

Data Visualization in AR

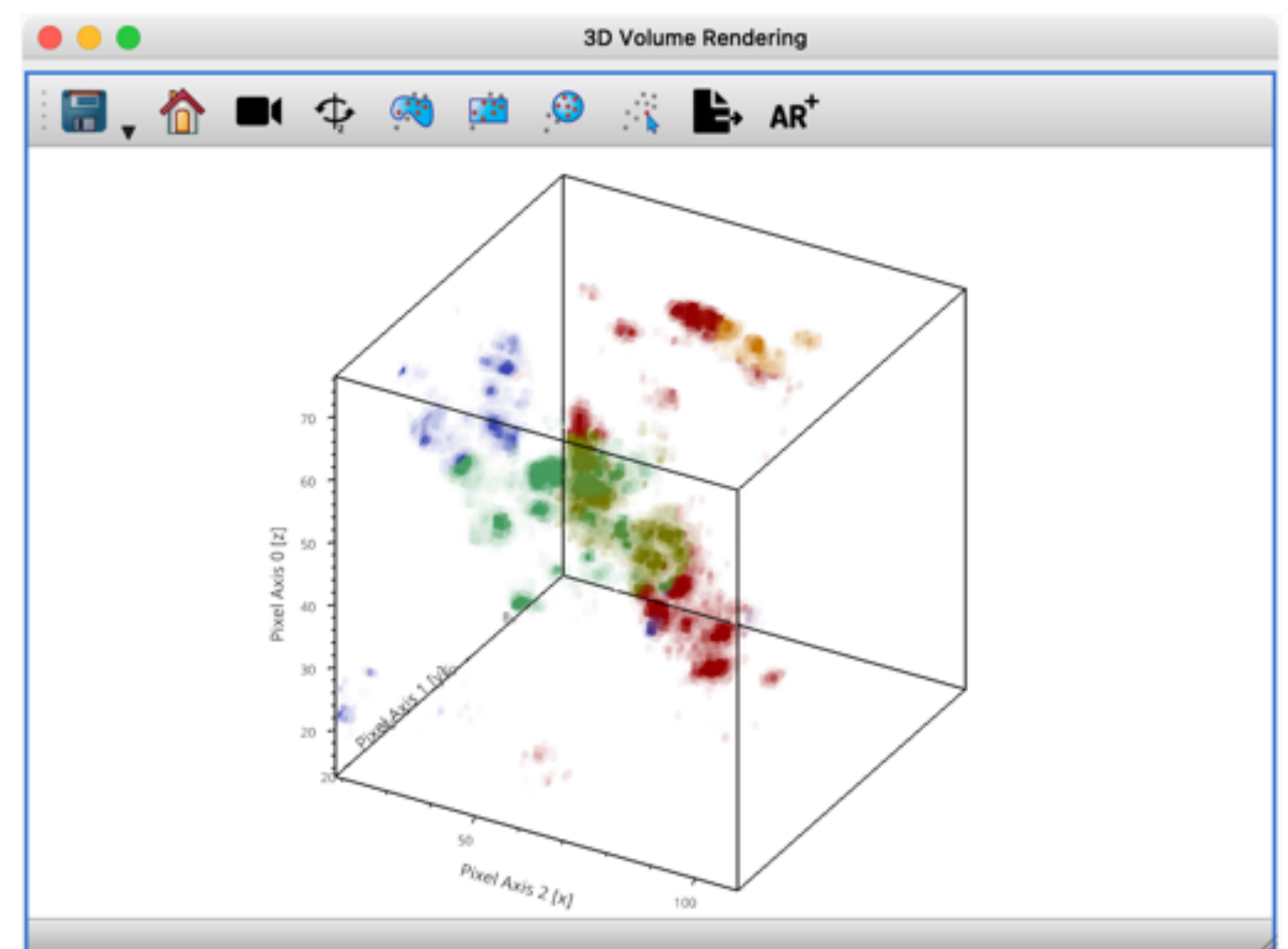
Space in 3D: Immersive Analytics Module for a Python Based Visual Analytics Software



The Seamless Astronomy Group at the Harvard-Smithsonian Center for Astrophysics developed an open-source visualization software written in Python called Glue. It can create linked data visualizations and is highly extendable via plugins for all sorts of data. Viewing and exploring 3D data on a 2D screen has some limitations and results in hidden structures. Recent developments in AR, i.e., its availability and affordability, increased the desire to view more content in AR.

To solve this, we wrote a Python plugin for Glue, which enables an AR-view of the data in Glue. A user only needs our plugin, a mobile-phone with the CoSpaces App installed and a Merge Cube, which serves as a 3D marker.

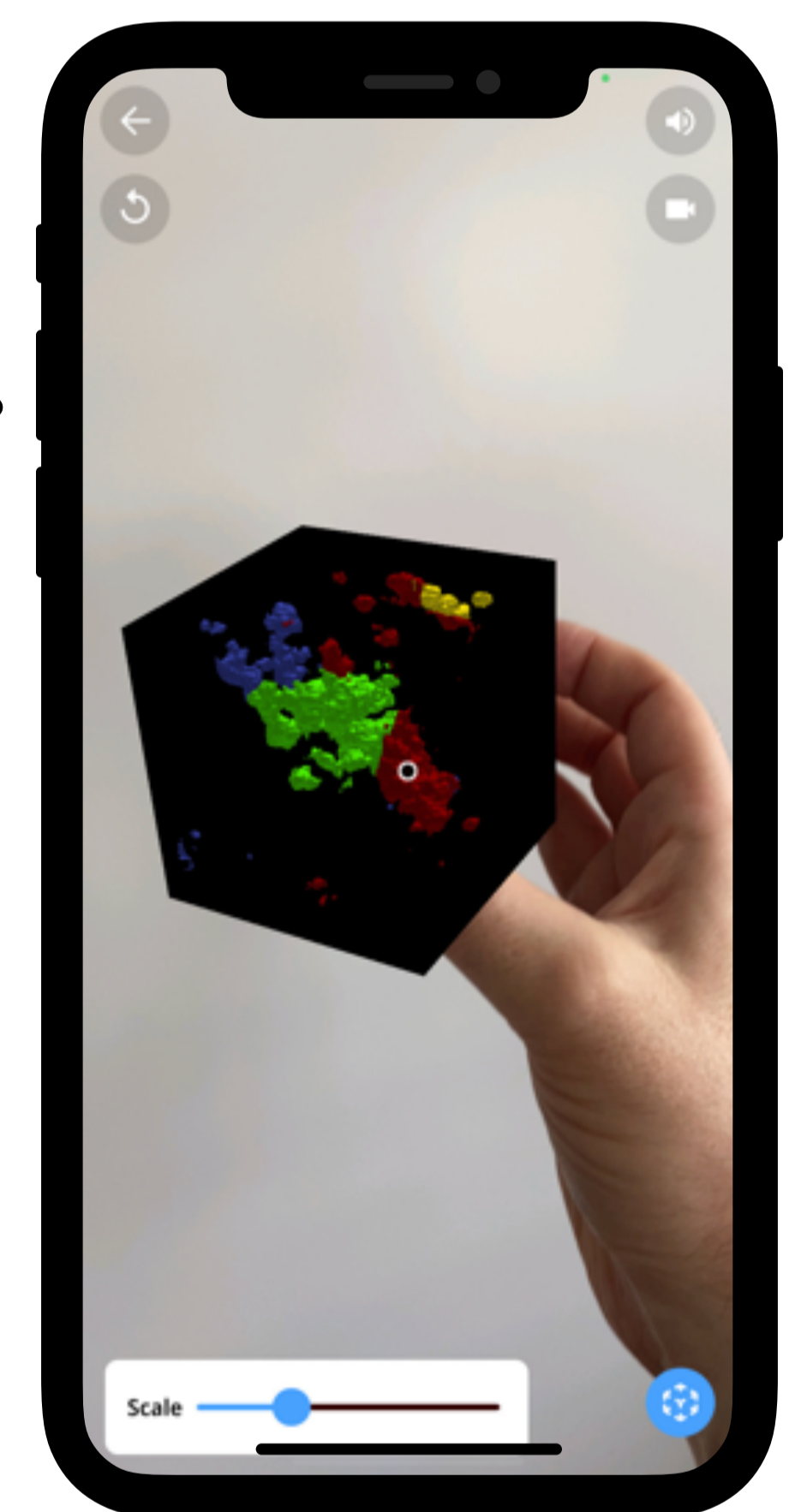
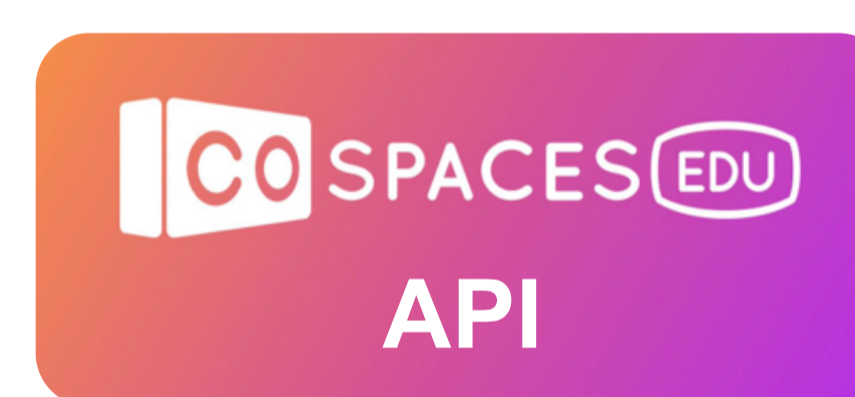
The 3D data in glue is exported as meshes and uploaded to CoSpaces via its API. A virtual room with the data will then be created and a QR code presented to the user that can be scanned with a mobile phone. **Try it out yourself!**



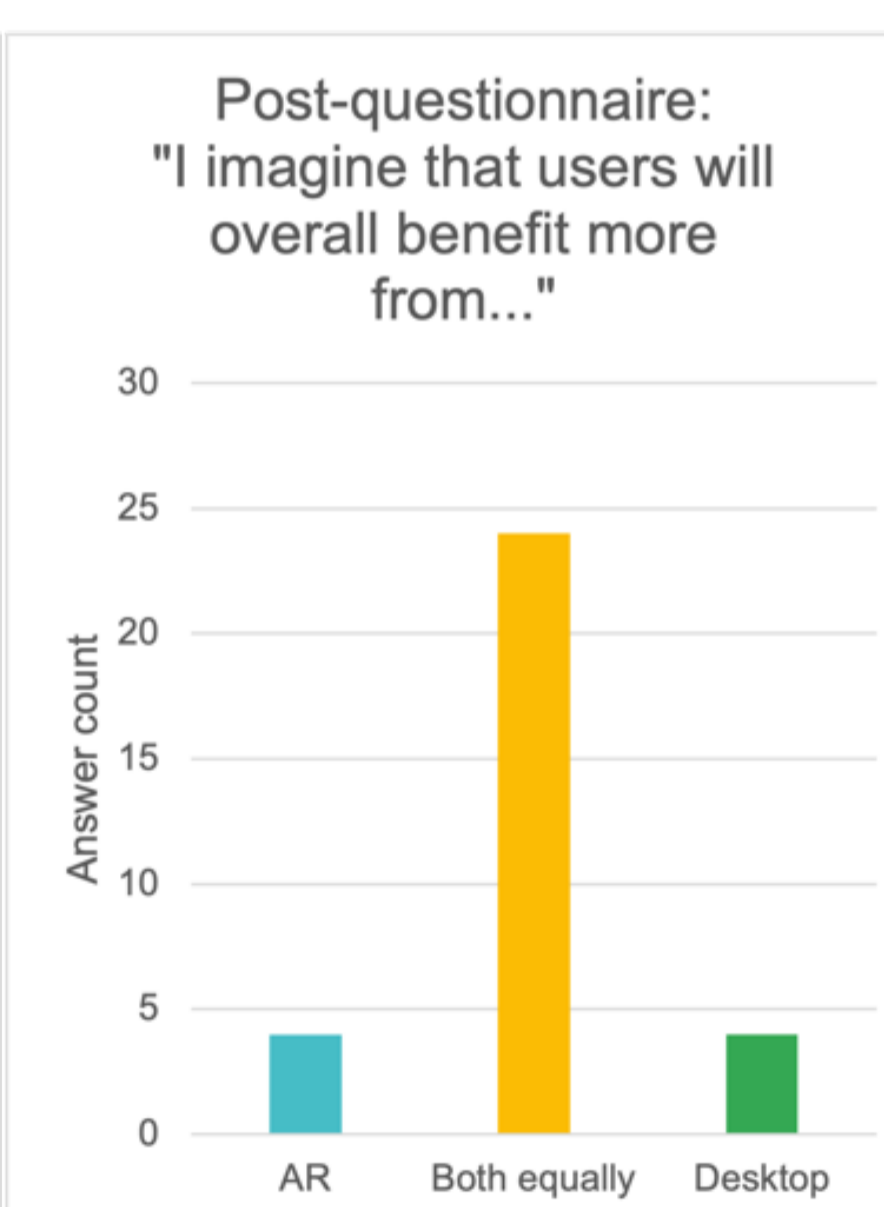
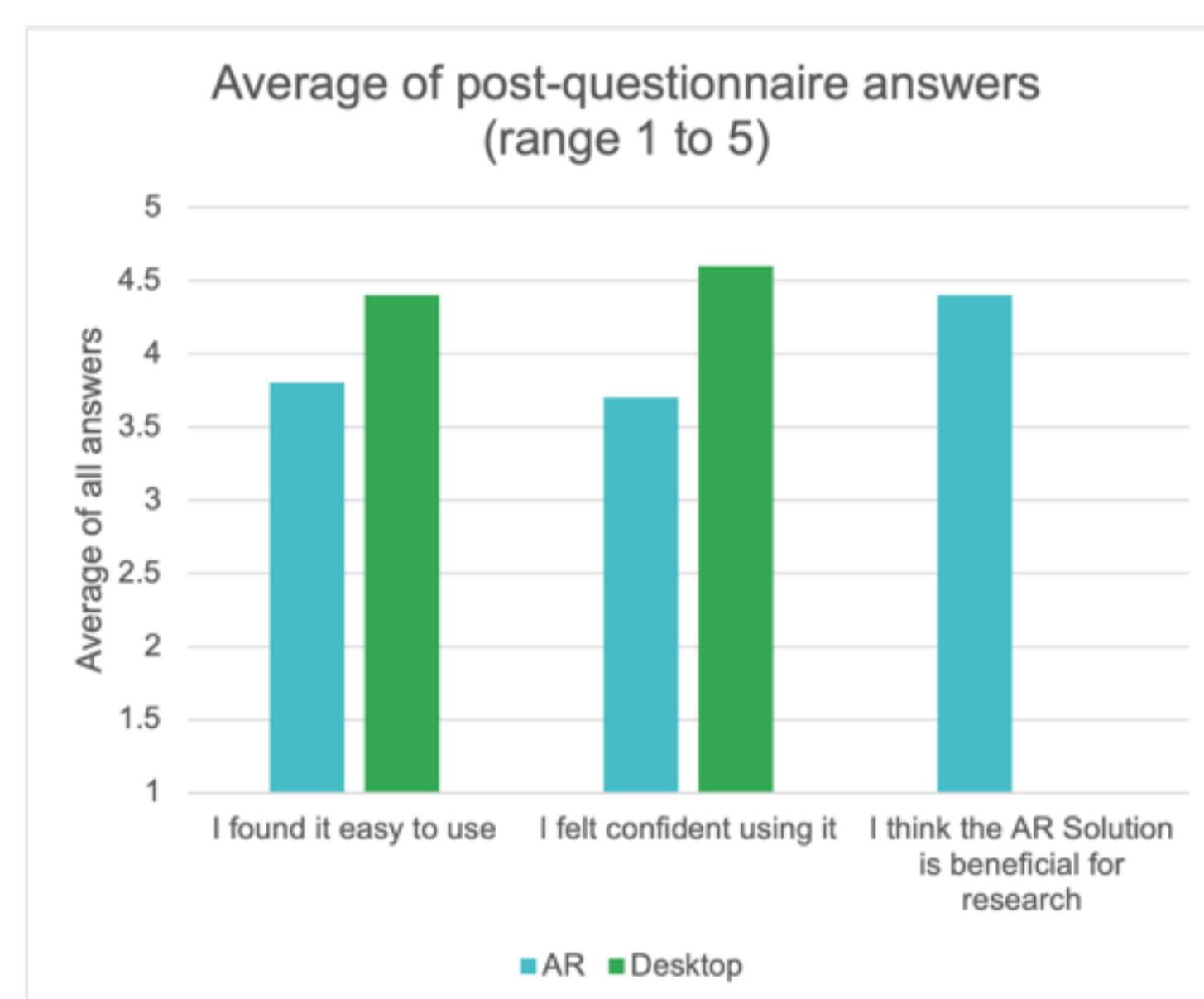
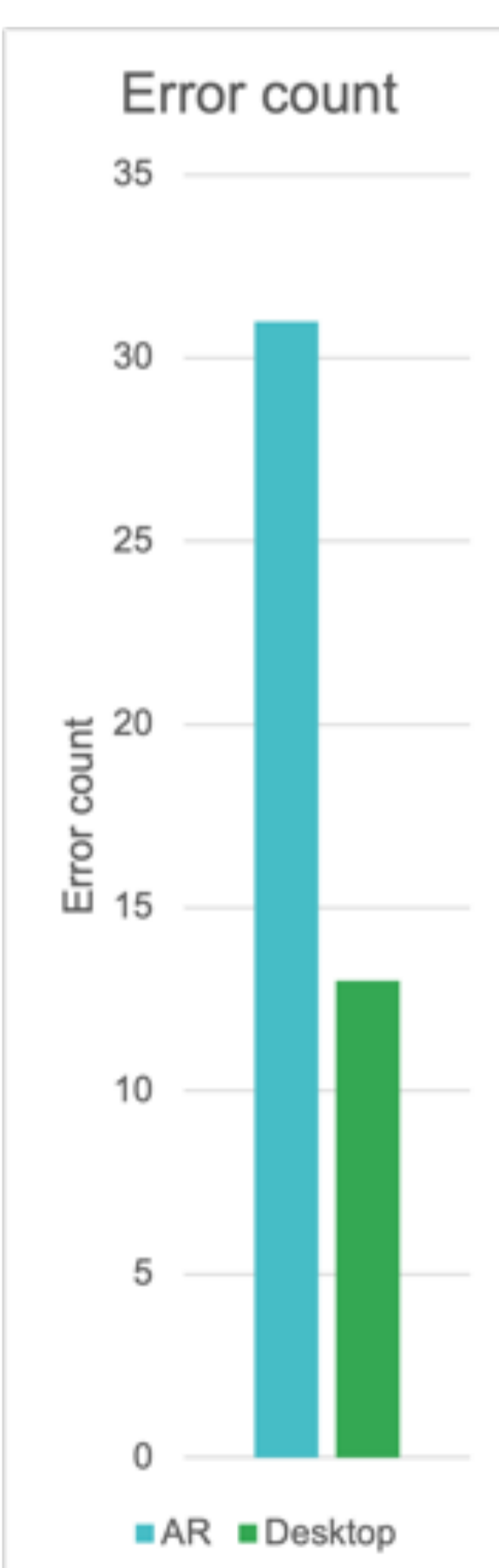
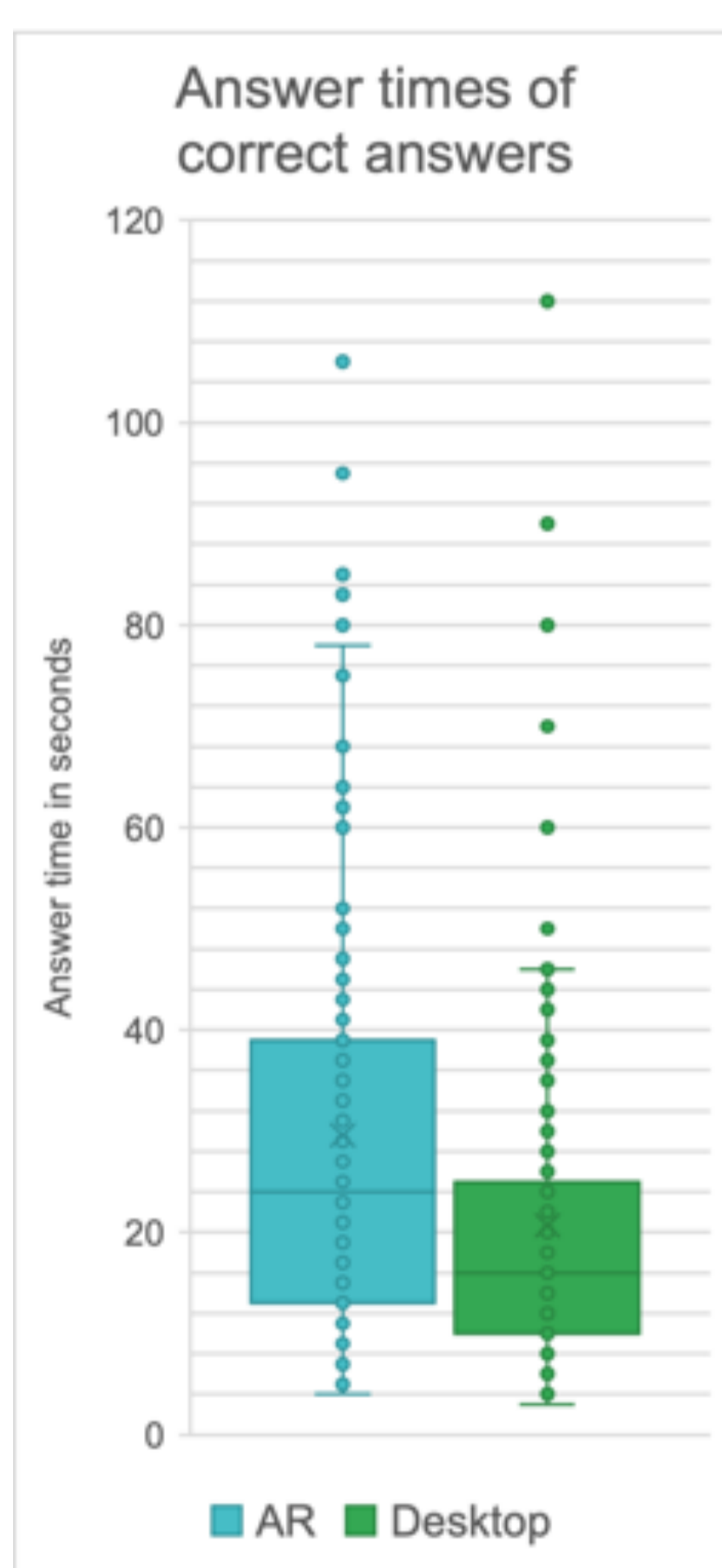
Existing Glue data visualization software



Developed Glue AR plugin



CoSpaces app with exported data from Glue



In a user study, we measured the performance differences of users between desktop tasks and AR tasks. While the actual performance results were mostly worse with AR, the participants felt positive that AR would benefit them, particularly in the field of research.



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