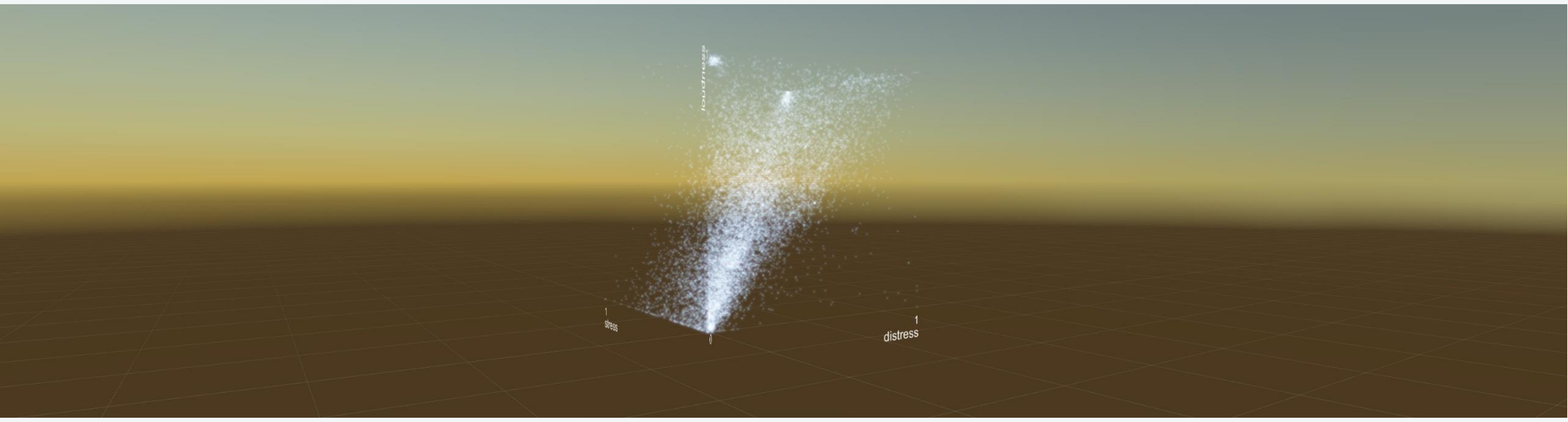
HOLOVIEW

Exploring Patient Data in Mixed Reality

Burkhard Hoppenstedt [1], Christian Schneider [2], Rüdiger Pryss [1], Winfried Schlee[2], Thomas Probst [3]
Patrick Neff [2], Jorge Simoes [2], Alexander Treß [4] & Manfred Reichert [1]

[1] Ulm University, [2] University of Regensburg, [3] Danube University Krems, [4] ATR Software

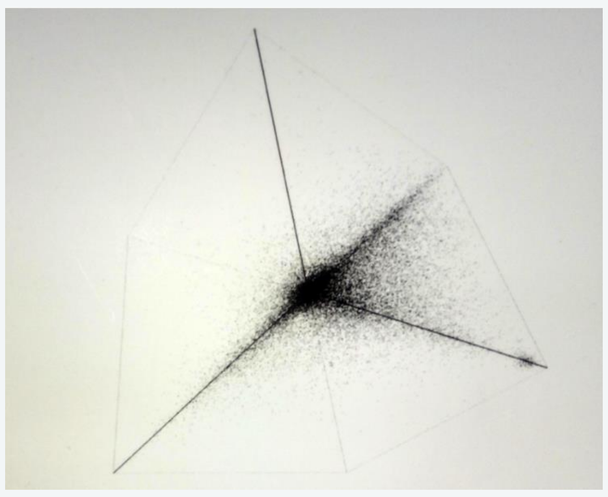


Over the last years, the **TrackYourTinnitus** project collected data from worldwide tinnitus patients using smart mobile devices. The gathered data set, in turn, is high-dimensional and it is therefore challenging to visualize it for analyzing purposes. To remedy this drawback, a 3D approach that applies the Microsoft HoloLens is proposed.

More specifically, we visualize tinnitus records as a hologram, which is augmented by the real world. The developed prototype particularly tackles three challenges in the context of analyzing the TrackYourTinnitus data set visually. First, the detection of correlations between dimensions is simplified by highlighting the relations between the diagram axes and visually displaying the correlation coefficient.

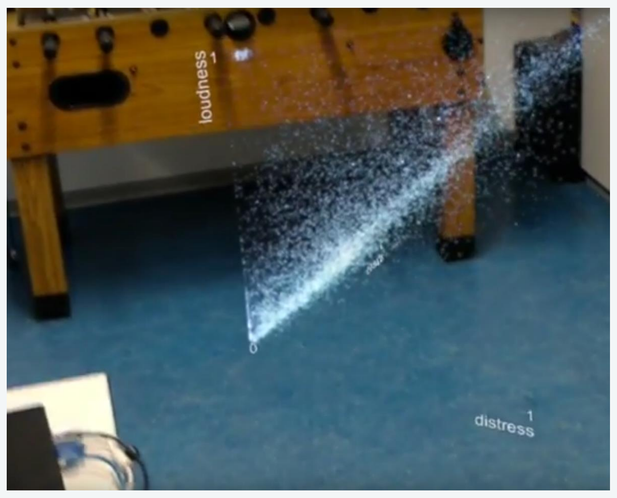
Second, an outlier detection method reveals striking data points and, third, a clustering approach allows for the recognition of related data points. Finally, the performance of the prototype can be controlled by subsampling the data set in order to receive different types of resolutions. Therefore, the prototype is able to handle large data sets.

Normalized Cube Sketch



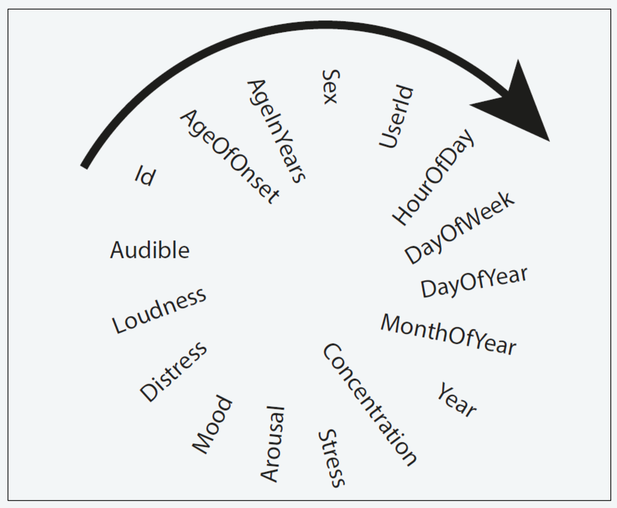
All features of the tinnitus data set can be displayed in a 3d cube

Mixed Reality



The hologram can be explored in any room and it keeps its position

Transform Axes



Each axis can be exchanged using speech recognition

Presented at TRI / TINNET Conference 2018
http://2018.tri-conf.org/

Contact and HOLOVIEW Project Information

Institute of Databases and Information Systems
Ulm University, Germany

M. Sc. Burkhard Hoppenstedt
burkhard.hoppenstedt@uni-ulm.de
Phone +497315024136
Fax +497315024134

Dr. Rüdiger Pryss
ruediger.pryss@uni-ulm.de
Phone +497315024136
Fax +497315024134

Prof. Dr. Manfred Reichert
manfred.reichert@uni-ulm.de
Phone +497315024135
Fax +497315024134