Centre for Innovative Ultrasound Solutions

For health care, maritime, and oil & gas

CIUS spring conference 25.-26 April 2018
Venue: Clarion Hotel and Congress Center
Brattørkaia 1, 7010 Trondheim, Phone: 73 92 55 00

Program

Wednesday April 25th 2018

08:30 -> *Registration*

10.00-13.00 Workshops (see last pages for workshop programs)

Workshop 1: ***Electronics and transducer design, integration***

Workshop 2: ***CIUS Challenge on Contrast Enhancement***

13.00-14.00 *Lunch*

14.00 Official CIUS Spring Conference program starts

14.00-14.15 Welcome and update on CIUS and introduction of CIUS Scientific Advisory Board (SAB) (Asta Håberg)

14:15-14.25 CIUS Scientific Advisory Board plan (SAB head Anna Shaughnessy)

14.25-15.20 Dr. Philippe Blondel, Deputy Director, Centre for Space, Atmospheric and Oceanic Science, University of Bath: "Ultrasound in the Seven Seas"

15.20-15.50 *Refreshments & Mingling*

15.50-16.20 Presentation of workshops by workshop organizers (~15 min each)

16.30-18.45 Networking session

19.00 *CIUS Dinner (Astrum restaurant, top floor of the Clarion Hotel & Congress)*

Thursday April 26th 2018

08.00-09.30 ***Microsystems for ultrasound imaging***

08.00-08.20 Dr. Pere Llimos Muntal, Department of Electrical Engineering, Technical University of Denmark, "Application Specific Integrated Circuits for Portable Ultrasound Systems"

08.20-09.05 Professor Levent Degertekin, School of Mechanical Engineering, Georgia Tech, "Microscale Integrated Systems for Intravascular and Intracardiac Ultrasound Imaging"

09.05-09.25 Harald Garvik, CIUS/IE, NTNU "Design of Analog-to-Digital Converters for Ultrasound Probes"

09:25-09.50 *Coffee break/Refreshments/Mingling*

09.50-10.20 ***From academia to starting your own business***

Professor Dr. Jenny Dankelman, Delft University of Technology: "From innovation in academia to company"

CSO, Dr. Iacob Mathisen, Otivio: "Starting a company and making a living of your idea"

10.20-10.30 *Refreshments & Mingling (Set up for speed updates)*

10.30-11.30 Speed updates. 8 presenters, prepare presentation of max. 10 min duration.

11.30-12.30 *Lunch*

12.30-13.30 Speed updates continue

13.30-14.00 *Refreshments & Mingling*

14.00 ***Innovation in CIUS***

14.00-15.15 *CIUS 2017 DOFIs (include a minimum of 6 min for discussion for each DOFI)*

14.00-14.10 Introduction to innovation in CIUS (Industrial liaison, PhD Svein-Erik Måsøy)

14.10-14.15 Professor Lasse Løvstakken: Introduction to his team and their DOFIs 1-3

14.15-14.30 DOFI1: Professor Lasse Løvstakken "User friendly and efficient annotation tool for cardiac view classification and segmentation"

14.30-14.45 DOFI 2: PhD candidate Andreas Østvik: "Real-time classification of standard views in transthoracic echocardiography using convolutional neural networks"

14.45-15.00 DOFI 3: Postdoc Erik Smistad: "Automatic, fast and accurate cardiac ultrasound segmentation using deep learning"

15.00-15.55 DOFI 4: Postdoc Sebastien Salles: Clutter filter Wave Imaging

15.15-15.30 CEO Kristoffer Johansen, Re{Lab}, "Re{Lab} – A new Norwegian design and production company for ultrasound transducers"

15.30-15.45 Update on Elastography by UiO

15.45-16.00 CIUS 2017 DOFI reward presentation and closing remarks (Eva Nilssen, CIUS Board director and Program Manager *GE* Healthcare)

16.00 End day 2

10.00-13.00 Workshops

Workshop 1: *Electronics and transducer design, integration*

Organizers: Professors Lars Hoff, USN, and Researcher Tonni F Johansen, SINTEF and NTNU

Time	Title	Presenter
10.00-10.10	*Welcome and introduction*	Professor Lars Hoff, HSN
10.10-10.30	*Development of dual frequency hybrid CMUT/ piezoelectric transducers*	Associate professor Tung Manh, USN
10.30-11.00	*CMUT/CMOS integration for catheter based ultrasound imaging.*	Professor Levent Degertekin, Georgia Tech
11.00-11.20	*Coffee break*	
11.20-11.50	*Custom integrated circuit design for capacitive micromachined ultrasonic transducers*	Dr. Pere Llimos Muntal, DTU
11.50-12.20	*To be announced*	Dr. Trym Eggen, GE Vingmed Ultrasound
12.20-12.40	*Loss mechanisms and heat generation in piezoelectric transducers*	PhD candidate Marcus Wild, USN
12.40-13.00	*Experimental characterization of PZT-8 materials at high temperatures*	Associate professor Martijn Frijlink, InPhase/NTNU/USN

Workshop 2: *CIUS Challenge on Contrast Enhancement*

Organizers: Dr. Alfonso Rodriguez-Molares (NTNU), Dr. Bastien Denarie (GE), Professor Andreas Austeng (UiO), Dr. Svein-Erik Måsøy (NTNU)

Aim

Introduce some of the adaptive beamforming techniques to enhance contrast. Experience the performance and potential pitfalls of state-of-the-art method. And, you can also win an iPad.

Who can participate

Open to all CIUS members. Register here http://hirse.medisin.ntnu.no/cius/ to keep updated.

Requirements

Being able to program a language (any language)

When

The challenge will open the 18th of April 2018 at 10:00. A final session will be celebrated during CIUS spring conference the 25th of April 2018 from 10:00-13:00.

Procedure

1.- The 18th of April 2018 at 10:00 ECT a website will be released containing:

- Information on Coherence Imaging and Adaptive Beamforming algorithms
- A collection of datasets in UFF format
- Code example to generate some simple images with the USTB toolbox
- A web form to submit results (beamformed images)
- A real-time preliminary ranking with the scoring of all participants so far

2.- A final session will be celebrated the 25th of April 2018, from 10:00 to 13:00. This session must be attended to qualify to win the prize (Apple iPad WiFi 32 GB). The winner will be announced at 15:50 during the CIUS general program.

Final Session Program

10:00 – 10:30	Short presentation of the Challenge and review of the ranking at that point
10:30	Release of new datasets, and opening of the submission for the final ranking
10:30 – 12:30	Time for the participants to process and submit results for the new datasets.
11:00 – 11:20	***Coffee break*** *(if you can expend the time)*
12:30	Closure of result submission
12:30 – 13:00	Review of results submitted and deliberation

Rules

No rules. This is beamforming war. However: Power-point beamforming is NOT allowed. The Organizers reserve the right of disqualifying a method if it is too much dependent on human intervention, for instance if threshold levels are manually selected case by case. In case of a draw the algorithm with the better name will be declared the winner. The intention of this challenge is informative and educational, and kindle interesting discussion on the topic. The Organizers reserve the right of declaring the challenge null and void if it is taken too seriously. And then, yes, they will keep the iPad then.