The European Society for Computing and Technology in Anaesthesia and Intensive Care (ESCTAIC): A special issue of full papers (Erlangen meeting 2011) and conference abstracts (Timisoara, meeting 2014)

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This issue of the Journal of Clinical Monitoring and Computing includes the third special issue of The European Society for Computing and Technology in Anaesthesia and Intensive Care (ESCTAIC) www.esctaic.org. ESCTAIC is a multi-disciplinary forum for communication between the clinical disciplines of anaesthesia and intensive care medicine and the technical disciplines including engineering and computer science.

This issue includes abstracts from ESCTAIC's 2014 meeting in Timisoara [1] and an editorial from the Chairman of ESCTAIC [2], plus full papers invited from selected authors following ESCTAIC's 2011 meeting in Erlangen [3].

Four full papers [4–7] were accepted following peer review for publication in this issue. These reflect the activities of ESCTAIC meeting participants spanning a wide range of interests from clinical workflow [4], data representation and management [5], application of data and models in decision support [6], to detailed analysis of individual continuous measurements [7]. Each of these papers illustrates novel technological contribution in the fields of anaesthesia and intensive care.

The contribution of Schulz et al. [4] is one of a number from this group analyzing the anaesthetists workload during critical incidences. In this paper they simultaneously measured performance, physiological indicators of workload and distribution of visual attention in a simulator environment in 15 anaesthetists illustrating the potential benefits of such an experimental environment. Kraus et al.

[5] explore the integration of a language for encoding medical knowledge—the Arden syntax—into a commercially available PDMS system. The paper is largely technical, describing the platform for integrating the Medical Logic Modules (MLMs) of the Arden syntax, but also discusses the current status of clinical implementation with MLM's having been implemented for data-driven monitoring of laboratory values, and user driven decision support and these currently being applied an average of 442 times per day. Schädler et al. [6] present a novel system for controlling mechanical ventilation based upon both heuristic knowledge and physiological models. Heuristic knowledge is applied through hypothesis testing, e.g. can FiO₂ be lowered, and physiological models are used to simulate patient response. The paper describes evaluation of the system in 19 patients showing that the system could achieve safe settings with reduced respiratory load. In the final paper of the issue Schaffer et al. [7] address the appropriate method of estimation of power spectral density (PSD) when performing frequency domain analysis of heart rate variability. In 25 healthy subjects they found that fast Fourier transform was the most appropriate method for estimating RR-interval PSD during paced respiration.

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