NXT19-008 - DataDiVR -- A Virtual Reality Platform for Biomedical Data Analyses in Clinical Practice

Abstract

Constantly growing amounts of data play an increasingly important role in practically all areas of our life. This development has great potential, for example in biomedical research, where huge amounts of data from genome sequencing enable completely new insights into the molecular mechanisms of diseases.

At the same time, the analysis and interpretation of the growing amounts of data also present us with new challenges. In addition to machine learning methods, also new methods for interactive data visualization play a vital role in overcoming these challenges. In this context, we are pursuing a completely new approach: We use Virtual Reality (VR) technology to visualize large data sets and explore them interactively. The overarching goal of this project was to test and further develop our experimental, basic research-oriented platform in the context of concrete, clinical applications. This was done in close cooperation with clinical users in Hamburg, Maastricht and Vienna. The further developments that were implemented in this project concerned the technical infrastructure of the platform, but also the graphical representation of the data and the user interaction elements.

The results of the work were presented in several international conferences, both to a broad as well as the specialist audiences. A publication is currently in revision in the scientific journal Nature Communications.

Keywords:
Virtual Reality Data Visualisation; Big Data; Clinical Data Analysis

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Further links to the persons involved and to the project can be found under
https://www.wwtf.at/funding/programmes/ei/NXT19-008/