Gesture Interaction Browser-Based 3D Molecular Viewer

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Abstract

The paper presents an open source system that allows the user to interact with a 3D molecular viewer using associated hand gestures for rotating, scaling and panning the rendered model. The novelty of this approach is that the entire application is browser-based and doesn't require installation of third party plug-ins or additional software components in order to visualize the supported chemical file formats. This kind of solution is suitable for instruction of users in less IT oriented environments, like medicine or chemistry. For rendering various molecular geometries our team used GLmol (a molecular viewer written in JavaScript). The interaction with the 3D models is made with Leap Motion controller that allows real-time tracking of the user's hand gestures. The first results confirmed that the resulting application leads to a better way of understanding various types of translational bioinformatics related problems in both biomedical research and education.

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