MICCAI
2017
Sept 10-14, 2017, Quebec City Convention Centre, Quebec, Canada
MICCAI
CENTRE DE RECHERCHE
CERVO
BRAIN RESEARCH CENTRE
QUÉBEC
UNIVERSITÉ
LAVAL

MICCAI 2017

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INTRODUCTION

Cher (Chère) collègue/Dear colleague;

We are very proud to welcome you to Quebec City for the 2017 Medical Image Computing and Computer-Assisted Intervention (MICCAI) conference. It is an important year to be at MICCAI, as we celebrate its 20th anniversary – no small achievement – and see the field evolve by leaps and bounds with recent advances in machine learning and computer power, solving problems and creating new opportunities, the likes of which were scarcely imaginable back in 1997. What will our field look like in 2037?

We hope that you will find something to your liking, not only within the packed event schedule - 45 satellite events, 26 orals, more than 500 posters altogether – but as you network at our various social events with the 1,200-plus fellow attendees from academia and industry.

As you can appreciate, all of this did not come together on its own, and so words of thanks are due to the specific groups and individuals who contributed greatly to the success of MICCAI throughout the years (previous Chairs, MICCAI Society, MICCAI Student Board, Women in MICCAI), and to this edition in particular: the Program and Satellite Chairs Maxime, Louis and Tal; their co-chairs Alfred, Jorge, Kevin, Lena, Leo, Mallar, Parvin, and Pierre; 2016 and 2018 members Mert and Julia; our logistical staff, represented by Caroline, Christina and her team at the Convention Center, Carl at Expert'Ease, Jérôme at TopExpo, and myriad others. Three special thanks to the ream of volunteers working in the shadows, from students on site to the Program committee and hundreds of reviewers; industrial partners, for their support and interest in our community; and last but not least, you as a participant, more often than not as an author, co-author, supervisor, whose work will be showcased here this week.

We hope you enjoy the program, and bonne semaine à Québec!

On behalf of the Organizing committee,

Simon Duchesne
Université Laval, Quebec City
General Chair

BIENVENUE
WELCOME

LOGISTICAL INFORMATION

CENTRE DES CONGRÈS DE QUÉBEC

1000 boul. René Lévesque, Quebec, QC.

The Québec City Convention Centre is located just 15 minutes from the international airport, in the heart of downtown, just steps away from accommodation, dining, and sightseeing. The Centre is a LEED-EB–certified building that was named World's Best Convention Centre by the International Association of Congress Centres.

REGISTRATION

The registration desk will be open:

//// Saturday 09 Sept 2017: from 16:00 to 18:00

//// Sunday 10 Sept through to Thursday 14 Sept: from 07:00 to 16:00

The desk is located in the main entrance of the Quebec City Convention Center.

WIFI CONNECTION

Free Wifi will be provided for the duration of the meeting. Two networks are set-up.

Networks	Passwords
MICCAI2017 (5 GHz)	**MICCAI2017**
MICCAI2017_2.4GHz (2.4 GHz)	**MICCAI2017**

MAIN CONFERENCE VENUES

Event	Location
Main conference hall	200
Baggage area (free)	400AB
Coatcheck (free)	Main entrance
Exhibitors	400AB
Lunches	400AB
MICCAI 2017 office	Registration desk
MICCAI Society office	Booth 17 or 201AB
Multi-confessional prayer room (11-13 Sept only)	205A
Poster hall	400AB
Private meeting rooms A-N	400AB
Refreshment breaks	400AB
Registration desk	Main entrance
Speaker ready room	201C
Workshops and challenges	2nd and 3rd floors

THE JUJAMA PLATFORM

Jujama is a members-only networking application for MICCAI 2017 participants. This powerful app brings the event to your mobile device and allows you to:

- //// Create and maintain a public profile (you can even download your full LinkedIn profile);
- //// Select your satellite events - workshops, challenges and tutorials – by adding them to your schedule;
- //// Select your main conference events, including posters, by adding them to your schedule;
- //// Select your presence to social events, including those organized by the Student Board, by adding them to your schedule;
- //// Access event documentation, such as posters and manuscripts;
- //// Request meetings with other members;
- //// Send private in-app messages to other members;
- //// Receive important updates and announcements from the MICCAI 2017 Organizing committee;
- //// Provide feedback to organizers and presenters via chats, surveys, votes, likes, and more; and
- //// Continue networking after the event from the app or the companion website.

Go to **connect.Jujama.com/miccai2017** and download the free iOS/Android app on your devices to get started!

Please note that Jujama will be the preferred medium of communication while on site. We strongly encourage you to download the mobile application and/or to visit the Jujama platform often during the event. The printed program will only contain the most basic information and is subject to last minute changes that will not make it into this printed booklet!

PARTNERS

PLATINUM

Booth: 2

IBM is a global technology and innovation company headquartered in Armonk, NY. It is the largest technology and consulting employer in the world, with more than 375,000 employees serving clients in 170 countries. Just completing its 22nd year of patent leadership, IBM Research has defined the future of information technology with more than 3,000 researchers in 12 labs located across six continents. Scientists from IBM Research have produced six Nobel Laureates, 10 U.S. National Medals of Technology, five U.S. National Medals of Science, six Turing Awards, 19 inductees in the National Academy of Sciences and 20 inductees into the U.S. National Inventors Hall of Fame. Today, IBM is much more than a "hardware, software, services" company. IBM is now emerging as a cognitive solutions and cloud platform company. Our work and our people can be found in all sorts of interesting places. IBMers are helping transform healthcare, improving the retail shopping experience, rerouting traffic jams and even designing the next generation fan experience in sports stadiums around the world. It's the kind of thing we've been doing for more than 100 years.

Booth: 1

Since our invention of the Graphic Processing Unit (GPU) in 1999, NVIDIA is rapidly becoming known as the AI Computing Company. Today, the GPU has proven to be unbelievably effective at solving some of the most complex problems—able to amplify human intelligence and imagination to transform industries from healthcare and medicine to security to smart cities and self-driving cars.

Booth: 3

Siemens Healthineers is committed to becoming the trusted partner of healthcare providers worldwide, enabling them to improve patient outcomes while reducing costs. Driven by our long legacy of engineering excellence and our pioneering approach to developing the latest advancements, we are a global leader in medical imaging, laboratory diagnostics, clinical IT, and services. Siemens Healthineers is dedicated to helping our partners be successful – clinically, operationally and financially – from prevention through diagnosis and treatment. To learn more about Siemens Healthineers, please visit usa.siemens.com/Healthineers.

GOLD

Booth: 4

Imagia Cybernetics Inc. (www.imagia.com) Imagia's focus is to enable AI-driven precision medicine, in order to support personalized management of cancer patients.
We will bring to market imaging biomarkers that are predictive of patient health outcomes and insightful for understanding diseases progression.
Game-changing for both the medtech and biotech companies, our imaging biomarkers will provide clinical decision support for image-guided procedures, serve as surrogate companion diagnostic tests to targeted therapies, as well potential to optimize drug development clinical trials.

SILVER

Booth: 13

Arterys has built an intelligent medical imaging platform based in the cloud and on deep learning. Our platform unleashes real-world clinical data to make healthcare more accurate and data driven.
Our first clinical, FDA-cleared product is designed for cardiac MRI postprocessing. It is already being used today in clinical settings to automate tedious and manual processes that suffer from significant inter-rater variation. As a result, we are enabling physicians to easily, consistently, and quantifiably assess the heart.
Beyond cardiac we are continuing to expand to other clinical areas. We believe improved and automated diagnostics hold huge promise in costs savings, improving outcomes, and empowering physicians to make data driven decisions.

Medtronic plc (www.medtronic.com), headquartered in Dublin, Ireland, is among the world's largest medical technology, services and solutions companies – alleviating pain, restoring health and extending life for millions of people around the world. Medtronic employs more than 88,000 people worldwide, serving physicians, hospitals and patients in approximately 160 countries. The company is focused on collaborating with stakeholders around the world to take healthcare Further, Together.
www.medtronic.com/stealthstation

SILVER (CONTINUED)

The mission of the Quebec Bio-Imaging Network (Réseau de Bio-Imagerie du Québec) is to promote and facilitate collaborations between researchers across Quebec interested in exploring, through bio-imaging techniques, normal and pathological human functioning, the effects of pathophysiological processes and therapeutic approaches of various diseases using animal models and innovative acquisition and analyses methods of in vivo uni- and multimodal images, in order to consolidate their leadership at the national and international levels. This network also aims to support a variety of scientific activities, strategic initiatives and common infrastructure projects in research areas using not only imaging techniques regularly used in humans (e.g., MRI, PET, MEG, hdERP, TMS, OI), but also those including techniques for the investigation of the genetic, biological and physiological bases of the normal life cycle, the development of diseases and neurological functions in small and medium-sized animals (e.g., High-field MRI, micro-PET, Optical Imaging techniques).

BRONZE

Booth: 12

Atracsys is a Swiss based global engineering and manufacturing company providing cutting edge optical tracking technology to the medical industry. The company is organized in two main activities:

- Product manufacturing of either off-the-shelf or customised tracking solutions
- Engineering services including consulting and integration support

Atracsys solutions combine utmost measurement accuracy, speed and reliability. Atracsys technology is entirely designed, engineered, manufactured and verified in Switzerland and follows the ISO 13485 medical quality system.
Atracsys aims at continuously helping surgeons all around the world to guide their instruments with sub-millimetric precision for better patient outcomes.

Booth: 8

Butterfly Network® develops handheld semiconductor-based ultrasound systems. Butterfly Network's Ultrasound-on-a-Chip™ technology reinvents ultrasound by delivering unparalleled diagnostic versatility. Our devices are equipped with real-time, deep-learning-based algorithms that automate measurements and assist medical practitioners to improve patient care. Your visual stethoscope has arrived. [These statements have not been evaluated by the FDA.]

BRONZE (CONTINUED)

Booth: 6

CAE Healthcare is a healthcare training partner of choice, delivering leading-edge simulation-based solutions to hospitals, physicians, nurses, students, emergency responders and the military around the world. With a mission to improve patient safety and outcomes, CAE Healthcare develops each product in partnership with clinicians and clinical educators whose aim is to ensure physiological accuracy and educational relevance. Visit the CAE Healthcare booth for a hands-on demo of our new VimedixAR ultrasound simulator with Microsoft HoloLens. Ask about our turnkey training solutions and our full catalog of advanced patient, imaging and interventional simulators. www.caehealthcare.com

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Booth: 20

CIMTEC is Canada's Centre for Imaging Technology Commercialization. CIMTEC designs medical imaging products for health technology entrepreneurs, making their innovations a reality. CIMTEC can help you develop the clinical software and hardware for your technology under an ISO-certified quality management system, with particular commercial expertise in:
Machine Learning: Leverage the latest data/image analysis techniques while maintaining a clear path to regulatory approval;
Mechatronics Design: Design and manufacture of prototypes with expertise in precision motion control and surgical interventions;
Intelligent Industrial Design: Appeal to clinicians with user interfaces and physical devices that are intuitive and a pleasure to use.
Working with CIMTEC is a collaborative process that starts with a conversation – we can be reached at info@cimtec-canada.ca to setup your initial consultation.

Booth: 15

ClaroNav is dedicated to the development of surgical navigation solutions. We were founded in 2001 as Claron Technology Inc. by Claudio Gatti and Doron Dekel (hence the name), both having a long and rich experience in developing sophisticated medical 3D visualization and surgical navigation systems. Unlike most high-tech medical device start-ups that seek VC or angel funding, the founders bootstrapped the company using its own profits. The company is fully owned by its founders and employees.
Our surgical navigation roots go back to the development of the first commercial CT-based navigation system, the Viewing Wand, which our founders developed while at ISG Technologies (now part of IBM). The Viewing Wand, FDA cleared in 1994, was used to guide neurosurgery. After we left ISG and formed our own company, we developed and marketed the first vision-based optical tracking system for surgery, the MicronTracker (2003). We then helped other companies develop their own complete MicronTracker-based surgical navigation systems, and, starting in 2010, we initiated our own. We worked closely with dental surgeons to develop and market Navident (first regulatory approval in 2014), and with ENT surgeons to develop and market NaviENT (first approval in 2016).
We currently develop, test, manufacture, market, sell, train, and support our products at our Toronto headquarters. We also market, train and support out of our offices in Europe and East Asia, as well as through a network of national distributors.

BRONZE (CONTINUED)

Université Laval Cancer Research Centre (CRC) is a specialized health research centre and was created to convey the new regional status of the former Cancerology Research Centre at Université Laval - a multi-department, multi-faculty research centre founded in 1984. The role of the CRC is to realize the full potential of cancer research and training within Université Laval and across its network. The strength of the CRC lies in the wide-range of expertise and diverse backgrounds of its researchers: from basic research in cellular and molecular biology to psychosocial interventions in palliative care. This combination of research topics is what allows the CRC to offer students a world-class training environment.

Booth: 11

Elsevier provides information and analytics that help institutions and professionals progress science, advance healthcare and improve performance.
We help researchers make new discoveries, collaborate with their colleagues, and give them the knowledge they need to find funding. We help governments and universities evaluate and improve their research strategies. We help doctors save lives, providing insight for physicians to find the right clinical answers, and we support nurses and other healthcare professionals throughout their careers. Our goal is to expand the boundaries of knowledge for the benefit of humanity.

GE Healthcare provides transformational medical technologies and services that are shaping a new age of patient care.
Our broad expertise in medical imaging and information technologies, medical diagnostics, patient monitoring systems, drug discovery, biopharmaceutical manufacturing technologies, performance improvement and performance solutions services help our customers to deliver better care to more people around the world at a lower cost. In addition, we partner with healthcare leaders, striving to leverage the global policy change necessary to implement a successful shift to sustainable healthcare systems.
Our "healthymagination" vision for the future invites the world to join us on our journey as we continuously develop innovations focused on reducing costs, increasing access and improving quality around the world.
Headquartered in Chicago, IL, GE Healthcare is a unit of General Electric Company (NYSE: GE). Worldwide, GE Healthcare employees are committed to serving healthcare professionals and their patients in more than 100 countries.

BRONZE (CONTINUED)

HeartFlow

Booth: 10

HeartFlow is an exciting, revolutionary, medical software start-up that has received international recognition for exceptional strides in healthcare innovation. We are changing cardiovascular healthcare by developing new non-invasive testing for Coronary Artery Disease, the most common form of Heart Disease and the leading killer of both men and women in the United States. HeartFlow employs a software-as-a-service business model that uses computer vision to analyze standard Computed Tomographic (CT) imaging to create personalized 3D models of a patient's coronary arteries. The results of the computer vision algorithms are rigorously checked by specialists and manual corrections are fed back into our deep learning algorithms for future improvement. Using these 3D personalized coronary models, we then apply computational fluid dynamics to calculate blood flow through the coronary arteries in order to assess disease severity. HeartFlow is a VC-backed, pre-IPO company that received FDA clearance in 2014 and has been used clinically in the treatment of over 10,000 patients worldwide. We are based in Redwood City (CA) with an office in Austin (TX) and an existing and expanding presence in Europe and Japan.

Booth: 18

Imeka is a specialized imaging CRO that offers state-of-the-art diffusion MRI and a PET/SPECT/MRI preclinical cardiac analysis service to researchers. Every service we offer is based on state-of-the-art tools that come from years of research in imaging: DTI, HARDI, Fiber Tractography and Preclinical cardiac analysis including automated heart segmentation.
Looking for robust image analysis? You've come to the right place.

ImFusion

Booth: 14

ImFusion was founded in 2012 in Munich and offers consulting, research and development in advanced medical image computing technologies and computer vision. Our strong academic track record is paired with the expertise to create highly efficient product implementations utilizing today's parallel computing architectures.
Our portfolio comprises: Multi-modality image fusion, medical image registration and segmentation, machine learning, cone-beam CT reconstruction, motion compensation, 3D freehand ultrasound, interventional navigation, real-time 3D surface reconstruction and computer vision algorithms.
Having contributed to the state of the art in several of the above areas, we are the ideal partner to address challenging problems requiring innovative computational approaches while obeying processes and documentation requirements to allow the deployment of our components as part of your (medical device) product.

BRONZE (CONTINUED)

INTUITIVE SURGICAL®

Intuitive Surgical designs and builds systems that take surgery beyond the limits of the human hand and the human eye. Since 1999, the da Vinci® Surgical System has been used to provide cutting edge robotic assistance and visual guidance to benefit patients in over four million minimally-invasive surgical procedures.
The da Vinci® System features a magnified 3D HD vision system, advanced fluorescence imaging, and tiny wristed surgical instruments that articulate just like the human wrist for precise and dexterous tissue interactions inside the body. This technology enables surgeons to operate with enhanced vision, precision and control from an ergonomic console while working through one or more small incisions in the patient's body for reduced invasiveness.
Our company is located in Sunnyvale, California, and serves customers in over 60 countries worldwide by providing innovative technologies and procedures across cardiac, thoracic, ENT, urologic, gynecologic, colorectal, pediatric and general surgical disciplines. We are excited to be a part of the MICCAI community and look forward to participating in this year's meeting in order to explore image guidance opportunities for further enhancing the future of surgery.

Kitware

We transform technical computing software into innovative solutions that change the world everyday.
As an open-source software research and development company, we not only drive research and innovation, but through leading-edge software processes, we deliver technologies to solve real-world problems. We take pride in collaborating with a wide variety of customers, using agile methods to ensure that requirements are met and projects succeed. Building on our open-source platforms, we provide value and flexibility, avoiding vendor lock-in and ensuring clear ownership and control of resulting products.
Our core areas of technical expertise are software process, computer vision, medical computing, data and analytics, and high-performance computing and visualization. We routinely combine our synergistic technologies into novel solutions by building custom software, performing collaborative R&D, and integrating them into customer workflows. Our customers range from startups to Fortune 500 companies, and they include government and academic laboratories worldwide.
Since our founding in 1998, we have upheld a commitment to open-source technical computing, which empowers us to focus on innovation, maintain rigorous and transparent standards for code quality, and promote open science. We have built a strong reputation by partnering with government, academic, and commercial organizations to create and support large, collaborative, and open-source communities that use, improve, and nurture common software solutions such as CMake, the Visualization Toolkit (VTK), the Insight Segmentation and Registration Toolkit (ITK), ParaView, and 3D Slicer. Building on our reputation, we have grown to over 150 employees in offices in Clifton Park, NY; Carrboro, NC; Santa Fe, NM; and Lyon, France

BRONZE (CONTINUED)

NDI is a global leading innovator and manufacturer of advanced 3D measurement technology systems, with over 45,000 installations worldwide. For over 35 years, our optical measurement and electromagnetic tracking solutions have been trusted by the world's foremost organizations and institutes in medicine, industry, simulation, and academia. From image-guided surgery to aeronautics; from quality assurance to biomechanics research, NDI solutions are used whenever best-in-class measurement accuracy and reliability are required.

Booth: 9

Royal Philips is a diversified technology company, focused on improving people's lives through meaningful innovation. Our health care business makes up 42% of our global sales revenue.
With a century of history and more than 450 innovative products and services, we are ready to meet today's challenges in healthcare by creating solutions that deliver better care to more people at lower cost.
Our more than 37,000 employees, working in 100 countries, are committed to helping you create meaningful moments of care, whether in the hospital room, the living room or the boardroom. See how we are working to create a healthier future together.

RSIP Vision, managed by Ron Soferman, is an established leader in computer vision and image processing R&D. In its more than 25 years of operation, RSIP Vision has provided countless clients with advanced customized software for their core business, using sophisticated algorithms and machine learning techniques.

Booth: 16

As market leader in enterprise application software, SAP helps companies run better. With SAP Leonardo Machine Learning it is our vision to enable the intelligent enterprise. Machine learning integrates intelligence into enterprise applications and helps to solve common business challenges like businesses growth, process optimization and employee assistance. SAP's machine learning portfolio is part of SAP Leonardo – a digital innovation system that enables companies to rapidly innovate and scale and brings machine learning, IoT, blockchain, analytics and Big Data together on SAP Cloud Platform using design thinking services. The machine learning research team of the ICN engages in collaborations with world's best institutions to develop ML models. This strong network of global research partners contributes in making SAP solutions smarter and take enterprise software further with automated data analysis functionalities driven by machine learning. SAP helps the world run better.
For more information, visit www.sap.com.

BRONZE (CONTINUED)

Our business is publishing. With more than 2,900 journals and 200,000 books, Springer offers many opportunities for authors, customers and partners.

Booth: 17

True Positive[MD] was founded by two brain researchers on a mission: they wanted to uncover a way to use brain images not just to diagnose but to predict the course of brain disease. By measuring the size, shape and appearance of brain regions, they were able to diagnose disease and provide prognosis much more accurately and earlier than any other method.
Today, they are leading the way in the development of sensitive, quantitative biomarkers to let doctors assess brain health. For example, brain volumes change at the rate of 2% per year in Alzheimer's disease, a change so subtle it is undetectable to the human eye. But it is easily detected by True Positive MD technology.
With True Positive MD analytics, doctors can detect the earliest signs of traumatic brain injury, Alzheimer's Disease, Parkinson's Disease, and other brain diseases and disorders. With earlier detection comes the opportunity to change the trajectory of the disease.
This is the ground floor of a technology that will radically transform radiological reporting. Watch us transform the assessment of brain health.

Carl Zeiss Meditec AG from the Zeiss group is one of the world's leading medical technology companies. The Company supplies innovative technologies and application-oriented solutions designed to help doctors improve the quality of life of their patients. It provides complete packages of solutions for the diagnosis and treatment of eye diseases, including implants and consumable materials. The Company creates innovative visualization solutions in the field of microsurgery. Carl Zeiss Meditec AG is part of the ZEISS group, an internationally leading technology enterprise of the optical.

Booth: 7

MEET MICCAI

MICCAI SOCIETY

Booth: 17

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 robotics, through the organization and operation of regular high quality international conferences and publications which promote and foster the exchange and dissemination of advanced knowledge, expertise and experience in the field produced by leading institutions and outstanding scientists, physicians and educators around the world. The MICCAI Society is committed to maintaining high academic standards and independence from any personal, political or commercial vested interests.

MICCAI STUDENT BOARD

Booth: 5

The MICCAI student board (MSB) represents student interests within the MICCAI society, and aims to stimulate the involvement of students within the MICCAI community. The MSB enhances student networking in the community, engages students in the MICCAI society, and advises the MICCAI board on matters of relevance for students. The MSB organises social and professional student events during the MICCAI period, in collaboration with local organisers, and maintains the MICCAI Educational Initiative.

WOMEN IN MICCAI

The mission of the Women in MICCAI (WiM) Committee is to strengthen and widen the representation of female scientists in the MICCAI community by pursuing policies that encourage more female participation in the field and ensure fair and equitable career promotion for female faculty and students - policies that assist in overcoming implicit gender bias within the community. WiM's activities include: the coordination with the organizers of the annual MICCAI conferences, the organization of networking events within the community particularly at the MICCAI conference on an annual basis, the development and maintenance of online discussion and promotion platforms (e.g. Facebook, Googlegroups), and interfacing and advising the MICCAI board on related matters.

MICCAI 2018

Booth : 5

Meet the team behind the organization of next year's MICCAI and learn more about its fantastic destination, Granada in Spain.

SOCIAL EVENTS AND ORGANIZING COMMITEES

SOCIAL EVENT MAP

Social/Student events

1. Québec City Convention Centre (CCQ)
2. MICCAI 2017 Gala
3. Sport Event - Curling
4. Sport Event - Soccer
5. Organizing Committee - Les Salons D'Edgar
6. PC Committee - Observatoire de la Capitale
7. Society Board Dinner

QUÉBEC CITY

SOCIAL EVENTS PROGRAM

Date	Event	Description		
09 Sept 2017	**Curling tournament**	Brought to you by the Student Society of MICCAI, join up for some real Canadian fun in a game of curling. What better than hurling rocks across an ice lane between friends? Hurrrry!	**Where:**	Meet up at Convention Center Main entrance before proceeding to the Jacques Cartier Curling Club on foot or by bus
			When:	Saturday 09 Sept 2017, 18:30
			How:	Register on Jujama by adding this event to your calendar
			How much:	Free
10 Sept 2017	**Soccer/Football**	Following a decade-old MICCAI tradition, there will be the opportunity to compete in a soccer match. What location would be more suitable than the Plains of Abraham, the site of many clashes for supremacy between the French and British Empires? If you are more interested in a recreational activity, join us on the Plains nonetheless to enjoy the Canadian fall and throw frisbees around.	**Where:**	Meet up at Convention Center Main entrance in your sports attire before proceeding on foot to the Plains of Abraham Central circle
			When:	Sunday 10 Sept 2017, 18:00
			How:	Register on Jujama by adding this event to your calendar
			How much:	Free
11 Sept 2017	**Academia-Industry event**	The Academia & Industry event aims to allow students to answer their most pressing questions and to interact directly with professionals from academia and industry. We will first have a panel with top academics and industry representatives. Next, we will have a networking session where students can talk one-on-one with the panelists and additional professors and company representatives, including the companies sponsoring MICCAI. This is a great opportunity to learn more about different career paths and create connections! Light snacks and drinks will be provided. Do you have a question you'd like to ask the expert panel, but don't want to ask it yourself? Submit your anonymous question below and we will ask it for you! https://goo.gl/pF4jMg	**Where:**	Room 400A, Convention Center
			When:	Monday 11 Sept 2017, 18:00
			How:	Register on Jujama by adding this event to your calendar
			How much:	Free
11-13 Sept 2017	**MICCAI Morning runs**	Beat jet lag, start your metabolism, and fight sedentarism: join the MICCAI runs on Monday, Tuesday, and Wednesday! Similar to previous years in Athens, Munich and Boston, the total length of each run will be between 5 and 8 kilometres and we'll take the pace of the slowest runner, so do come along whatever your pace! Participants must be in good physical health and be fit to participate. Kindly remember that early morning temperatures are likely to be in the low 10C's (~55˚F)	**Where:**	Meet up at Convention Center Main entrance in your sports attire before proceeding on foot to the Plains of Abraham
			When:	Monday 11 / Tuesday 12 / Wednesday 13 Sept 2017, 07:00
			How:	Register on Jujama by adding this event to your calendar
			How much:	Free

SOCIAL EVENTS PROGRAM (CONTINUED)

Date	Event	Description		
12 Sept 2017	**MICCAI 2017 Gala**	The event most attendees look forward to, this year's Gala will be hosted in the chic, new, and outstanding Lassonde Pavillion of the Quebec National Fine Arts Museum (Musée National des Beaux-Arts du Québec).	**Where:**	Musée National des Beaux-Arts du Québec
			When:	Tuesday 12 Sept 2017, 18:30
			How to get there:	Follow the exodus, directed by our staff, starting at 18:00 from the Convention Center Main Entrance. There will be ONE (1) bus primarily for mobility-impaired participants. Enjoy the fresh air instead of waiting for the bus and walk to the Gala – about 12 minutes from the Conference center.
			How much:	Free (included in the Conference registration)
13 Sept 2017	**Program Committee reception**	All members of the Program Committee are invited to join us for a short reception atop the Quebec Observatory as a token of gratitude for the hours of work spent to make this the best conference ever!	**Where:**	Observatoire de la Capitale
			When:	Wednesday 13 Sept 2017, 18:30
			How:	By invitation only
			How much:	Free
13 Sept 2017	**Old Quebec City Walking Tour**	After dinner, join us for a leisurely walking tour of the Old City with a licensed Quebec City guide. Learn about the architecture, culture, and history of the only walled city north of Mexico. Highlights include the Parliament Building, St. Louis Street, Holy Trinity Cathedral, the Dufferin Terrace, and the Château Frontenac. After our tour, you will understand why Quebec City is considered by the United Nations to be a World Heritage City.	**Where:**	Meet up at Convention Center Main entrance before proceeding on foot to the Old City
			When:	Wednesday 13 Sept 2017, 19:30 Tour will last approximately 1:30
			How:	Register here: https://event-wizard.com/miccai201socialevents/0/register/
			How much:	20$CDN
15 Sept 2017	**Discover Quebec**	Travel back in time to rural Quebec and enjoy the view! As you ride along the 40 kilometers of Chemin du Roy to Sainte-Anne-de-Beaupré, you will pass through the many traditional villages of rural Québec. In Sainte-Anne de Beaupré, you will be given time to visit the world famous shrine. Take your shuttle to the magnificent Montmorency Falls, a unique site in Québec (1 1/2 times higher than Niagara Falls!). A park and an exceptional waterfall of 83 m near the city center, with cable lift, quality restaurant and a hiking trail with a stairway of 487 steps on the perimeter of the falls. Just as you think your day is over, you will be treated to a short visit on the Island of Orléans, discovered by Jacques Cartier in 1535, where the picturesque village of Sainte-Pétronille, with its 19th century rural atmosphere, waits to be rediscovered again.	**Where:**	See instructions on the registration page
			When:	Friday 15 Sept 2017, 08:00
			How:	Register here: https://event-wizard.com/miccai201socialevents/0/register/
			How much:	110$CDN

ORGANIZING COMMITTEE

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EVENT PROGRAM

GENERAL OVERVIEW

	Saturday 09	Sunday 10	Monday 11	Tuesday 12	Wednesday 13	Thursday 14	Friday 15
07:00		Registration					
08:00	MICCAI Board Meeting	Satellite Events	Opening	**Track 7:** Orals	**Track 14:** Industry Session	Satellite Events	Student Activity
08:30			**Track 1:** Orals				
09:00				**Track 8:** Orals			
09:30							
10:00		Refreshments					
10:30		Satellite Events	**Track 2:** Posters	**Track 9:** Posters	**Track 15:** Posters	Satellite Events	
11:00							
11:30			**Track 3:** Keynote	**Track 10:** Keynote	**Track 16:** Posters		
12:00							
12:30		Lunch					
13:00				Diversity Panel			
13:30		Satellite Events	**Track 4:** Posters	**Track 11:** Posters	**MICCAI GA**	Satellite Events	
14:00					**Track 17:** 20-Years Keynotes		
14:30			**Track 5:** Posters	**Track 12:** Posters			
15:00							
15:30		Refreshments					
16:00		Satellite Events	**Track 6:** Orals	**Track 13:** Orals	**Track 17:** (continued) 20-Years Keynotes	Satellite Events	
16:30							
17:00					**Track 18:** Awards / MICCAI 2018		
17:30		End of day					
18:00		Football	Academia-Industry Event	Gala MBNAQ	PC Reception		
18:30	Curling				QC Tours		
19:30							

KEYNOTE PRESENTATIONS AND DIVERSITY PANEL

Monday 11 Sept	**11:30**	Dr Y. Bengio	*Deep learning for AI*
Tuesday 12 Sept	**11:30**	Dr C. Rice	*You've got to believe it to see it — Evidence for gender bias in academia and why fixing it will make us better*
	13:00	Dr C. Rice, Dr A. Martel, Dr T. Syeda-Mahmood, Dr M. Chakravarty, Dr L. Filatova, Dr W. Niessen	*Panel and Open Discussions on Diversity*
Wednesday 13 Sept	**13:30**	Dr N. Ayache	*Important MICCAI contributions of the past 20 years*
		Dr P. Golland	*Medical Image Computing @ MICCAI - past present and future*
		Dr N. Navab	*Computer Assisted Interventions @ MICCAI - past present and future*
		Dr B. Stieltjes	*Next-generation Medical Imaging*

SUNDAY, 10 SEPTEMBER 2017

07:00	Registration
08:00	**Satellite Events**
10:00	Refreshments
10:30	**Satellite Events**
12:30	Lunch
13:30	**Satellite Events**
15:30	Refreshments
16:00	**Satellite Events**
17:30	End of the day
18:30	**Football**

SATELLITE EVENTS

WORKSHOPS

Time	Acronym	Title	Room	Schedule page
AM	ML-CDS	Multimodal Learning for Clinical Decision Support	**203**	**36**
Full Day	AE-CAI	Augmented Environments for Computer-Assisted Interventions	**304AB**	**28**
Full Day	CVII-STENT	Computing and Visualisation for Intravascular Imaging and Computer Assisted Stenting	**303A**	**31**
Full Day	MLMI	Machine Learning in Medical Imaging	**309AB**	**36**
Full Day	MSKI	Computational Methods & Clinical Applications in Musculoskeletal Imaging	**301A**	**38**
PM	FIFI	Fetal and InFant Image Analysis	**203**	**34**
PM	MICGen	Imaging Genetics	**204AB**	**35**
PM	SASHIMI	Simulation and Synthesis in Medical Imaging	**205A**	**40**

CHALLENGES

Time	Acronym	Title	Room	Schedule page
AM	CPM	Computational Precision Medicine: Cancer Challenges in CADe, Radiomics, and Digital Pathology	**204AB**	**30**
Full Day	EndoVis	Endoscopic Vision Challenge	**301B**	**33**

WORKSHOPS WITH ASSOCIATED CHALLENGES

Time	Acronym	Title	Room	Schedule page
Full Day	STACOM MM-WHS ACDC	Statistical Atlases and Computational Models of the Heart M Challenge: Multi-Modality Whole Heart Segmentation (MM-WHS) Automatic Cardiac Delineation Challenge (AC-DC)	308AB	41
Full Day	CDMRI	Computational Diffusion MRI Diffusion MRI data harmonisation Challenge	303B	29
Full Day	SWITCH ISLES	Stroke Workshop: Imaging and Treatment Challenges ISLES 2017 - Ischemic Stroke Lesion Segmentation Challenge	202	43
PM	RAMBO CoronARe	Reconstruction and Analysis of Moving Body Organs Coronary Artery Reconstruction (CoronARe) Challenge	302A	39

TUTORIALS

Time	Title	Room	Schedule page
AM	Translation of algorithms in the operating room for clinical research	205A	44
Full Day	Deep Learning for Medical Imaging	206AB	32
PM	21st Century DICOM for Quantitative Imaging Research: Why, What, and How	205B	33

SCHEDULE: AE-CAI

08:00 Registration, Speaker Check-in, and Poster Setup

08:30 Welcome & Opening Remarks

08:40 Oral Session 1: Image-Guided Orthopaedic & Craniofacial Surgery

A Novel Application of an RGBD augmented C-arm for Minimally Invasive Scoliosis Surgery Assistance
Séverine Habert et al.

A Robust Head CT Image Registration Pipeline for Craniosynostosis Skull Correction Surgery
Shusil Dangi et al.

Multi-modal Imaging, Model-based Tracking and Mixed Reality Visualization for Orthopaedic Surgery
Sing Chun Lee et al.

09:40 Poster Teaser Session 1

Towards X-ray free endovascular interventions - Using HoloLens for on-line holographic visualization
Ivo Kuhlemann et al.

Quantifying attention shifts in craniotomy planning in image-guided surgery: A comparison of augmented reality with traditional navigation
Étienne Léger et al.

Multimodal Connectivity Based Eloquence Score Computation and Visualization for Computer-aided Neurosurgical Path Planning
Saeed Bakhshmand et al.

Estimation of surgical tool-tip tracking error distribution in coordinate reference frame (CRF) involving pivot calibration uncertainty
Zhe Min et al.

10:00 Coffee Break

10:30 Technical Invited Lecture

Multi-resolution Geometric Models of the Mitral Valve
Michael S. Sacks

11:30 Oral Session 2: Augmented Reality in Abdominal Surgery

Real-time Geometry-Aware Augmented Reality in Minimally Invasive Surgery
Long Chen et al.

Intra-operative ultrasound-based augmented reality guidance for laparoscopic surgery
Rohit Singla et al.

12:10 Poster Teaser Session 2

Design and Evaluation of an Augmented Reality Simulator using Leap Motion
Trinette Wright et al.

Distance sonification in image-guided neurosurgery
Joseph Plazak et al.

A prototype for augmented-reality-guided transcranial Doppler ultrasound examination
Yiming Xiao et al.

Development of a Hybrid Virtual/Physical Nuss Procedure Surgical Trainer
Mohammad Obeid et al.

12:30 Lunch

14:00 Clinical Invited Lecture

Neurosurgeons' Challenges to Using Virtual and Augmented Reality Visualization in the Clinical World
Sandrine de Ribaupierre

15:00 Oral Session 3: Calibration & Simulation

Hand-Eye calibration Using a Target Registration Error Model
Elvis Chen et al.

Can surgical simulation be used to train detection and classification neural networks?
Odysseas Zisimopoulos et al.

15:40 Coffee Break

16:00 Awards & Closing Remarks

SCHEDULE: CDMRI

08:00 Keynote Lecture 1

Multidimensional diffusion MRI
Daniel Topgaard

09:00 Oral Session 1

(k, q)-Compressed Sensing for dMRI with Joint Spatial-Angular Sparsity Prior
Evan Schwab et al.

Spatio-Temporal dMRI Acquisition Design: Reducing the Number of $q\tau$ Samples Through a Relaxed Probabilistic Model
Patryk Filipiak et al.

A generalized SMT-based framework for Diffusion MRI microstructural model estimation
Mauro Zucchelli et al.

10:00 Coffee Break

10:30 Keynote Lecture 2: TBA

TBA

11:30 Oral Session 2

MICCAI Challenge on Diffusion MRI Data Harmonisation

12:30 Lunch

Continued on next page »

13:30 **Keynote Lecture 2:**

Diffusion MRI Acquisition Considerations Beyond Gradient Directions and b-value
Christian Beaulieu

14:30 **Oral Session 3**

Fiber-Flux Diffusion Density for White Matter Tracts Analysis: Application to Mild Anomalies Localization in Contact Sports Players
Itay Benou et al.

Learning a single step of streamline tractography based on neural networks
Daniel Jörgens et al.

A Sheet Probability Index from Diffusion Tensor Imaging
Michael Ankele & Thomas Schultz

15:30 **Coffee Break**

16:00 **Oral Session 4**

Diffeomorphic Registration of Diffusion Mean Apparent Propagator Fields using Dynamic Programming on a Minimum Spanning Tree
Kévin Ginsburger et al.

Brain Parcellation and Connectivity Mapping using Wasserstein Geometry
Hamza Farooq et al.

16:40 **Poster Session**

SCHEDULE: CPM

Digital Pathology Challenge

08:00 **Opening Remarks - Tahsin Kurc (Stony Brook Cancer Center)**

08:15 **Overview of the Segmentation Challenge and Ranks**
Tahsin Kurc

08:30 **Geodesic Active Contour and Detection Based Segmentation of Nuclei in Histopathologic Images**
Yuanqiang Li, Team Schwarz.

9:00 **Cell Instance Segmentation using Cascaded Convolutional Networks**
Wu Dang, Team Brisker

9:30 **Deep Residual Aggregation Network for Nuclei Segmentation,**
Dang Vu Quoc, Team QuIIL

10:00 **Break**

Colorectal Liver Metastases Survival Prediction

10:30 **Overview of the Challenge – Amber Simpson (Memorial Sloan Kettering Cancer Centet)**

10:50 **A Radiomics Approach for Colorectal Liver Metastases Survival Prediction**
Martijn Starmans

11:10 **Title TBD**
Dennis Eschweiler and Julia Ebert

11:30 **Title TBD**
Challenge contestant team 3

11:50 **Title TBD**
Challenge contestant team 4

12:10 **Open Discussion**

SCHEDULE: CVII-STENT

10:00 **Arrival and Coffee**

10:30 **Welcome**

10:40 **Coronary Plaque Segmentation in IVUS**
Guy Cloutier

11:30 **Oral Session 1**

Robust Detection of Circles in the Vessel Contours and Application to Local Probability Density Estimation
Luis Alvarez et al.

Intra-Coronary Stent Localization in Intravascular Ultrasound Sequences, A Preliminary Study
Simone Balocco et al.

Robust Automatic Graph-based Skeletonization of Hepatic Vascular Trees
R. Plantefève et al.

12:30 **Lunch**

13:30 **Endovascular Interventions at Siemens Healthcare**
Markus Kowarschik

Continued on next page »

14:30 Oral Session 2

DCNN-based Automatic Segmentation and Quantification of Aortic Thrombus Volume: Influence of the Training Approach
Karen López-Linares et al.

Vascular Segmentation in TOF MRA Image of the Brain using a Deep Convolutional Neural Network
Renzo Phellan et al.

VOIDD: Automatic Vessel-of-intervention Dynamic Detection in PCI Procedures
Ketan Bacchuwar et al.

15:30 Coffee Break

16:00 Robotics in Endovascular Applications
Su-Lin Lee

16:30 Motion Compensation for Navigation Guidance during Cardiac Interventions
Luc Duong

17:00 Discussion: The Future of CVII and Stenting

17:30 Workshop Closing

SCHEDULE: DEEP LEARNING WORKSHOP

09:00 Motivation
Why deep learning for medical imaging

09:20 What is a Deep Neural network

10:00 Conference Coffee Break

10:30 Training Deep Neural Networks

11:20 Break

11:30 Convolutional Neural Networks

12:15 Other Advanced Topics

12:30 Lunch Break

14:30 TensorFlow Overview

15:15 Medical Imaging with TensorFlow Overview

15:30 Coffee Break

16:00 Case Study 1
Diabetic Retinopathy

16:45 Case Study 2
Breast Cancer Metastasis

17:20 Wrap Up

SCHEDULE: DICOM4MICCAI

13:30 **Introduction, Goals, Scope**
Andrey Fedorov and Marco Nolden

13:40 **DICOM: Overview and Historical Perspective**
David Clunie

14:10 **DICOM for Quantitative Imaging**
Andrey Fedorov

14:35 **Standardizing on DICOM for Oncology Use Cases**
Marco Nolden

15:00 **Hands-on Tutorial Prerequisites Setup**

15:30 **Coffee Break**

16:00 **Using DICOM to Store your Analysis Results**

16:45 **Exploring Data Stored in DICOM**

SCHEDULE: ENDOVIS

08:30 **Opening**

08:45 **Keynote**
10 years of MICCAI Grand Challenges - Successes and Failures
Prof. Lena Maier-Hein (M. Eisenmann, A. Reinke)

09:30 **Gastrointestinal Image ANAlysis (GIANA)**

10:00 **Coffee Break**

10:30 **Gastrointestinal Image ANAlysis (GIANA)**

11:30 **Robotic Instrument Segmentation**

12:30 **Lunch**

13:30 **Keynote**
Minimally Invasive Surgery: Intra-operative Imaging and Visualization vs 'traditional' Navigation
Prof. Nassir Navab

14:30 **Kidney Boundary Detection**

15:30 **Coffee Break**

16:00 **Surgical Workflow Analysis in the SensorOR**

17:00 **Closing**

SCHEDULE: FIFI

13:30 Opening Session/Welcome

13:40 Invited Speaker and Discussion

Georg Langs

14:20 Oral Session 1

Template-free estimation of intracranial volume: A preterm birth animal model study
Juan Eugenio Iglesias et al.

Assessing Reorganisation of Functional Connectivity in the Infant Brain
Roxane Licandro et al.

Automatic segmentation of the intracranial volume in fetal MR images
N. Khalili et al.

Fetal Skull Segmentation in 3D Ultrasound via Structured Geodesic Random Forest
Juan J. Cerrolaza et al.

15:30 Coffee Break

16:00 Oral Session 2

Multi-organ detection in 3D fetal ultrasound with machine learning
Caroline Raynaud Rouet et al.

Abdomen segmentation in 3D fetal ultrasound using CNN-powered deformable models
Alexander Schmidt-Richberg et al.

Fast Registration of 3D Fetal Ultrasound Images using Learned Corresponding Salient Points
Alberto Gomez et al.

Robust Regression of Brain Maturation from 3D Fetal Neurosonography using CRNs
Ana I. L. Namburete et al.

17:00 Open Workshop Discussion and Best Paper Award

17:30 Closing

SCHEDULE: MICGEN

13:30 **Opening Session**

13:30 **Welcome Remarks**
Adrian Dalca

13:45 **Towards Multivariate Methods for Uncovering the Genetics of Brain Structure**
Boris Gutman

14:30 **Oral Presentations (12min)**

Multi-Modal Image Classi cation using Low-Dimensional Texture Features for Genomic Brain Tumor Recognition
Esther Alberts et al.

A Fast SCCA Algorithm for Big Data Analysis in Brain Imaging Genetics
Yuming Huang et al.

Transcriptome-Guided Imaging Genetic Analysis via a Novel Sparse CCA Algorithm
Kefei Liu et al.

Multilevel Modeling with Structured Penalties for Classification from Imaging Genetics data
Pascal Lu et al.

Coupled Dimensionality-Reduction Model for Imaging Genomics
Pascal Zille et al.

15:30 **Coffee Break**

16:00 **Invited Talk**
Title TBA
Wiro Niessen

16:45 **Invited Talk**
Heritability of Brain Structure and Function
Mert Sabuncu

SCHEDULE: ML-CDS

08:00 **Welcome**

08:05 **Invited Speaker**

Need for Clinical Decision Support Software in Breast Radiology
Susan Harvey

09:05 **Oral Session**

Mapping Multi-Modal Routine Imaging Data to a Single Reference via Multiple Templates
J. Hofmanninger et al.

Automated detection of epileptogenic cortical malformations using multimodal MRI
R. S. Gill, S-J Hong et al.

10:00 **Coffee Break**

10:30 **Oral Session**

Prediction of amyloidosis from neuropsychological and MRI data for cost effective inclusion of pre-symptomatic subjects in clinical trials,
M. Ansart et al.

Automated multimodal breast CAD based on registration of MRI and two view mammography.
T. Hopp et al.

EMR-Radiological phenotypes in diseases of the optic nerve and their association with visual function
S. Chaganti et al.

12:00 **Panel with experts from academia, clinicians and industry**

12:50 **Wrap Up**

SCHEDULE: MLMI

08:00 **Registration, speaker check-in and poster setup**

08:30 **Opening Remarks**

8:45 **Morning Session 1**

Plenary Talk: Radiomics, Pathomics and Deep Learning: Implications for Precision Medicine
Anant Madabhushi

10:00 **Coffee Break**

10:30 **Morning Session 2**

Growing a Random Forest with Fuzzy Spatial Features for Fully Automatic Artery-specific Coronary Calcium Scoring
Felix Durlak et al.

Multi-Factorial Age Estimation from Skeletal and Dental MRI Volumes
Darko Stern et al.

STAR: Spatio-Temporal Architecture for Super-Resolution in Low-Dose CT Perfusion
Yao Xiao et al.

Indecisive Trees for Classification and Prediction of Knee Osteoarthritis
Luca Minciullo et al.

Machine Learning for Large-Scale Quality Control of 3D Shape Models in Neuroimaging
Dmitry Petrov et al.

12:30 Lunch & Posters

13:30 Afternoon Session 1

Atlas of Classifiers for Brain MRI Segmentation
Boris Kodner et al.

Multi-Scale Volumetric ConvNet with Nested Residual Connections for Segmentation of Anterior Cranial Base
Yuru Pei et al.

Segmentation of Craniomaxillofacial Bony Structures from MRI with a 3D Deep-learning based Cascade Framework
Dong Nie et al.

3D U-net with Multi-Level Deep Supervision: Fully automatic segmentation of Proximal Femur in 3D MR Images
Guodong Zeng et al.

Whole brain segmentation and labeling from CT using synthetic MR images
Can Zhao et al.

Classification of Alzheimer's Disease by Cascaded Convolutional Neural Networks Using PET Images
Danni Cheng et al.

15:30 Coffee Break

16:00 Afternoon Session 2

Identifying Autism from Resting-State fMRI Using Long Short-Term Memory Networks
Nicha C. Dvornek et al.

Collage CNN for Renal Cell Carcinoma Detection from CT
Mohammad Arafat Hussain, Alborz Amir-Khalili, Ghassan Hamarneh, and Rafeef Abugharbieh

Neural Network Convolution (NNC) for Converting Ultra-Low-Dose to "Virtual" High-Dose CT Images
Kenji Suzuki et al.

Aggregating Deep Convolutional Features for Melanoma Recognition in Dermoscopy Images
Zhen Yu et al.

17:30 Closing remarks (Best paper(s) will be announced)

SCHEDULE: MSKI

8:00 Opening Remarks

Ben Glocker

8:20 Spine Imaging Session

Shape-Aware Deep Convolutional Neural Network for Vertebrae Segmentation,
S. M. Masudur Rahman Al Arif et al.

3D Cobb Angle Measurements from Scoliotic Mesh Models with Varying Face-Vertex Density Vertex Density
Uros Pektovic et al.

Attention-Driven Deep Learning for Pathological Spine Segmentation
Anjany Sekuboyina et al.

Segmentation of Pathological Spines in CT Images Using a Two-Way CNN and a Collision-Based Model
Robert Korez et al.

DSMS-FCN: A Deeply Supervised Multi-Scale Fully Convolutional Network for Automatic Segmentation of Intervertebral Disc in 3D MR Images
Guodong Zeng et al.

10:00 Coffee Break

10:30 Invited Talk

Musculoskeletal Imaging - an Overiew
Cristian Lorenz

11:30 Musculoskeletal Imaging Session

Automatic Full Femur Segmentation from Computed Tomography Datasets Using an Atlas-Based Approach
Bryce A. Besler et al.

Joint Multimodal Segmentation of Clinical CT and MR from Hip Arthroplasty Patients,
Marta B. M. Ranzini et al.

Reconstruction of 3D Muscle Fiber Structure Using High Resolution Cryosectioned Volume
Yoshito Otake et al.

12:30 Lunch Break

13:30 Invited Talk

Topologic and Geometric Approaches for In Vivo Quantitative Assessment of Trabecular Bone Micro-Architecture
Punam K. Saha

14:30 Anatomy Localization and Rendering Session

Localization of Bone Surfaces from Ultrasound Data Using Local Phase Information and Signal Transmission Maps
Ilker Hacihaliloglu et al.

Automatic Localization of the Lumbar Vertebral Landmarks in CT Images with Context Features
Dimitrios Damopoulos et al.

OpenRib Clinical Application
Catalina Tobon-Gomez et al.

15:30 **Coffee Break**

16:00 **Bone Density Estimation Session**

Automated Characterization of Body Composition and Frailty with Clinically Acquired CT,
Peijun Hu et al.

Classification of Osteoporotic Vertebral Fractures Using Shape and Appearance Modelling,
Paul A. Bromiley et al.

16:40 **Closing Remarks**
Ben Glocker

17:00 **Discussion**
Alejandro F. Frangi

SCHEDULE: RAMBO & CORONARE

13:30 **Opening**

13:35 **Keynote: From anatomy reconstruction to autonomous surgical robots**
Aleksandra Popovic

14:15 **Session 1: Registration and Tracking**

Dynamic Respiratory Motion Estimation Using Patch-Based Kernel-PCA Priors for Lung Cancer Radiotherapy
Tiancheng He et al.

Mass transportation for deformable image registration with application to lung CT
Bartlomiej W Papiez et al.

Motion-Robust Spatially Constrained Parameter Estimation in Renal Diffusion-Weighted MRI by 3D Motion Tracking and Correction of Sequential Slices
Sila Kurugol et al.

Semi-automatic Cardiac and Respiratory Gated MRI for Cardiac Assessment during Exercise
Bram Ruijsink et al.

CoronARe: A Coronary Artery Reconstruction Challenge
Serkan Cimen et al.

15:30 **Coffee Break**

15:55 **Keynote**

Imaging technology for fetal brain connectivity analysis
Ali Gholipour

Continued on next page »

16:35 Session 2: Reconstruction

Freehand Ultrasound Image Simulation with Spatially-Conditioned Generative Adversarial Networks
Yipeng Hu et al.

Context-Sensitive Super-Resolution for Fast Fetal Magnetic Resonance Imaging
Steven McDonagh et al.

Reconstruction of 3D Cardiac MR Images from 2D Slices using Directional Total Variation
Nicolas Basty et al.

An Efficient Multi-resolution Reconstruction Scheme with Motion Compensation for 5D Free-breathing Whole-heart MRI
Rosa M Menchón-Lara et al.

17:35 Adjourn

SCHEDULE: SASHIMI

13:30 Opening Remarks

13:35 Adversarial Domain Adaptation: An Overview
Hugo Larochelle

14:30 Oral Session 1: Synthesis (15min)

Adversarial Image Synthesis for Unpaired Multi-Modal Cardiac Data
Agisilaos Chartsias et al.

Deep MR to CT Synthesis using Unpaired Data
Jelmer M. Wolterink et al.

Synthesizing CT from Ultrashort Echo-Time MR Images via Convolutional Neural Networks
Snehashis Roy et al.

A supervoxel based random forest synthesis framework for bidirectional MR/CT synthesis
Can Zhao et al.

15:30 Break and Poster Session

16:30 Oral Session 2: Simulation and Processing

Semi-supervised Assessment of Incomplete LV Coverage in Cardiac MRI Using Generative Adversarial Nets
Le Zhang et al.

High Order Slice Interpolation for Medical Images
Antal Horvath et al.

Virtual PET Images from CT Data Using Deep Convolutional Networks: Initial Results
Avi Ben-Cohen et al.

A Monte Carlo Framework for Low Dose CT Reconstruction Testing
Jonathan Mason et al.

17:30 Closing Remarks

SCHEDULE: STACOM & ACDC & MM-WHS

08:50 Welcome and Opening Remarks

09:00 Keynote
Kaleem Siddiqi

10:00 Coffee Break

10:30 Regular Papers

Multiview Machine Learning Using an Atlas of Cardiac Cycle Motion
Esther Puyol-Anton et al.

Joint Myocardial Registration and Segmentation of Cardiac BOLD MRI
Ilkay Oksuz et al.

Detection of Substances in the Left Atrial Appendage by Spatiotemporal Motion Analysis Based on 4D-CT
Cheng Jin et al.

11:30 Poster Teasers from Regular Papers

11:45 Posters and Lunch

13:45 MM-WHS Challenge

MM-WHS presentation of data and challenge from the organizers

Multi-Label Whole Heart Segmentation Using CNNs and Anatomical Label Configurations
Christian Payer et al.

Continued on next page »

MRI Whole Heart Segmentation using Discrete Nonlinear Registration and Fast Non-Local Fusion
Mattias Heinrich et al.

Multi-View Deep Segmentation Networks for Cardiac Substructures from MRI and CT
Aliasghar Mortazi et al.

Hybrid Loss Guided Convolutional Networks for Whole Heart Parsing
Xin Yang et al.

Automatic Whole Heart Segmentation Using Deep Learning and Shape Context
Chunliang Wang et al.

Local probabilistic atlases and a posteriori correction for the segmentation of heart images
Gaetan Galisot et al.

15:30 Coffee Break

16:00 ACDC Challenge

Presentation of the ACDC dataset
Alain Lalande

Automatic Cardiac Disease Assessment on cine-MRI via Time-Series Segmentation and Domain Specific Features
Fabian Isensee et al.

A Radiomics Approach to Computer-Aided Diagnosis with Cardiac Cine-MRI
Irem Cetin et al.

Automatic Segmentation and Disease Classification Using Cardiac Cine MR Images
Jelmer M. Wolterink et al.

Densely Connected Fully Convolutional Network, for Short-Axis Cardiac Cine MR Image,Segmentation and Heart Diagnosis using,Random Forest
Mahendra Khened et al.

GridNet with automatic shape prior registration for automatic MRI cardiac segmentation.
Clement Zotti et al.

Automatic Multi-Atlas Segmentation of Myocardium with SVF-Net
Marc-Michel Rohe et al.

Overall results and wrap up of ACDC challenge
Pierre-Marc Jodoin

18:00 Prizes, Final Remarks and Adjourn

SCHEDULE: SWITCH & ISLES

Switch

08:00 Introduction

08:10 Keynote

Neuroimaging of stroke: A role for MRI
Roland Wiest

09:00 Keynote

CT imaging in care of acute stroke patients
Kambiz Nael

10:00 Refreshments

10:30 Keynote

Stroke Interventions
Vitor Mendes Pereira

11:20 Oral Session

Automated Ventricular System Segmentation in CT Images of Deformed Brains due to Ischemic and Subarachnoid Haemorrhagic Stroke
E. Ferdian et al.

Towards Automatic Collateral Circulation Score Evaluation in Ischemic Stroke Using Image Decompositions and Support Vector Machines
Y. Xiao et al.

The Effect of Non-Contrast CT Slice Thickness on Thrombus Density and Perviousness Assessment
M.L. Tolhuisen et al.

Quantitative Collateral Grading on CT Angiography in Patients with Acute Ischemic Stroke
A.M.M. Boers et al.

12:00 Adjourn

ISLES

13:30 Introduction to the Challenge

14:00 Invited Presentations

Top methods (15min)

15:30 Poster Session with Coffee Break

16:30 Presentation of Results, Awards

SCHEDULE: TRANSLATION OF ALGORITHMS IN THE OPERATING ROOM FOR CLINICAL RESEARCH

8:00 **Introduction**
Dr. Tamas Ungi

8:10 **Keynote Presentation**
Dr. James Drake

8:40 **How open-source software changed clinical research in image-guided interventions**
Dr. Ron Kikinis

8:55 **Interfacing with hardware devices (PLUS software)**
Dr. Andras Lasso

9:10 **The Present and Future of OpenIGTLink communication protocol**
Dr. Junichi Tokuda

9:25 **Hands-on Tutorial, part 1 (hardware configurations and calibration)**
Tamas, Junichi, Andras

10:00 **Refreshments**

10:30 **Hands-on Tutorial, part 2 (registration, visualization, real-time interfaces)**

12:15 **Concluding Remarks, Questions and Discussion**
Tamas, Junichi, Andras

12:30 **Adjourn**

MONDAY, 11 SEPTEMBER 2017

07:00	Registration	
08:00	**Opening**	
08:30	**Track 1: Orals**	Machine Learning in Medical Image Computing
10:00	Refreshments	
10:30	**Track 2: Posters**	
11:30	**Track 3: Keynote**	Dr Y. Bengio, *Deep Learning for AI*
12:30	Lunch	
13:30	**Track 4: Posters**	
14:30	**Track 5: Posters**	
15:30	Refreshments	
16:00	**Track 6: Orals**	Computer Assisted Interventions
17:30	End of the day	
18:00	**Academia - Industry Event**	

TRACK 01
ORALS

MACHINE LEARNING IN MEDICAL IMAGE COMPUTING

Chairs: P-M. Jodoin, M. de Bruijne

Title	First author
Full Quantification of Left Ventricle via Deep Multitask Learning Network Respecting Intra - and Inter - Task Relatedness	Xue, Wufeng
Robust Multi-Modal MR Image Synthesis	Joyce, Thomas
Bayesian Image Quality Transfer with CNNs: Exploring Uncertainty in dMRI Super-Resolution	Tanno, Ryutaro
Tracking and segmentation of the airways in chest CT using a fully convolutional network	Meng, Qier
A Bag-of-Features Approach to Predicting TMS Language Mapping Results from DSI Tractography	Schultz, Thomas
Learning Deep Features for Automated Placement of Correspondence Points on Ensembles of Complex Shapes	Agrawal, Praful

TRACK 02
POSTERS

Chairs: H. Lombaert, D. Tosun

Poster ID		
Atlas & Surface-Based Techniques		
8	Li, Gang	Developmental Patterns Based Individualized Parcellation of Infant Cortical Surface
Shape and Patch-Based Techniques		
23	Ghesu, Florin-Cristian	Robust Multi-Scale Anatomical Landmark Detection in Incomplete 3D-CT Data
Registration Techniques		
29	Jud, Christoph	Directional Averages for Motion Segmentation in Discontinuity Preserving Image Registration
34	Feydy, Jean	Optimal transport for diffeomorphic registration
Functional Imaging, Connectivity and Brain Parcellation		
42	Ning, Lipeng	Dynamic regression for partial correlation and causality analysis of functional brain networks
50	Li, Yang	Multimodal Hyper-Connectivity Networks for MCI Classification
58	Deslauriers-Gauthier, Samuel	Inference and Visualization of Information Flow in the Visual Pathway using dMRI and EEG

Poster ID		
Diffusion Magnetic Resonance Imaging (MRI) & Tensor/Fiber Processing		
70	Tanno, Ryutaro	Bayesian Image Quality Transfer with CNNs: Exploring Uncertainty in dMRI Super-Resolution
78	Oda, Hirohisa	TBS: Tensor-Based Supervoxels for unfolding the heart
Image Segmentation & Modelling		
82	Robinson, Robert	Automatic Quality Control of Cardiac MRI Segmentation in Large-scale Population Imaging
90	Liu, Mengyuan	Combining Spatial and Non-spatial Dictionary Learning for Automated Labeling of Intra-Ventricular Hemorrhage in Neonatal Brain MRI
Optical Imaging		
98	Han, Liang	Refocusing Phase Contrast Microscopy Images
Airway & Vessel analysis		
110	Alvarez, Luis	Tracking the aortic lumen geometry by optimizing the 3D orientation of its cross-sections
118	Mirikharaji, Zahra	Globally-Optimal Anatomical Tree Extraction from 3D Medical Images using Pictorial Structures and Minimal Paths
Motion & Cardiac analysis		
122	Parajuli, Nripesh	Flow Network Based Cardiac Motion Tracking Leveraging Learned Feature Matching
130	Mollero, Roch	Longitudinal Analysis using Personalised 3D Cardiac Models with Population-Based Priors: Application to Paediatric Cardiomyopathies
Tumor Processing		
138	Zhang, Ling	Personalized Pancreatic Tumor Growth Prediction via Group Learning
Planning & Simulation for Medical Interventions		
150	Möri, Nadia	An Optimal Control Approach for High Intensity Focused Ultrasound Self-Scanning Treatment Planning
Interventional Imaging & Navigation		
158	Jayarathne, Uditha	Real-time 3D Ultrasound Reconstruction and Visualization in the Context of Laparoscopy
162	Xia, Wenfeng	Ultrasonic needle tracking with a fibre-optic ultrasound transmitter for guidance of minimally invasive fetal surgery

TRACK 02
POSTERS

(CONTINUED)

Poster ID		
Medical Image Computing		
170	Gros, Charley	OptiC: Robust and automatic spinal cord localization on a large variety of MRI data using a distance transform based global optimization
Feature extraction & Classification Techniques		
178	Zhang, Pin	Nonlinear Feature Space Transformation to Improve the Prediction of MCI to AD Conversion
190	Abbati, Gabriele	MRI-based Surgical Planning for Lumbar Spinal Stenosis
198	Doyle, Andrew	Predicting Future Disease Activity and Treatment Responders for Multiple Sclerosis Patients using a Bag-of-Lesions Brain Representation
Machine Learning in Medical Image Computing		
202	Zhou, Yuyin	Deep Supervision for Pancreatic Cyst Segmentation in Abdominal CT Scans
210	Apostolopoulos, Stefanos	Pathological OCT Retinal Layer Segmentation using Branch Residual U-style Networks
218	Anas, Emran Mohammad Abu	Clinical Target-volume Delineation in Prostate Brachytherapy using Residual Neural Networks
223	Zhang, Yizhe	Deep Adversarial Networks for Biomedical Image Segmentation Utilizing Unannotated Images
231	Yoo, Youngjin	Hierarchical Multimodal Fusion of Deep-Learned Lesion and Tissue Integrity Features in Brain MRIs for Distinguishing Neuromyelitis Optica from Multiple Sclerosis
239	Conjeti, Sailesh	Learning Robust Hash Codes for Multiple Instance Image Retrieval
247	Harrison, Adam P.	Progressive and Multi-Path Holistically Nested Neural Networks for Pathological Lung Segmentation from CT Images
255	Shi, Yinghuan	Does Manual Delineation Only Provide the Side

TRACK 03
KEYNOTE SPEAKER

Chairs: M. Descoteaux, T. Arbel

Speaker	Title
Dr Y. Bengio	Deep Learning for AI

TRACK 04

POSTERS

Chairs: B. Scherrer, I. Reinersten

Poster ID		
Atlas & Surface-Based Techniques		
7	Wu, Zhengwang	4D Infant Cortical Surface Atlas Construction using Spherical Patch-based Sparse Representation
14	Yang, Jie	Unsupervised Discovery of Spatially-Informed Lung Texture Patterns for Pulmonary Emphysema: The MESA COPD Study
Shape and Patch-Based Techniques		
22	Agrawal, Praful	Learning Deep Features for Automated Placement of Correspondence Points on Ensembles of Complex Shapes
Registration Techniques		
30	Commowick, Olivier	L2 Similarity Metrics for Diffusion Multi-Compartment Model Images Registration
41	Saha, Baidya Nath	Selecting the Optimal Sequence for Deformable Registration of Microscopy Image Sequences Using a Two-Stage Minimum Spanning Tree (MST)-based Clustering Algorithm
Functional Imaging, Connectivity and Brain Parcellation		
49	Zhang, Tuo	Multi-way Regression Reveals Backbone of Macaque Structural Brain Connectivity in Longitudinal Datasets
57	Liu, Feng	Graph Regularized EEG Source Mapping with in-Class Consistency and Out-Class Discrimination
Diffusion Magnetic Resonance Imaging (MRI) & Tensor/Fiber Processing		
69	Pisharady, Pramod	A Sparse Bayesian Learning Algorithm for White Matter Parameter Estimation from Compressed Multi-shell Diffusion MRI
77	Samari, Babak	Denoising Moving Heart Wall Fibers Using Cartan Frames
Image Segmentation & Modelling		
81	Yan, Xin	Towards Automatic Semantic Segmentation in Volumetric Ultrasound
89	Matejek, Brian	Compresso: Efficient Compression of Segmentation Data For Connectomics
Optical Imaging		
97	Yin, Zhaozheng	Two-Stream Bidirectional Long Short-Term Memory for Mitosis Event Detection and Stage Localization in Phase-Contrast Microscopy Images

Poster ID		
Airway & Vessel Analysis		
109	Mosinska, Agata	Active Learning and Proofreading for Delineation of Curvilinear Structures
117	Pozo, Jose	Information theoretic measurement of blood flow complexity in vessels and aneurysms: Interlacing Complexity Index
Motion & Cardiac Analysis		
121	Chen, Xin	Efficient Deformable Motion Correction for 3D Abdominal MRI Using Manifold Regression
129	Huang, Weilin	Temporal HeartNet: Towards Human-Level Automatic Analysis of Fetal Cardiac Screening Video
Tumor Processing		
137	Seppi, Carlo	Compressed Sensing on Multi-Pinhole Collimator SPECT Camera for Sentinel Lymph Node Biopsy
Planning & Simulation for Medical Interventions		
149	Haouchine, Nazim	DejaVu: Intra-operative Simulation for Surgical Gesture Rehearsal
Interventional Imaging & Navigation		
157	Parent, Francois	UV Exposed Optical Fibers with Frequency Domain Reflectometry for Device Tracking in Intra-Arterial Procedures
161	Prevost, Raphael	Deep Learning for Sensorless 3D Freehand Ultrasound
Medical Image Computing		
169	Mesbah, Samineh	A Novel Automatic Segmentation Method to Quantify the Effects of Spinal Cord Injury on Human Thigh Muscles and Adipose Tissue
Feature Extraction & Classification techniques		
177	Liu, Mingxia	Deep Multi-Task Multi-Channel Learning for Joint Classification and Regression of Brain Status
189	Sun, Xinwei	GSplit LBI: Taming the Procedural Bias in Neuroimaging for Disease Prediction
197	Parisot, Sarah	Spectral Graph Convolutions on Population Graphs for Disease Prediction

TRACK 04
POSTERS

(CONTINUED)

Poster ID		
Machine Learning in Medical Image Computing		
201	Dubost, Florian	GP-Unet: Lesion Detection from Weak Labels with a 3D Regression Network
209	Fidon, Lucas	Scalable multimodal convolutional networks for brain tumour segmentation
217	Bortsova, Gerda	Segmentation of Intracranial Arterial Calcification with Deeply Supervised Residual Dropout Networks
222	Yang, Lin	Suggestive Annotation: A Deep Active Learning Framework for Biomedical Image Segmentation
230	Wong, Ken C. L.	Building Disease Detection Algorithms with Very Small Numbers of Positive Samples
238	Conjeti, Sailesh	Hashing with Residual Networks for Image Retrieval
246	Hussain, Mohammad Arafat	Segmentation-Free Kidney Localization and Volume Estimation Using Aggregated Orthogonal Decision CNNs
254	Plumb, Gregory	Modeling Cognitive Trends in Preclinical Alzheimer's Disease (AD) via Distributions over Permutations

TRACK 05
POSTERS

Chairs: K. Maier-Hein, T Raviv

Poster ID		
Atlas & Surface-Based Techniques		
6	Kim, Jaeil	Graph-Constrained Sparse Construction of Longitudinal Diffusion-Weighted Infant Atlases
13	Lee, Hoileong	Learning-Based Multi-Atlas Segmentation of the Lungs and Lobes in Proton MR Images
Shape and Patch-Based Techniques		
15	Wu, Hongbo	Automatic Landmark Estimation for Adolescent Idiopathic Scoliosis Assessment using BoostNet
21	Rathke, Fabian	Locally Adaptive Probabilistic Models for Global Segmentation of Pathological OCT Scans
Registration Techniques		
40	Krebs, Julian	Robust non-rigid registration through agent-based action learning

Poster ID		
Functional Imaging, Connectivity and Brain Parcellation		
48	Zhou, Yujia	Improving Functional MRI Registration Using Whole-Brain Functional Correlation Tensors
56	Joshi, Anand	BrainSync: An Orthogonal Transformation for Synchronization of fMRI Data Across Subjects
Diffusion Magnetic Resonance Imaging (MRI) & Tensor/Fiber Processing		
68	Ye, Chuyang	Learning-based Ensemble Average Propagator Estimation
76	Jäger, Paul	Revealing Hidden Potentials of the q-Space Signal in Breast Cancer
Image Segmentation & Modelling		
80	Gu, Lin	Semi-Supervised Learning for Biomedical Image Segmentation via Forest Oriented Super Pixels (Voxels)
88	Cakir, Ahmet	Development of a µCT based patient specific model of the electrically stimulated cochlea
Optical Imaging		
96	Nuri Murat Arar	Computational Immunohistochemistry: Recipes for Standardization of Immunostaining
108	Liu, Jianfei	Accurate Correspondence of Cone Photoreceptor Neurons in the Human Eye Using Graph Matching Applied to Longitudinal Adaptive Optics Images
Airway & Vessel Analysis		
116	Nardelli, Pietro	CT image enhancement for feature detection and localization
Motion & Cardiac Analysis		
120	Jud, Christoph	A Localized Statistical Motion Model as a Reproducing Kernel for Non-rigid Image Registration
128	Sinclair, Matthew	Fully Automated Segmentation-Based Respiratory Motion Correction of Multiplanar Cardiac Magnetic Resonance Images for Large-Scale Datasets
Tumor Processing		
136	Yao, Jiawen	Deep Correlational Learning for Survival Prediction from Multi-modality Data

Poster ID		
Planning & Simulation for Medical Interventions		
148	Lacher, Rene	A comparative study of breast surface reconstruction for aesthetic outcome assessment
Interventional Imaging & Navigation		
156	Aksamentov, Ivan	Deep Neural Networks Predict Remaining Duration of Cholecystectomies
160	Zhang, Lin	Motion-Compensated Autonomous Scanning for Tumour Localisation using Intraoperative Ultrasound
168	Aubert, Benjamin	Convolutional neural network and in-painting techniques for the automatic assessment of scoliotic spine surgery from biplanar radiographs
Medical Image Computing		
176	Madan, Hennadii	Benchmarking quantitative imaging biomarker measurement methods without a gold standard
Feature Extraction & Classification Techniques		
188	Song, Yang	Supervised Intra-Embedding of Fisher Vectors for Histopathology Image Classification
196	Wang, Hongzhi	A Multi-Atlas Approach to Region of Interest Detection for Medical Image Classification
Machine Learning in Medical Image Computing		
200	Zhu, Yingying	Personalized Diagnosis for Alzheimer's Disease
208	Xue, Wufeng	Full Quantification of Left Ventricle via Deep Multitask Learning Network Respecting Intra- and Inter-Task Relatedness
216	Joyce, Thomas	Robust Multi-Modal MR Image Synthesis
221	Karimi, Davood	Synergistic combination of learned and hand-crafted features for prostate lesion classification in multiparametric magnetic resonance imaging
229	Das, Dhritiman	Quantification of Metabolites in Magnetic Resonance Spectroscopic Imaging using Machine Learning
237	Yang, Yehui	Lesion Detection and Grading of Diabetic Retinopathy via Two-stages Deep Convolutional Neural Networks
245	Zhu, Wentao	Deep Multi-instance Networks with Sparse Label Assignment for Whole Mammogram Classification
253	Cai, Jinzheng	Pancreas Segmentation in MRI Using Graph-Based Decision Fusion on Convolutional Neural Networks

TRACK 06
ORALS

COMPUTER ASSISTED INTERVENTIONS

Chairs: A. Simpson, P. Cattin

Title	First author
Active Learning and Proofreading for Delineation of Curvilinear Structures	Mosinska, Agata
Beating the Surgeon: An Automatic Optimization Approach for 3D Planning of Forearm Osteotomies	Carrillo, Fabio
UV Exposed Optical Fibers with Frequency Domain Reflectometry for Device Tracking in Intra-Arterial Procedures	Kadoury, Samuel
Ultrasonic needle tracking with a fibre-optic ultrasound transmitter for guidance of minimally invasive fetal surgery	Xia, Wenfeng
SonifEye: Towards Automatic Musical Augmentation of Surgical Procedures	Matinfar, Sasan
Information theoretic measurement of blood flow complexity in vessels and aneurysms: Interlacing Complexity Index	Pozo, Jose

TUESDAY, 12 SEPTEMBER 2017

07:00	Registration	
08:00	**Track 7: Orals**	Machine Learning in Computer Assisted Interventions
09:00	**Track 8: Orals**	Machine Learning in Medical Image Computing
10:00	Refreshments	
10:30	**Track 9: Posters**	
11:30	**Track 10: Keynote**	Dr C. Rice, *You've got to believe it to see it — Evidence for gender bias in academia and why fixing it will make us better*
12:30	Lunch	
13:00	**Diversity Panel**	Dr W. Niessen, Dr C. Rice, Dr A. Martel, Dr T. Syeda-Mahmood, Dr M. Chakravarty, Dr L. Filatova, *Panel and discussions related to diversity in our field*
13:30	**Track 11: Posters**	
14:30	**Track 12: Posters**	
15:30	Refreshments	
16:00	**Track 13: Orals**	Medical Image Computing
17:30	End of the day	
18:30	**Gala MBNAQ**	

TRACK 07 ORALS

MACHINE LEARNING IN COMPUTER ASSISTED INTERVENTIONS

Chairs: C. Essert, A. Franz

Title	First author
Deep Neural Networks Predict Remaining Surgery Duration from Cholecystectomy Videos	Aksamentov, Ivan
Clinical Target-volume Delineation in Prostate Brachytherapy using Residual Neural Networks	Anas, Emran Mohammad Abu
Temporal HeartNet: Towards Human-Level Automatic Analysis of Fetal Cardiac Screening Video	Huang, Weilin
Intraoperative Organ Motion Models with an Ensemble of Conditional Generative Adversarial Networks	Hu, Yipeng

TRACK 08 ORALS

MACHINE LEARNING IN MEDICAL IMAGE COMPUTING

Chairs: R. Sznitman, I. Isgum

Title	First author
Deep Correlational Learning for Survival Prediction from Multi-modality Data	Huang, Junzhou
TandemNet: Distilling Knowledge from Medical Images Using Diagnostic Reports as Optional Semantic References	Zhang, Zizhao
Supervised Intra-Embedding of Fisher Vectors for Histopathology Image Classification	Song, Yang
Suggestive Annotation: A Deep Active Learning Framework for Biomedical Image Segmentation	Yang, Lin

TRACK 09 POSTERS

Chairs: S. Kadoury, M. Kersten

Poster ID		
Atlas & Surface-Based Techniques		
5	Adeli, Ehsan	Joint Sparse and Low-Rank Regularized Multi-Task Multi-Linear Regression for Prediction of Infant Brain Development with Incomplete Data
12	Quader, Niamul	Tomographic Reconstruction Based Learning for Automatic Characterization of Hip Dysplasia via a 3D Femoral Hip Coverage Feature

Poster ID		
Shape and Patch-Based Techniques		
20	Saito, Atsushi	Statistical shape model of nested structures based on the level set
Registration Techniques		
28	Ma, Kai	Multimodal Registration with Deep Context Reinforcement Learning
39	Gunay, Gokhan	Parameter Sensitivity Analysis in Medical Image Registration Algorithms Using Polynomial Chaos Expansions
Functional Imaging, Connectivity and Brain Parcellation		
47	Honnorat, Nicolas	Subject-Specific Structural Parcellations Based on Randomized AB-divergences
55	Salehi, Mehraveh	A Submodular Approach to Create Individualized Parcellations of the Human Brain
Diffusion Magnetic Resonance Imaging (MRI) & Tensor/Fiber Processing		
67	Sun, Wei	FOD Restoration for Enhanced Mapping of White Matter Lesion Connectivity
75	Otake, Yoshito	Patient-specific skeletal muscle fiber modeling from structure tensor field of clinical CT images
Image Segmentation & Modelling		
79	Zhou, Yuyin	A Fixed-Point Model for Pancreas Segmentation in Abdominal CT Scans
87	Bahrami, Khosro	Joint Reconstruction and Segmentation of 7T-like MR images from 3T MRI based on Cascaded Convolutional Neural Networks
Optical Imaging		
95	Lin, Jianyu	Endoscopic Depth Measurement and Super-Spectral-Resolution Imaging
107	Tosun, Akif Burak	Histological detection of high-risk benign breast lesions from whole slide images
Airway & Vessel Analysis		
115	Giroux, Matthieu	Biomechanical Patient-specific model of the respiratory system based on 4D CT scans and controlled by personalized physiological compliance

Poster ID		
Motion & Cardiac Analysis		
119	Bai, Wenjia	Semi-Supervised Learning for Network-Based Cardiac MR Image Segmentation
127	Lu, Allen	Learning-based Spatiotemporal Regularization and Integration of Tracking Methods for Regional 4D Cardiac Deformation Analysis
Tumor Processing		
135	Tang, Zhenyu	Groupwise Registration of MR Brain Images Containing Tumors via Spatially Constrained Low-Rank Based Image Recovery
Planning & Simulation for Medical Interventions		
147	Kurmann, Thomas	Simultaneous Recognition and Pose Estimation of Instruments in Minimally Invasive Surgery
Interventional Imaging & Navigation		
155	Ambrosini, Pierre	Fully Automatic and Real-Time Catheter Segmentation in X-Ray Fluoroscopy
159	Pourtaherian, Arash	Improving Needle Detection in 3D Ultrasound using Orthogonal-Plane Convolutional Networks
167	Salehi, Mehrdad	Precise Ultrasound Bone Registration with Learning-based Segmentation and Speed of Sound Calibration
Medical Image Computing		
175	Fishbaugh, James	Data-driven rank aggregation with application to grand challenges
Feature Extraction & Classification Techniques		
187	Huang, Yawen	DOTE: Dual Convolutional filter learning for Super-Resolution and Cross-Modality Synthesis in MRI
195	Zhu, Dajiang	Classification of Major Depressive Disorder via Multi-Site Weighted LASSO Model
199	Cao, Peng	Sparse multi-kernel based multi-task learning for joint prediction of clinical scores and biomarker identification in Alzheimer's Disease
Machine Learning in Medical Image Computing		
207	Wang, Zhe	Zoom-in-Net: Deep Mining Bio-markers for Diabetic Retinopathy Detection
215	Xu, Zhoubing	Supervised Action Classifier: Approaching Landmark Detection as Image Partitioning
220	Mahapatra, Dwarikanath	Image Super Resolution Using Generative Adversarial Networks and Local Saliency Maps for Retinal Image Analysis
228	Ma, Hua	Fast Prospective Detection of Contrast Inflow in X-ray Angiograms with Convolutional Neural Network and Recurrent Neural Network

TRACK 09
POSTERS

(CONTINUED)

Poster ID		
Machine Learning in Medical Image Computing (continued)		
236	Dai, Ling	Retinal Microaneurysm Detection Using ClinicalReport Guided Multi-Sieving CNN
244	Amit, Guy	Hybrid Mass Detection in Breast MRI combining Unsupervised Saliency Analysis and Deep Learning
252	Maicas, Gabriel	Deep Reinforcement Learning for Active Breast Lesion Detection from DCE-MRI

TRACK 10
KEYNOTE SPEAKER

Chairs: S. Duchesne - L. Maier-Hein

Speaker	Title
Dr C. Rice	You've got to believe it to see it — Evidence for gender bias in academia and why fixing it will make us better

TRACK
PANEL AND OPEN DISCUSSION ON DIVERSITY

Following the keynote address of Dr. Rice on Tuesday Sept. 12, there will be a panel discussion and an open question/answer period on diversity in the MICCAI community and practices that could benefit the community at large. The panel will include senior and junior members from our scientific community: Dr. Rice (President Oslo and Akershus University College of Applied Sciences), Dr. Martel (Associate Professor, University of Toronto and MICCAI Board Member), Dr. Syeda-Mahmood (Chief Scientist and Fellow, IBM Research), Dr. Mallar Chakravarty (Computational Neuroscientist, McGill University) and Lena Filatova (PhD Student Delft University, President MICCAI Student Board). The topics will cover all challenges surrounding ensuring diversity including gender, race, origin, … and will not be limited to a certain group or gender. All welcome and encouraged to be part of the discussion. Everyone is invited and encouraged to participate. Grab lunch at 12:30 (12:30PM) and join us for dessert and coffee/tea with discussions at 13:00 (1:00PM)

TRACK 11

POSTERS

Chairs: I. Ben. Ayed, P. Tiwari

Poster ID		
Atlas & Surface-Based Techniques		
4	Lyu, Ilwoo	Novel Local Shape-Adaptive Gyrification Index with Application to Brain Development
11	Glaister, Jeffrey	Falx Cerebri Segmentation via Multi-Atlas Boundary Fusion
Shape and Patch-Based Techniques		
19	Milletari, Fausto	Integrating statistical prior knowledge into convolutional neural networks
Registration Techniques		
27	Sokooti, Hessam	Non-Rigid Image Registration With Multi-Scale 3D Convolutional Neural Networks
38	Koo, Bongjin	Deformable Registration of a Preoperative 3D Liver Volume to a Laparoscopy Image using Contour and Shading Cues
Functional Imaging, Connectivity and Brain Parcellation		
46	Zhang, Shu	Joint Representation of Connectome-scale Structural and Functional Profiles for Identification of Consistent Cortical Landmarks in Human Brains
54	Ktena, Sofia Ira	Distance Metric Learning using Graph Convolutional Networks: Application to Functional Brain Networks
Diffusion Magnetic Resonance Imaging (MRI) & Tensor/Fiber Processing		
62	Poulin, Philippe	Learn to track: Deep learning for tractography
66	Ye, Chuyang	Fiber Orientation Estimation Guided by a Deep Network
74	Khatami, Mohammad	A Bag-of-Features Approach to Predicting TMS Language Mapping Results from DSI Tractography
Image Segmentation & Modelling		
86	Dolz, Jose	Unbiased Shape Compactness for Segmentation
Optical Imaging		
94	Shi, Xiaoshuang	Cell Encoding for Histopathology Image Classification
102	Jones, Geoffrey	Fast Estimation of Haemoglobin Concentration in Tissue Via Wavelet Decomposition
106	Heinrich, Larissa	Deep Learning for Isotropic Super-Resolution from Non-Isotropic 3D Electron Microscopy Data

Poster ID		
Airway & Vessel Analysis		
114	Wang, Xingce	Automatic labeling of vascular structures with topological constraints via HMM
Motion & Cardiac Analysis		
126	Iglesias, Juan	Retrospective head motion estimation in structural brain MRI with 3D CNNs
134	McLeod, Jonathan	Analysis of Periodicity in Video Sequences through Dynamic Linear Modeling
Tumor Processing		
142	Prasanna, Prateek	Radiographic-Deformation and Textural Heterogeneity (r-DepTH): An integrated descriptor for brain tumor prognosis
Planning & Simulation for Medical Interventions		
146	Singh, Vivek	DARWIN: Deformable Patient Avatar Representation With Deep Image Network
154	Ma, Xingjun	Providing Effective Real-time Feedback in Simulation-based Surgical Training
Interventional Imaging & Navigation		
166	Matinfar, Sasan	SonifEye: Towards Automatic Musical Augmentation of Surgical Procedures
Medical Image Computing		
174	Ghimire, Sandesh	A Variational Approach to Sparse Model Error Estimation in Cardiac Electrophysiological Imaging
Feature Extraction & Classification Techniques		
182	Wang, Mingliang	Multi-Level Multi-Task Structured Sparse Learning for Diagnosis of Schizophrenia Disease
186	Treilhard, John	Liver tissue classification in patients with hepato-cellular carcinoma by fusing structured and rotationally invariant context representation
194	Dmitriev, Konstantin	Classification of Pancreatic Cysts in Computed Tomography Images Using a Random Forest and Convolutional Neural Network Ensemble

TRACK 11
POSTERS

(CONTINUED)

Poster ID		
Machine Learning in Medical Image Computing		
206	Bian, Cheng	Boundary Regularized Convolutional Neural Network for Layer Parsing of Breast Anatomy in Automated Whole Breast Ultrasound
214	Heinrich, Mattias	BRIEFnet: Deep Pancreas Segmentation using Binary Sparse Convolutions
219	Garg, Prabhat	Using Convolutional Neural Networks to Automatically Detect Eye-Blink Artifacts in Magnetoencephalography without Resorting to Electrooculography
227	Albarqouni, Shadi	X-ray In-Depth Decomposition: Revealing The Latent Structures
235	Ghafoorian, Mohsen	Transfer Learning for Domain Adaptation in MRI: Application in Brain Lesion Segmentation
243	Bragman, Felix	Manifold Learning of COPD
251	Xia, Yong	Transferable Multi-Model Ensemble for Benign-Malignant Lung Nodule Classification on Chest CT

TRACK 12
POSTERS

Chairs: L. O'Donnell, H. Riraz

Poster ID		
Atlas & Surface-Based Techniques		
3	Gahm, Jin Kyu	Holistic Mapping of Striatum Surfaces in the Laplace-Beltrami Embedding Space
Shape and Patch-Based Techniques		
18	Wilms, Matthias	Representative patch-based active appearance models generated from small training populations
Registration Techniques		
26	Uzunova, Hristina	Training CNNs for Image Registration from Few Samples with Model-based Data Augmentation
33	PEI, Yuru	Mixed Metric Random Forest for Dense Correspondence of Cone-Beam Computed Tomography Images
37	Hong, Yi	Fast Geodesic Regression for Population-Based Image Analysis

Poster ID		
Functional Imaging, Connectivity and Brain Parcellation		
45	Hong, Seok-Jun	Connectome-based pattern learning predicts histology and surgical outcome of epileptogenic malformations of cortical development
53	Rahim, Mehdi	Population-shrinkage of covariance to estimate better brain functional connectivity
Diffusion Magnetic Resonance Imaging (MRI) & Tensor/Fiber Processing		
61	Teillac, Achille	A novel anatomy-based constrained global tractography
65	Alexandroni, Guy	White Matter Fiber Representation using Continuous Dictionary Learning
73	Parvathaneni, Prasanna	Gray Matter Surface based Spatial Statistics (GS-BSS) in Diffusion Microstructure
Image Segmentation & Modelling		
85	Pouch, Alison	Spatiotemporal segmentation and modeling of the mitral valve in real-time 3D echocardiographic images
Optical Imaging		
93	Chen, Jianxu	Neuron Segmentation Using Deep Complete Bipartite Networks
101	Li, Chenchen	Fast Background Removal Method For 3D Multi-Channel Deep Tissue Fluorescence Imaging
105	Weigert, Martin	Isotropic reconstruction of 3D fluorescence microscopy images using convolutional neural networks
Airway & Vessel Analysis		
113	Meng, Qier	Tracking and segmentation of the airways in chest CT using a fully convolutional network
Motion & Cardiac Analysis		
125	Gao, Yuan	Detection and Characterization of the Fetal Heartbeat in Free-hand Ultrasound Sweeps with Weakly-supervised Two-streams Convolutional Networks
133	Mortazi, Aliasghar	CardiacNET: Segmentation of Left Atrium and Proximal Pulmonary Veins from MRI Using Multi-View CNN
Tumor Processing		
141	Chen, Lei	Multi-label Inductive Matrix Completion for Joint MGMT and IDH1 Status Prediction for Glioma Patients

Poster ID		
Planning & Simulation for Medical Interventions		
145	Carrillo, Fabio	A Time Saver: Optimization Approach for the Fully Automatic 3D Planning of Forearm Osteotomies
153	Granna, Josephine	Toward Computer-Assisted Planning for Interstitial Laser Ablation of Malignant Brain Tumors using a Tubular Continuum Robot
Interventional Imaging & Navigation		
165	Laina, Iro	Concurrent Segmentation and Localization for Tracking of Surgical Instruments
Medical Image Computing		
173	Scott, Catherine	Short acquisition time PET quantification using MRI-based pharmacokinetic parameter synthesis
Feature extraction & Classification Techniques		
181	Gutierrez Becker, Benjamin	A Multi-Armed Bandit to Smartly Select a Training Set from Big Medical Data
185	Zhu, Xiaofeng	Maximum Mean Discrepancy Based Multiple Kernel Learning for Incomplete Multimodality Neuroimaging Data
193	Fartaria, Mário João	Segmentation of Cortical and Subcortical Multiple Sclerosis Lesions based on Constrained Partial Volume Modeling
Machine Learning in Medical Image Computing		
205	Ge, Zongyuan	Skin Disease Recognition using Deep Saliency Features and Multimodal Learning of Dermoscopy and Clinical Images
213	Zhang, Zizhao	TandemNet: Distilling Knowledge from Medical Images Using Diagnostic Reports as Optional Semantic References
226	Duggal, Rahul	SD-Layer: Stain Deconvolutional layer for CNNs in Medical Microscopic Imaging
234	Yang, Dong	Automatic Liver Segmentation Using an Adversarial Image-to-Image Network
242	Yuan, Yixuan	Liver Lesion Detection based on Two-Stage Saliency Model with Modified Sparse Autoencoder
250	Alilou, Mehdi	Intra-perinodular textural transition (Ipris): A 3D Descriptor for Nodule Diagnosis on Lung CT

TRACK 13
ORALS

MEDICAL IMAGE COMPUTING

Chairs: R. Sznitman, I. Isgum

Title	First author
The active brain atlas: combining 3D models with texture detectors	Chen, Yuncong
N-way Decomposition: Towards Linking Concurrent EEG and FMRI Analysis during Natural Stimulus	Lv, Jinglei
Towards Automatic Semantic Segmentation in Volumetric Ultrasound	Ni, Dong
Optimal transport for diffeomorphic registration	Vialard, François-Xavier
Dynamic field mapping and motion correction using interleaved double spin-echo diffusion MRI	Hutter, Jana
Fast Geodesic Regression for Population-Based Image Analysis	Hong, Yi

WEDNESDAY, 13 SEPTEMBER 2017

07:00	Registration	
08:00	**Track 14: Industry Session**	
10:00	Refeshments	
10:30	**Track 15: Posters**	
11:30	**Track 16: Posters**	
12:30	Lunch	
13:30	**MICCAI Society General Assembly and Enduring Impact Award**	
14:15	**Track 17: 20-years Keynotes**	Dr N. Ayache, *Important MICCAI contributions of the past 20 years* Dr P. Golland, *Medical Image Computing @ MICCAI - past present and future*
15:15	Refeshments	
15:45	**Track 17: 20-years Keynotes**	Dr N. Navab, *Computer Assisted Interventions @ MICCAI - past present and future* Dr B. Stieltjes, *Next-generation Medical Imaging*
16:45	**Track 18: MICCAI 2017 Awards / MICCAI 2018 Presentation**	
17:30	End of the day	
18:30	**PC Reception**	
19:30	**QC Tours**	

TRACK 14
INDUSTRY

INDUSTRY SESSION

Chairs: K. Zhou, Tanveer

8:00	Locally affine diffeomorphic surface registration for planning of metopic craniosynostosis surgery	Porras, Antonio
8:15	DARWIN: Deformable Patient Avatar Representation With Deep Image Network	Singh, Vivek
8:30	Deep Learning for Sensorless 3D Freehand Ultrasound	Prevost, Raphael
8:50	Keynote Speaker: Artificial intelligence in medical diagnosis- A clinician's perspective	Sunita Maheswari, M.D
9:25	Industry Panel – Arterys, HeartFlow, NVIDIA, TeleradSol, IBM	

TRACK 15
POSTERS

Chairs: P-T. Yap, S. Voros

Poster ID		
Atlas & Surface-Based Techniques		
2	Duan, Dingna	Exploring Gyral Patterns of Infant Cortical Folding based on Multi-view Curvature Information
10	Brown, Colin	Prediction of Brain Network Age and Factors of Delayed Maturation in Very Preterm Infants
Shape and Patch-Based Techniques		
17	Lindner, C .	Adaptable landmark localisation: applying model transfer learning to a shape model matching system
25	Kim, Hosung	Surface-wise texture patch analysis of combined MRI and PET to detect MRI-negative focal cortical dysplasia
Registration Techniques		
32	Kutten, Kwame	A Large Deformation Diffeomorphic Approach to Registration of CLARITY Images via Mutual Information
36	Ravikumar, Nishant	Generalised coherent point drift for group-wise registration of multi-dimensional point sets
Functional Imaging, Connectivity and Brain Parcellation		
44	Lv, Jinglei	N-way Decomposition: Towards Linking Concurrent EEG and FMRI Analysis during Natural Stimulus
52	Koval, Igor	Statistical learning of spatiotemporal patterns from longitudinal manifold-valued networks

Poster ID		
Diffusion Magnetic Resonance Imaging (MRI) & Tensor/Fiber Processing		
60	Hutter, Jana	Dynamic field mapping and motion correction using interleaved double spin-echo diffusion MRI
64	Zhang, Fan	Supra-threshold Fiber Cluster Statistics for Data-driven Whole Brain Tractography Analysis
72	Chen, Geng	Neighborhood Matching for Curved Domains with Application to Denoising in Diffusion MRI
Image Segmentation & Modelling		
84	Yao, Jianhua	Holistic Segmentation of Intermuscular Adipose Tissues on Thigh MRI
Optical Imaging		
92	Shimano, Mihoko	Separation of Transmitted Light and Scattering Components in Transmitted Microscopy
100	Schirrmacher, Franziska	QuaSI: Quantile Sparse Image Prior for Spatio-Temporal Denoising of Retinal OCT Data
104	M'hiri, Faten	Quality assessment of retinal hyperspectral images using SURF and intensity features
Airway & Vessel Analysis		
112	Owen, David	Anatomy-driven modelling of spatial correlation for regularisation of arterial spin labelling images
Motion & Cardiac Analysis		
124	Hou, Benjamin	Predicting Slice-to-Volume Transformation in Presence of Arbitrary Subject Motion
132	Hu, Yipeng	Intraoperative Organ Motion Models with an Ensemble of Conditional Generative Adversarial Networks
Tumor processing		
140	Ghose, Soumya	Field effect induced organ distension (FOrge) Features Predicting Biochemical Recurrence from Pre-treatment Prostate MRI
Planning & Simulation for Medical Interventions		
144	Porras, Antonio	Locally affine diffeomorphic surface registration for planning of metopic craniosynostosis surgery
152	Peterlik, Igor	Image-driven Stochastic Identification of Boundary Conditions for Predictive Simulation
Interventional Imaging & Navigation		
164	Latus, Sarah	An Approach for Needle Based Optical Coherence Elastography Measurements

TRACK 15
POSTERS

(CONTINUED)

Poster ID		
Medical Image Computing		
172	Chung, Moo	Online Statistical Inference for Large-Scale Binary Images
Feature Extraction & Classification Techniques		
180	Wachinger, Christian	Latent Processes Governing Neuroanatomical Change in Aging and Dementia
184	Gu, Yun	Unsupervised Feature Learning for Endomicroscopy Image Retrieval
192	Wirkert, Sebastian	Physiological Parameter Estimation from Multispectral Images Unleashed
Machine Learning in Medical Image Computing		
204	Xu, Chenchu	Direct detection of pixel-level myocardial infarction areas via a deep-learning algorithm
212	Baur, Christoph	Auxiliary Manifold Embedding for Fully Convolutional Networks
225	Yang, Xin	Joint Detection and Diagnosis of Prostate Cancer in Multi-parametric MRI based on Multimodal Convolutional Neural Networks
233	Yang, Dong	Deep Image-to-Image Recurrent Network with Shape Basis Learning for Automatic Vertebra Labeling in Large-Scale 3D CT Volumes
241	Feng, Xinyang	Discriminative Localization in CNNs for Weakly-Supervised Segmentation of Pulmonary Nodules
249	Jesson, Andrew	CASED: Curriculum Adaptive Sampling for Extreme Data Imbalance

TRACK 16
POSTERS

Chairs: X. Luo, C. Sanchez

Poster ID		
Atlas & Surface-based techniques		
1	Chen, Yuncong	The active brain atlas: combining 3D anatomical models with texture detectors
9	Vardhan, Avantika	Longitudinal modeling of multi-modal image contrast reveals patterns of early brain growth

(CONTINUED)

Poster ID		
Shape and Patch-Based Techniques		
16	Ma, Jingting	Nonlinear Statistical Shape Modeling for Ankle Bone Segmentation Using A Novel Kernelized Robust PCA
24	Ravishankar, H .	Learning and incorporating shape models for semantic segmentation
Registration Techniques		
31	Rohé, Marc-Michel	SVF-Net: Learning Deformable Image Registration Using Shape Matching
35	Cao, Xiaohuan	Deformable Image Registration based on Similarity-Steered CNN Regression
Functional Imaging, Connectivity and Brain Parcellation		
43	Wang, Junyan	Kernel-Regularized ICA for Computing Functional Topography from Resting-state fMRI
51	Noorzadeh, Saman	Multi-Modal EEG and fMRI Source Estimation using Sparse Constraints
Diffusion Magnetic Resonance Imaging (MRI) & Tensor/Fiber Processing		
59	Petrov, Dmitry	Evaluating 35 Methods to Generate Structural Connectomes Using Pairwise Classification
63	Gupta, Vikash	FiberNET: An ensemble deep learning technique for clustering white matter fibers
71	Chen, Geng	q-Space Upsampling Using x-q Space Regularization
Image Segmentation & Modelling		
83	Gibson, Eli	Towards image-guided pancreas and biliary endoscopy: automatic multi-organ segmentation on abdominal CT with dense dilated networks
Optical Imaging		
91	Rempfler, Markus	Cell Lineage Tracing in Lens-free Microscopy Videos
99	Sedai, Suman	Semi-supervised Segmentation of Optic Cup in Retinal Fundus Images Using Variational Autoencoder
103	Haeffele, Benjamin	Efficient Reconstruction of Holographic Lens-Free Images by Sparse Phase Recovery
Airway & Vessel Analysis		
111	Shen, Mali	BRANCH: Bifurcation Recognition for Airway Navigation based on struCtural cHaracteristics

Poster ID		
Motion & Cardiac Analysis		
123	Yu, Lequan	Automatic 3D Cardiovascular MR Segmentation with Densely-Connected Volumetric ConvNets
131	Karani, Neerav	Temporal Interpolation of Abdominal MRIs acquired during Free-Breathing
Tumor Processing		
139	Shen, Haocheng	Boundary-aware Fully Convolutional Network for Brain Tumor Segmentation
143	Antunes, Jacob	RADIomic Spatial TexturAl descripTor (RADISTAT): Characterizing intra-tumoral heterogeneity for response & outcome prediction
Planning & Simulation for Medical Interventions		
151	Philipp Stefan	A Mixed-Reality Approach to Radiation-free Training of C-arm based Surgery
Interventional Imaging & Navigation		
163	Zheng, Jiannan	Learning CNNs with Pairwise Domain Adaption for Real-time 6DoF Ultrasound Transducer Detection and Tracking from X-ray Images
Medical Image Computing		
171	Zhang, Jun	Joint Craniomaxillofacial Bone Segmentation and Landmark Digitization by Context-Guided Fully Convolutional Networks
Feature Extraction & Classification Techniques		
179	Kumar, Nitin	Kernel Generalized-Gaussian Mixture Model for Robust Abnormality Detection
183	Zhang, Li	An unbiased penalty for sparse classification with application to neuroimaging data
191	Li, Rui	Pattern Visualization and Recognition using Tensor Factorization for Early Differential Diagnosis of Parkinsonism
Machine Learning in Medical Image Computing		
203	Guha Roy, Abhijit	Error Corrective Boosting for Learning Fully Convolutional Networks with Limited Data
211	Abdi, Amir	Quality Assessment of Echocardiographic Cine Using Recurrent Neural Networks: Feasibility on Five Standard View Planes
224	Nie, dong	Medical Image Synthesis with Context-Aware Generative Adversarial Networks
232	Kiraly, Atilla	Deep Convolutional Encoder-Decoders for Prostate Cancer Detection and Classification

TRACK 16 POSTERS (CONTINUED)

Poster ID		
Machine Learning in Medical Image Computing (continued)		
240	Ding, Jia	Accurate Pulmonary Nodule Detection in Computed Tomography Images Using Deep Convolutional Neural Networks
248	Dou, Qi	Automated Pulmonary Nodule Detection via 3D ConvNets with Online Sample Filtering and Hybrid-Loss Residual Learning

MICCAI GENERAL ASSEMBLY

TRACK 17 KEYNOTES SPEAKERS 20 YEARS KEYNOTES

Chairs	Speaker	Title
L. Collins M. Descoteaux	Dr N. Ayache	Important MICCAI Contributions of the past 20 years
J. Cardoso L. Grady	Dr P. Golland	Medical Image Computing @ MICCAI - past present and future
P. Jannin L. Maier-Hein	Dr N. Navab	Computer Assisted Interventions @ MICCAI - past present and future
K. Whittingstall M. Chakravarty	Dr B. Stieltjes	Next-Generation Medical Imaging

TRACK 18 MICCAI AWARDS / MICCAI 2018 PRESENTATION

THURSDAY, 14 SEPTEMBER 2017

07:00	Registration
08:00	**Satellite Events**
10:00	Refreshments
10:30	**Satellite Events**
12:30	Lunch
13:30	**Satellite Events**
15:30	Refreshments
16:00	**Satellite Events**
17:30	End of the day

SATELLITE EVENTS

WORKSHOPS

Time	Acronym	Title	Room	Schedule page
AM	BIVPCS	Bio-Imaging and Visualization for Patient-Customized Simulations	**205A**	**82**
AM	LABELS	Large-scale Annotation of Biomedical data and Expert Label Synthesis	**205C**	**90**
AM	Patch-MI	Patch-based techniques in medical imaging	**204AB**	**93**
Full Day	CNI	International Workshop on Connectomics in NeuroImaging	**303A**	**86**
Full Day	CARE	Computer-Assisted and Robotic Endoscopy	**202**	**83**
Full Day	CBM	Computational Biomechanics for Medicine XII	**308AB**	**84**
Full Day	CLIP	CLinical Image-based Procedures	**304AB**	**85**
Full Day	DLMIA	Deep Learning in Medical Image Analysis	**206AB**	**87**
Full Day	MFCA	Mathematical Foundations of Computational Anatomy	**301A**	**91**
Full Day	POCUS	Point-of-Care Ultrasound: Algorithms, Hardware, and Applications	**302B**	**93**
PM	CMMI	Computational Methods for Molecular Imaging	**301B**	**86**
PM	GRAIL	GRaphs in BiomedicAl Image anaLysis	**205C**	**88**

CHALLENGES

Time	Acronym	Title	Room	Schedule page
AM	HRNTS	High resolution neuronal tissue segmentation challenge	**302A**	**89**
Full Day	iSeg-2017	MICCAI Grand Challenge on 6-month Infant Brain MRI Segmentation	**303B**	**89**
PM	LITS	LITS - Liver tumor segmentation challenge	**204AB**	**90**

WORKSHOPS + ASSOCIATED CHALLENGES

Time	Acronym	Title	Room	Schedule page
Full Day	BrainLes BraTS WMH	Brain-lesion workshop Multimodal Brain Tumor Segmentation (BraTS) Benchmark: «Survival Prediction» Challenge WMH Segmentation Challenge	**309AB**	**82**
Full Day	OMIA RETOUCH	Ophthalmic Medical Image Analysis RETOUCH - RETinal Oct FlUid CHallenge	**203**	**91**

TUTORIALS

Time	Title	Room	Schedule page
PM	Designing Benchmarks and Challenges for Measuring Algorithm Performance in Biomedical Image Analysis	**205B**	**87**

SCHEDULE: BIVPCS

08:15 **Opening Remarks & Announcements**

08:30 **Oral Presentation 1**

Cortical Envelope Modeling for Interactive Patient-Customized Curvilinear Reformatting in the Native Space
Wallace Souza Loos et al.

Simulation of Patient-Specific Deformable Ultrasound Imaging in Real Time
Mafalda Camara et al.

A Hybrid CNN Feature Model for Pulmonary Nodule Differentiation Task
Tingting Zhao et al.

A 3D Ultrasound Informed Model of the Human Gastrocnemius Muscle
M Alipour et al.

Atlas-based 3D Intensity Volume Reconstruction of Musculoskeletal Structures in the Lower Extremity from 2D Calibrated X-ray Images
Weimin Yu et al.

Automatic Liver Lesion Segmentation in CT Combining Fully Convolutional Networks and Non-Negative Matrix Factorization
Shenhai Zheng et al.

10:00 **Coffee Break**

10:30 **Oral Presentation 2**

Constructing Detailed Subject-Specific Models of the Human Masseter
C. Antonio Sánchez et al.

MRI-based heart and torso personalization for computer modeling and simulation of cardiac electrophysiology
Ernesto Zacur et al.

Rapid Prediction of Personalised Muscle Mechanics: Integration with Diffusion Tensor Imaging
J Fernandez et al.

Approaches to Brain Tissue Quantification with Comparison On Supporting the Detection of Age-related Dementia in MRI
Peifang Guo et al.

Relating atrial appendage flow stasis risk from computational fluid dynamics to imaging based appearance paradigms for cardioembolic risk
Soroosh Sanatkhani et al.

Deformable Multi-material 2-Simplex Surface Mesh for Intraoperative MRI-ready Surgery Planning and Simulation, with Deep-Brain Stimulation Applications
T. Rashid et al.

12:00 **Award Announcement, Panel Discussion, and End of Session**

SCHEDULE: BRAINLES & BRATS & WHM

BrainLes

08:00 **Introduction**

08:05 **Oral Session 1**

Automated Segmentation of Multiple Sclerosis Lesions using Multi-Dimensional Gated Recurrent Units
Simon Andermatt et al.

Joint Intensity Fusion Image Synthesis Applied to Multiple Sclerosis Lesion Segmentation
Greg M. Fleishman et al.

08:30 **Invited Talk**

Machine Learning for Lesion Detection, Segmentation and Prediction in MS Clinical Trials
Tal Arbel

08:55 **Oral Session 2**

Generalised Wasserstein Dice Score for Imbalanced Multi-class Segmentation using Holistic Convolutional Networks
Lucas Fidon et al.

Overall Survival Time Prediction for High Grade Gliomas based on Sparse Representation Framework
Guoqing Wu et al.

Brain Cancer Imaging Phenomics Toolkit (brain-CaPTk): An Interactive Platform for Quantitative Analysis of Glioblastoma
Saima Rathore et al.

09:35 Invited Talk

Radiomics & radiogenomics of brain tumors
Rivka Colen

10:00 Coffee Break

BraTS Challenge

10:30 Welcome (Overview & Challenge Summary Statistics)

10:45 Invited Talk

Clinical perspective of computational neuro-oncology
Michel Bilello

11:10 Oral Presentation of Top-Ranked Methods

12:20 Final Results / Awards / Discussion

12:30 Lunch Break

WMH Challenge

13:30 Welcome by WMH Challenge Organizer

13:40 Invited Talk

Dice overlap metrics for multiple objects: Application to lesion segmentation
Jerry Prince

14:10 Power Pitches by Participants

15:00 Final Results of WMH Challenge + Awards + Discussion

15:30 Coffee Break

BrainLes

16:00 Introduction

16:10 Oral Session

MARCEL (inter-Modality Affine Registration with CorELation ratio): An Application for Brain Shift Correction in Ultrasound-Guided Brain Tumor Resection
Nima Masoumi et al.

Traumatic Brain Lesion Quantification based on Mean Diffusivity Changes
Christophe Maggia et al.

Ordinal Outlier Analysis for Traumatic Brain Injury Detection
Matt Higger, Martha Shenton, SylvainBouix

Sub-Acute & Chronic Ischemic Stroke Lesion MRI Segmentation
Senan Doyle et al.

Brain Tumor Segmentation Using an Adversarial Network
Zeju Li et al.

17:15 Adjourn

SCHEDULE: CARE

08:30 Speaker Check-in

09:15 Opening Remarks

09:20 Oral Session 1

Image-based Smoke Detection in Laparoscopic Videos
Andreas Leibetseder et al.

Continued on next page »

Towards Real-Time Polyp Detection in Colonoscopy Videos: Adapting Still Frame-based Methodologies for Video Sequences Analysis
Quentin Angermann et al.

10:00 Coffee Break

10:30 Keynote Presentation
Dan Stoyanov

11:30 Oral Session 2

3D endoscope system using asynchronously blinking grid pattern projection for HDR image synthesis
Ryo Furukawa et al.

Motion Vector for Outlier Elimination in Feature Matching and its Application in SLAM based Laparoscopic Tracking
Cheng Wang et al.

Learning camera pose from optical colonoscopy frames through deep convolutional neural network (CNN)
Mohammad Ali Armin et al.

12:30 Lunch

13:30 Keynote Presentation
Michael Woods

14:30 Oral Session 3

Shape-based pose estimation of robotic surgical instruments
Daniel Wesierski et al.

Progressive Hand-eye Calibration for Laparoscopic Surgery Navigation
Jinliang Shao et al.

15:10 KUKA Awards Presentation

15:30 Coffee Break

16:00 Panel Discussion

SCHEDULE: CBM

08:20 Welcome
Poul Nielsen

08:30 Keynote 1

Making head and neck reconstruction surgery an engineering process
Sid Fels

09:30 Oral Session 1

Atlas of acceleration-induced brain deformation from measurements in vivo
Arnold D. Gomez et al.

10:00 Coffee Break

10:30 Oral Session 2

Reconstruction of real-world car-to-pedestrian accident using computational biomechanics model: effects of the choice of boundary conditions of the brain on brain injury risk
Fang Wang et al.

Computational modeling of fluid-structure interaction between blood flow and mitral valve
Weixin Si et al.

Maximum principal AAA wall stress is proportional to wall thickness
Karol Miller et al.

An immersed boundary method for detail-preserving soft tissue simulation from medical images
Christoph Paulus et al.

12:30 Lunch

13:00 Posters

A flux-conservative finite difference scheme for the numerical solution of the nonlinear bioheat equation
George C. Bourantas et al.

Quantifying carotid pulse waveforms using subpixel image registration
Amir Haji Rassouliha et al.

A discrete element method for modelling cell mechanics – application to the simulation of chondrocyte behavior in the growth plate
Grand R. Joldes et al.

13:30 Keynote 2

Computational biomechanics modelling for image guided interventions
David Hawkes

14:30 Oral Session 3

A comparison of biomechanical models for MRI to digital breast tomosynthesis 3D registration
P. Cotič Smole et al.

Towards a real-time full-field stereoscopic imaging system for tracking lung surface deformation under pressure controlled ventilation
Samuel Richardson et al.

15:30 Coffee Break

16:00 Oral Session 4

Patient-specific simulation: non-destructive identification method for soft tissue under large strain – Application to pelvic system
Olivier Mayeur et al.

Simulating platelet transport in Type-B aortic dissection
Louis P. Parker et al.

17:00 Wrap-up
Poul Nielsen

SCHEDULE: CLIP

09:00 Welcome
Stefan Wesarg

09:05 Keynote Lecture 1
Neil Glossop

10:00 Coffee Break

10:30 Oral Session 1

Intracranial Volume Quantification from 3D Photography
Liyun Tu et al.

Local Phase-based Learning for Needle Detection and Localization in 3D Ultrasound
Cosmas Mwikirize et al.

Automated Classification for Breast Cancer Histopathology Images: Is Stain Normalization Important?
Vibha Gupta et al.

Hybrid Tracking for Improved Registration of Laparoscopic Ultrasound and Laparoscopic Video for Augmented Reality
William Plishker et al.

Automatic Near Real-Time Evaluation of 3D Ultrasound Scan Adequacy for Developmental Dysplasia of the Hip
Olivia Paserin et al.

Fully Automatic Detection of Distal Radius Fractures from Posteroanterior and Lateral Radiographs
Raja Ebsim et al.

12:30 Lunch

13:30 Keynote Lecture 2
Greg M. Osgood

Continued on next page »

14:30 Oral session 2

Towards an Automated Segmentation of the Ventrointermediate Thalamic Nucleus
Elena Najdenovska et al.

Classification of Confocal Endomicroscopy Patterns for Diagnosis of Lung Cancer
D. Gil et al.

Automated Characterization of Pyelocalyceal Anatomy Using CT Urograms to Aid in Management of Kidney Stones
Yuankai Huo et al.

Automatic sentinel lymph node localization in Head and Neck cancer using a coupled shape model algorithm
Florian Jung et al.

15:30 Coffee Break

16:00 Announcement of Awards

SCHEDULE: CMMI

13:30 Invited Talk: Deep Learning in Medical Imaging
Shuo Li

14:00 Session 1

3D Lymphoma Segmentation in PET/CT Images Based on Fully Connected CRFs
Yuntao Yu, et al.

W-Net for Whole-Body Multiple Myeloma Lesion Detection on [68Ga]Pentixafor PET/CT Imaging
Lina Xu et al.

Synthesis of Positron Emission Tomography (PET) Images
via Multi-channel Generative Adversarial Networks (GANs)
Lei Bi et al.

Atlas-based Multi-organ 4D Segmentation for Dynamic
Abdominal PET
Silin Ren et al.

15:00 Break/Refreshment

15:30 Invited Talk: TBD

16:00 Industry Talk: Motion Correction for Siemens Biograph mMR
Fei Gao

16:15 Session 2

Individual Analysis of Molecular Brain Imaging Data Through Automatic Identification of Abnormality Patterns
Ninon Burgos et al.

3D Alpha Matting based Co-Segmentation of Tumors on PET-CT Images
Zisha Zhong et al.

Implementation of Cylindrical PET Scanners with Block Detector Geometry in STIR
Robert Becker et al.

17:00 Closing

SCHEDULE: CNI

07:30 Registration, Speaker Check-in, and Poster Setup

08:00 Opening Remarks

08:05 Keynote Speaker
Moo Chung

09:10 Oral Presentation 1

09:40 **Coffee Break and Poster Session**

10:30 **Keynote Speaker**
Bharat Biswal

11:35 **Oral Presentation 2**

12:05 **Lunch and Poster Presentation**

13:30 **Keynote Speaker**
Chris Rorden

14:35 **Oral Presentation 3**

15:05 **Oral Presentation 4**

15:35 **Coffee Break and Poster Session**

16:00 **Keynote Speaker**
Boris Bernhardt

17:00 **Closing Remarks and Best Paper Award**

SCHEDULE: DESIGNING BENCHMARKS AND CHALLENGES FOR MEASURING ALGORITHM PERFORMANCE IN BIOMEDICAL IMAGE ANALYSIS

13:30 **Introduction, Motivation, and Design of Benchmarks**
Michal Kozubek

14:15 **Review of Biomedical Image Analysis Challenges**
Lena Maier-Hein, Matthias Eisenmann and Annika Reinke

15:00 **Evaluation Metrics for Benchmarking**
Michal Kozubek

15:30 **Coffee Break**

16:00 **The Objective of Grand Challenges - A Theoretical Framework**
Adriënne Mendrik & Stephen Aylward

16:45 **Discussion on Grand Challenges in Biomedical Image Analysis**

SCHEDULE: DLMIA

08:00 **Opening Remarks**

08:03 **Invited Talk - Dr. Kevin Zhou**

08:45 **Oral Session 1**

Adversarial training and dilated convolutions for brain MRI segmentation
Pim Moeskops et al.

CNNs Enable Accurate and Fast Segmentation of Drusen in Optical Coherence Tomography
Shekoufeh Gorgi Zadeh et al.

Generalised Dice overlap as a deep learning loss function for highly unbalanced segmentations
Carole Sudre et al.

A deep level set method for image segmentation
Min Tang et al.

Learning Spatio-Temporal Aggregation for Fetal Heart Analysis in Ultrasound Video
Arijit Patra et al.

10:00 **Coffee Break**

10:30 **Nvidia Talk**

Continued on next page »

10:45 Oral Session 2

Fully convolutional regression network for accurate detection of measurement points
Michal Sofka et al.

Deep Residual Recurrent Neural Networks for Characterisation of Cardiac Cycle Phase from Echocardiograms
Fatemeh Taheri Dezaki et al.

3D Randomized Connection Network with Graph-based Inference
Siqi Bao et al.

11:30 Poster Session

12:30 Lunch

13:30 Invited Talk

The Impact of Deep Learning on Radiology
Dr. Ronald M. Summers

14:15 Oral Session 3

Non-rigid Craniofacial 2D-3D Registration Using CNN-Based Regression
Yuru Pei et al.

Context-based Normalization of Histological Stains using Deep Convolutional Features
Daniel Bug et al.

Domain-adversarial neural networks to address the appearance variability of histopathology images
Maxime Lafarge et al.

End-to-End Unsupervised Deformable Image Registration with a Convolutional Neural Network
Bob De Vos et al.

15:15 Invited Talk - Butterfly Network

15:30 Coffee Break

16:00 Invited Talk

Chris Pal

16:45 Oral Session 4

Computationally efficient cardiac views projection using 3D Convolutional Neural Networks
Matthieu Le et al.

Region-aware Deep Localization Framework for Cervical Vertebrae in X-Ray Images
S M Masudur Rahman Al Arif et al.

17:15 Best Paper Award and Closing Remarks

SCHEDULE: GRAIL

13:30 Introduction to the Workshop

13:40 Graphs and Manifold Learning in Computational Neuroscience: Correspondence and Individuality

Georg Langs

14:15 Oral Session: Graphs for Neuroimaging

Classifying phenotypes based on the community structure of human brain networks
Anvar Kurmukov et al.

Autism Spectrum Disorder Diagnosis Using Sparse Graph Embedding of Morphological Brain Networks
Carrie Morris et al.

Topology of surface displacement shape feature in subcortical structures
Amanmeet Garg et al.

15:00 Oral Session: Probabilistic Graphical Models

Uncertainty Estimation in Vascular Network Graphs
Authors: Markus Rempfler et al.

Extraction of Airways with Probabilistic State-space Models and Bayesian Smoothing
Raghavendra Selvan et al.

15:30 **Break**

16:00 **Deep Learning on Graphs: Convolutional Neuronal Networks on Irregular Domains**

Sarah Parisot

16:40 **Oral Session: Probabilistic Graphical Models**

Detection and Localization of Landmarks in the Lower Extremities Using an Automatically Learned Conditional Random Field
Alexander O Mader et al.

Graph Geodesics to Find Progressively Similar Skin Lesion Images
Jeremy Kawahara et al.

17:10 **Final remarks and GRAIL best paper Award**

SCHEDULE: HRNTS

08:00 **Introduction to the Brain Architecture Project and Description of the Data and Challenge, Leader Board and Analyses**

10:00 **Coffee Break**

10:30 **Individual Team Discussion of Approach, Methods and Results**

11:20 **Discussions**

SCHEDULE: ISEG

08:00 **Opening Remarks**

08:10 **Invited Talk: Title TBA**

Dr. Weili Lin

09:00 **Oral Session 1**

Infant brain tissue segmentation: an ensemble of semi-dense fully CNNs approach
Jose Dolz et al.

Isointense infant brain MRI segmentation with a dilated convolutional neural network
Pim Moeskops et al.

10:00 **Coffee Break**

10:30 **Invited Talk: Title TBA**

Dr. Colin Studholme

11:30 **Oral Session 2**

Automatic infant brain segmentation using cascaded U-nets
Chunliang Wang et al.

Brain MRI Segmentation Using Fully Convolutional Network and Transfer Learning
Yongchao Xu et al.

12:30 **Lunch**

13:30 **Invited Talk: Title TBA**

Ali Gholipour

14:30 **Oral Session 3**

A deeply supervised, context-Guided multi-Scale 3D fully convolutional network for infant brain image segmentation
Guodong Zeng et al.

Building an ensemble of complementary segmentation methods by exploiting probabilistic estimates
Gerard Sanroma et al.

Continued on next page »

15:30 **Coffee Break**

16:00 **Oral Session 4**

3D densely convolution networks for volumetric brain segmentation
Toan Duc Bui et al.

16:30 **Closing Remarks**

SCHEDULE: LABELS

08:00 **Opening Welcome**
Veronika Cheplygina

08:15 **Invited Talk**

Navigating the perilous waters of validation: the case of retinal image analysis
Emanuele Trucco

09:00 **Invited Talk**

Mixing Crowds, Computers, and Experts for Scalable Annotation of Biomedical Images
Danna Gurari

09:45 **Posters**

10:00 **Coffee Break**

10:30 **Posters**

11:15 **Contributed Talk**

Real Data Augmentation for Medical Image Classification
Chuanhai Zhang et al.

11:30 **Contributed Talk**

Crowdsourcing labels for pathological patterns in CT lung scans: Can non-experts contribute expert-quality ground truth?
Alison Q. O'Neil et al.

11:45 **Invited Talk**

Title TBA
Tanveer Syeda-Mahmood

SCHEDULE: LITS

13:30 **Introduction LITS Challenge**
Patrick Christ

14:00 **Keynote**
Olaf Ronneberger

14:30 **Presentation by LITS Participant**

14:50 **Presentation by LITS Participant**

15:10 **Presentation by LITS Participant**

15:00 **Coffee Break**

15:30 **Presentation by LITS Participant**

15:50 **Presentation by LITS Participant**

16:10 **Award Ceremony**
Patrick Christ and NVIDIA

16:30 **Panel Discussion with Participants and Organizers**

SCHEDULE: MFCA

8:00 **Introduction**

8:15 **Oral Session: Diffeomorphisms and Algorithms for Computational Anatomy**

Rank Constrained Diffeomorphic Density Motion Estimation for Respiratory Correlated Computed Tomography.
Markus D Foote et al.

Efficient Parallel Transport in the Group of Diffeomorphisms via Reduction to the Lie Algebra.
Kris Campbell et al.

Computational Anatomy in Theano
Line Kühnel et al.

10:00 **Coffee Break**

10:30 **Keynote**

Marc Niethammer

10:30 **Oral Session: Longitudinal Computational Anatomy**

Prediction of the progression of subcortical brain structures in Alzheimer's disease from baseline.
Alexandre Bône et al.

Unbiased Diffeomorphic Mapping of Longitudinal Data with Simultaneous Subject Specific Template Estimation.
Daniel Tward et al.

12:30 **Lunch**

13:45 **Oral Session: Landmark and Curves**

Exact Function Alignment Under Elastic Riemannian Metric.
Daniel Robinson et al.

Bridge Simulation and Metric Estimation on Landmark Manifolds.
Stefan Sommer et al.

A new metric for statistical analysis of rigid transformations: application to the rib cage.
Baptiste Moreau

15:30 **Coffee Break**

16:00 **Session 4: Shape Analysis using Varifolds**

Varifold-based matching of curves via Sobolev-type Riemannian metrics.
Martin Bauer et al.

White matter fiber segmentation using functional varifolds.
Kuldeep Kumar et al.

17:10 **Final Words**

SCHEDULE: OMIA-RETOUCH

Morning: OMIA-4 workshop

08:00 **Opening Remarks**

08:20 **Oral Session 1: Deep Learning (15' per paper including questions)**

08:20 **OMIA-O-1**

Retinal Image Quality Classification Using Fine-tuned CNN
Jing Sun et al.

08:35 **OMIA-O-2**

Joint Optic Disc and Cup Segmentation using Fully Convolutional and Adversarial Networks
Sharath M Shankaranarayana Sun et al.

08:50 **OMIA-O-3**

Representation Learning for Retinal Vasculature Embeddings
Luca Giancardo Sun et al.

09:05 **OMIA-O-4**

Towards topological correct segmentation of macular OCT from cascaded FCNs
Yufan He et al.

Continued on next page »

09:20 **Poster Session**

10:00 **Coffee Break and Posters**

10:30 **Oral session 2: Choroid (15' per paper including questions)**

10:30 **OMIA-O-5**

Detecting Early Choroidal Changes using Piecewise Rigid Image Registration and Eye-Shape Adherent Regularization
Tiziano Ronchetti et al.

10:45 **OMIA-O-6**

3D Choroid Neovascularization Growth Prediction with Combined Hyperelastic Biomechanical Model and Reaction-Diffusion Model
Chang Zuo et al.

11:00 **Invited Speaker**

Analysis of Adaptive Optics Retinal Images: Pearls & Pitfalls
Prof Joseph Carroll, PhD

12:00 **Oral Session 3 (15' per paper including questions)**

12:00 **OMIA-O-7**

Model-Driven 3-D Regularisation for Robust Segmentation of the Refractive Corneal Surfaces in Spiral OCT Scans
Joerg Wagner et al.

12:15 **OMIA-O-8**

Retinal Biomarker Discovery for Dementia in an Elderly Diabetic Population
Ahmed E. Fetit et al.

12:30 **OMIA Closing Remarks**

12:30 **Lunch Break**

Afternoon: RETOUCH Challenge

13:30 **RETOUCH Introduction and Challenge Overview**
Hrvoje Bogunović et al.

14:00 **RETOUCH Methods Session**
(Chair: Clara Sánchez)

14:00 **Deep neural networks for the Detection and Segmentation of the Retinal Fluid in OCT Images**
Sung Ho Kang et al.

14:15 **Simultaneous Classification and Segmentation of Cysts in Retinal OCT**
Stefanos Apostolopoulos et al.

14:30 **Retinal Fluid Segmentation and Detection in Optical Coherence Tomography Images using Fully Convolutional Neural Network**
Donghuan Lu et al.

14:45 **Simultaneous Detection and Quantification of Retinal Fluid with Deep Learning**
Dustin Morley et al.

15:00 **A Generalized Motion Pattern and FCN Based Approach for Retinal Fluid Detection and Segmentation**
Shivin Yadav et al.

15:15 **Automatic Segmentation of Fluid-Associated Abnormalities and Pigment Epithelial Detachment in Retinal SD-OCT Images**
Qiang Chen et al.

15:30 **Coffee Break**

16:00 **RETOUCH Results and Analysis**
Hrvoje Bogunović and Freerk Venhuizen

16:30 **OMIA – RETOUCH Open Discussion**

SCHEDULE: PATCHMI

8:00 **Registration, Speaker Check-in and Poster Setup**

8:30 **Opening Remarks**

8:45 **Keynote Speaker: TBA**
Mallar Chakravarty

9:30 **Poster Session**

10:00 **Coffee Break and Poster Session (continued)**

10:30 **Keynote Speaker: TBA**
Hongzhi Wang (IBM Research)

11:15 **Oral Presentations**

Hippocampus subfield segmentation using a patch-based boosted ensemble of autocontext neural networks
Jose V. Manjon et al.

Whole Brain Parcellation with Pathology: Validation on Ventriculomegaly Patients
Aaron Carass et al.

Multiple Sclerosis Lesion Segmentation using Joint Label Fusion
Mengjin Dong et al.

Modeling the Intra-class Variability for Liver Lesion Detection using a Multi-class Patch-based CNN
Maayan Frid-Adar et al.

12:15 **Closing Remarks**

SCHEDULE: POCUS

08:00 **Introduction**
Stephen Aylward, Kitware, USA

08:30 **Invited Talks**

Ultrasound Research at Johns Hopkins
Emad Boctor

Rapid Prototyping of Ultrasound-Guided Intervention Applications
Gabor Fichtinger

E-FAST and Other In-Field Applications of Computer-Assisted Point-Of-Care Ultrasound
Stephen Aylward

10:00 **Coffee Break**

10:30 **Oral Session: Segmentation**

Combining Automated Image Analysis with Obstetric Sweeps for Prenatal Ultrasound Imaging in Developing Countries
Thomas L.A. van den Heuvel et al.

Automatic Estimation of the Optic Nerve Sheath Diameter from Ultrasound Images
Samuel Gerber et al.

Continued on next page »

Achieving fluid detection by exploiting shadow detection methods
Matthias Noll et al.

11:40 Oral Session: Tracking

A Probe-Camera System for 3D Ultrasound Image Reconstruction
Koichi Ito et al.

Ultrasound Augmentation: Rapid 3-D Scanning for Tracking and On-Body Display
Hastings Greer et al.

12:30 Lunch

13:30 Oral Session: Human Factors

Overall Proficiency Assessment in Point-of-Care Ultrasound Interventions: The Stopwatch is not enough
Matthew Holden et al.

13:50 Oral Session: Quantification

A Novel Ultrasound Imaging Method for 2D Temperature Monitoring of Thermal Ablation
Chloe Audigier et al.

14:10 Live Demonstrations

A low-cost device for prenatal ultrasound imaging in developing countries
Thomas L.A. van den Heuvel et al.

Movies of a probe-camera system for 3D ultrasound image reconstruction
Koichi Ito et al.

Volume reconstruction using accelerometer
Andras Lasso et al.

Traumatic brain injury assessment using a tablet-based ultrasound system
Samuel Gerber et al.

Combined tracking + surface scanning using RealSense.
Andras Lasso et al.

Fusing Hololens and point-of-care ultrasound technology for intuitive procedure guidance
Luv Kohli et al.

Ultrasound augmentation using a pico projector and high-speed camera
Hastings Greer et al.

15:30 Coffee Break

16:00 Invited Talk: Clinical Applications of Point-Of-Care Ultrasound
Kevin Cleary et al.

16:30 Panel Discussion

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