

Digital ICU : Visualization Framework for Patient Data in Intensive Care Unit

General Info

Contact Person: Kai Wu

Contact Email: k.wu@tum.de

Project Abstract

ICU patients are continuously monitored by different medical devices, where the measurements are displayed on their respective screens. Currently, we are able to obtain real-time bedside patient data from a patient monitor, a respirator and an infusion system. In this project, your task is to integrate all the data together and design the visualization and interaction method to assist the data inquiry and analysis of medical staff. For visualization, apart from plotting all the measurements, we also want to interpret the inherent correlation and causality among the multivariate data. Besides, considering the need for different data of physicians and nurses, profile-based data inquiry and visualization is also another wanted feature.

Tasks Description

- Develop a visualization framework for patient data, including high-frequency waveform data, periodically and aperiodically recorded medical events.
- User interface design
- Visualize correlation and abnormality in patient data for diagnosis assistance
- Optional: you are also encouraged to apply AR techniques on visualization and user interaction (e.g., via portable tablet or HoloLens)

Technical Prerequisites

- Advanced programming skills with python or C++