Workshop

ICU Cockpit

June 24th, 2019
University Hospital Zurich
Nordtrakt 1, room C307
Frauenklinikstrasse 10
8091 Zurich

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, ETH Zurich and IBM Research 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 therapy support are developed, with the initial focus on multimodal neuromonitoring and the prevention of secondary brain injuries.

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 project results.

Thank you for joining the event!

Sincerely,

Maria Gabrani, Ph.D. Emanuela Keller, M.D.
IBM Zurich Research Laboratory University Hospital Zurich
Agenda

8:30   Arrival & registration

9:00   Welcome and Introduction

   Emanuela Keller, MD, University Hospital Zurich

9:15   Challenges in Big Data Research and Precision Medicine in Neurocritical Care

   Dick Moberg, Founder and CEO Moberg ICU Solutions, Ambler, Pennsylvania

9:45   Visualizing hospital data: From the campus to the bedside

   Dominique Brodbeck, PhD, University of Applied Sciences Northwestern Switzerland

10:10  Break

10:40  Results from ICU Cockpit

   - Automated False Alarm Reduction in a Real Life Intensive Care Setting using Motion Detection
     Carl Muroi, MD, University of Zurich

   - Learning Counterfactual Representations for Ventilation in Critical Care
     Patrick Schwab, ETH Zurich

   - Video-based patient monitoring and human emotions assessment
     Anca-Nicoleta Ciubotaru, IBM Research – Zurich

   - Automatic detection of EEG based burst-suppression-pattern in neurocritical care patients
     Marcellina Haeberlin, MD, University Hospital Zurich
     Gagan Narula, PhD, University of Zurich

   - Prognostic Value and Circadian Rhythm of the Neurological Pupil Index
     Carl Muroi, MD, University of Zurich

12:10  Lunch
13:00 Parallel workshops

- Live-demo Neurocritical Care Unit
  *Moderator: Emanuela Keller*

- Challenges and Behavior Pattern in AI-Supported Healthcare Teams
  *Moderator: Nadine Bienefeld, Ph.D., ETHZ*

- Vital-sign monitoring of patients by mobile sensors: respecting usability, privacy and explainability
  *Moderator: Thomas Brunschwiler, PhD, IBM Research-Zurich*

- Patient monitoring outside the ICU using common sensors: options, complementarity, opportunities and challenges
  *Moderator: Matthew Pediaditis, PhD, FORTH, Greece*

15:00 Break

15:20 Panel discussion on results of workshops

16:15 Close up
University Hospital: Entrance Frauenklinikstrasse 10, Hörsaaltrakt Nord 1: Level C, room Nord 1, C 307