponsor presentation by GE Healthcare
- "Advanced MR Vascular Imaging in Novel Clinical Applications at GE Platform"

Weiqiang Dou

16:52-17:02

Gold Sponsor presentation by United Imaging
- "Cardiac MR: Exploration through Global Industrial-Academic Partnerships"

Jian Xu

Sunday, September 12

1:30-1:40

Gold Sponsor presentation by Circle Cardiovascular Imaging - "4D Flow MRI in Bicuspid Arctic Valve Disease"

Michael Markl

13:50-14:00

Gold Sponsor presentation by Pie Medical Imaging
- "Cardiovascular 4D Flow MRI in the clinic"

Ir. Jos Westenberg

Sponsor Booth Visiting Time

There will be two Platforms (**Pheedloop & GatherTown**) for the attendees to interact with sponsors, please feel free to use the Platform you're most comfortable with or both! Available times are as follows -

Sep 10th - UTC 13:00 - 16:00 (Pheedloop)
Sep 10th - UTC 19:30 - 20:30 (GATHER.TOWN)
Sep 11th - UTC 13:45 - 15:00 & 17:30 - 18:30 (GATHER.TOWN)
Sep 11th - UTC 15:00 - 7:00 (Pheedloop)
Sep 12th - UTC 2:00 - 3:00 & 14:00 - 15:00 (GATHER.TOWN)

ACKNOWLEDGEMENT OF SPONSORS

The Society for Magnetic Resonance Angiography would like to express its sincere gratitude to all 2021 sponsors, without whom this year's event would genuinely not have been possible.

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TSImaging Healthcare is founded in 2016 by Tsinghua University and world-renowned scientists and experts in the industry. The company aims to transform the scientific research results of the Tsinghua University Biomedical Imaging Research Center, adhering to the advanced medical solutions to serve doctors and aid patients with precise imaging based on the concept of diagnostic methods, a series of advanced imaging solutions.
https://www.tsimaging.net

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Gold Sponsors

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MEETING ENDORSEMENT

Society for Cardiovascular Magnetic Resonance

The principle international, independent organization committed to the future development of CMR through education, quality control, research, and training.

scmr.org

The Medical Image Computing and Computer Assisted Intervention Society (MICCAI)

The Medical Image Computing and Computer Assisted Intervention Society (the MICCAI Society) is dedicated to the promotion, preservation and facilitation of research, education and practice in the field of medical image computing and computer assisted medical interventions including biomedical imaging and medical robotics.

miccai.org
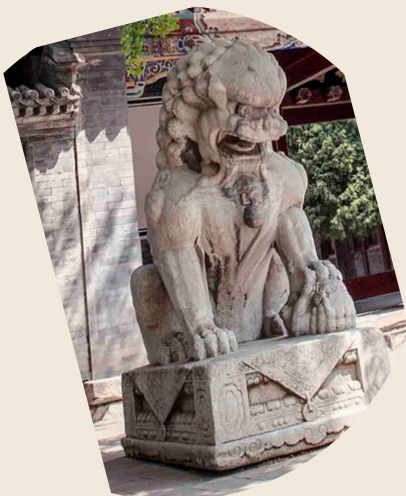
Society for Magnetic Resonance Angiography
34th Annual International Conference

Los Angeles, CA
UCLA Meyer and Renee Luskin Conference Center

August 23, 2022 | August 26, 2022

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President: Dr. Chun Yuan