

Workshop

ICU Cockpit

March 9th, 2018

IBM Research Zurich

<https://www.zurich.ibm.com>



Big Data
National Research Programme



**ICU
Cockpit**
artificial intelligence
for neurointensive care

IT platform for multimodal patient monitoring and therapy support in intensive care and emergency medicine

Medical knowledge has a half-life of just a few years, while medical staff struggle to keep up with the explosion of information. In addition, the volume of medical data per patient is increasing exponentially in the field of precision medicine. In intensive and emergency medicine, the situation is compounded by real-time signals from multiple sensors on, as well as inside the human body. In an emergency situation, in particular, it is not possible to integrate this flood of information rapidly into the decision-making process.

ICU-Cockpit is a joint IT research project between the University and ETH Zurich, IBM Research and Supercomputing Systems that aims to create an integrated platform for patient monitoring and therapy support. Data from numerous medical devices are synchronized, and algorithms for early alarm systems and treatment recommendations are developed, with the initial focus on epileptic events.

The project is aimed at initiating a fundamental development in emergency and intensive medicine – and bringing about a substantial improvement in the way diagnostics, treatment and risk management are handled in everyday clinical practice.

The goal of this workshop is to bring together researchers from academia and industry as well as clinicians to discuss state-of-the-art and present first project results.

Thank you for joining the event!

Sincerely,

Maria Gabrani, Ph.D.

IBM Zurich Research Laboratory

Emanuela Keller, M.D.

University Hospital Zurich

Agenda

8:30 Arrival & registration

9:00 Welcome Address

Maria Gabrani, Ph.D., IBM Research Zurich

9:15 Needs and challenges at the Hospital/Clinical environment

Emanuela Keller, M.D., University Hospital Zurich

9:45 Needs and challenges at the Pharma

tbd

10:15 Needs and challenges in automatic epileptic seizure detection

Thomas Grunwald, M.D., Ph.D., Swiss Epilepsy Center, Zurich

10:45 Break

11:00 First results from ICU Cockpit

- IT architecture

Christoph Bühler, Supercomputing Systems

Christian Strässle, University Hospital Zurich

- Testing the Cockpit: A fully replicated test environment and first results

David Mack, Ph.D., ETH Zürich

- Not to Cry Wolf: False alarms elimination based on distantly supervised multitask learning in the Intensive Care Unit

Patrick Schwab, ETH Zurich

- Video-based patient status evaluation

Matthew Padiaditis, Ph.D., IBM Research - Zurich

- Mondrianian States: Visualizing signal correlations at the bedside

David Mack, Ph.D., University and ETH Zurich

- Decision Tree Analysis in Stroke

Carl Muroi, MD, University of Zurich

12:30 Lunch

13:30 Parallel workshops

- Epilepsy management through mobile seizure detection and prediction using deep learning techniques.

Moderator: Isabell Kiral-Kornek, Ph.D., IBM Research –

Australia

- The benefits and challenges in using RWE for clinical decision support

Moderator: Yaara Goldschmit, Ph.D., IBM Research – Haifa

- Human centric sensing and computing

Moderator: Thomas Brunschwiler, Ph.D., IBM Research-Zurich

- Multimodal streams: the promise and the challenge

Moderator: Emanuela Keller, M.D., University Hospital Zurich

15:00 Break

15:30 Panel discussion on results of workshops

16:30 Close up