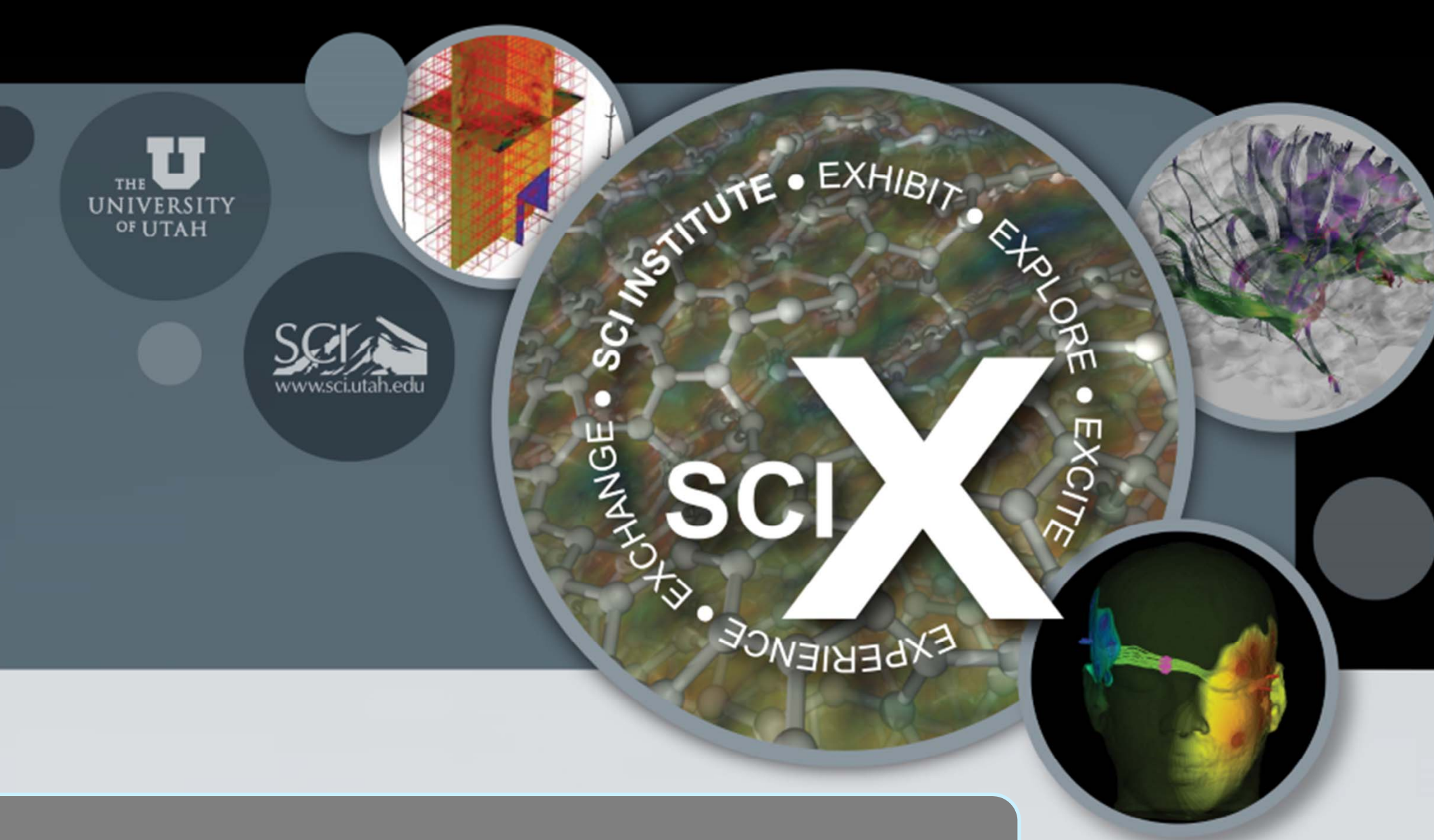


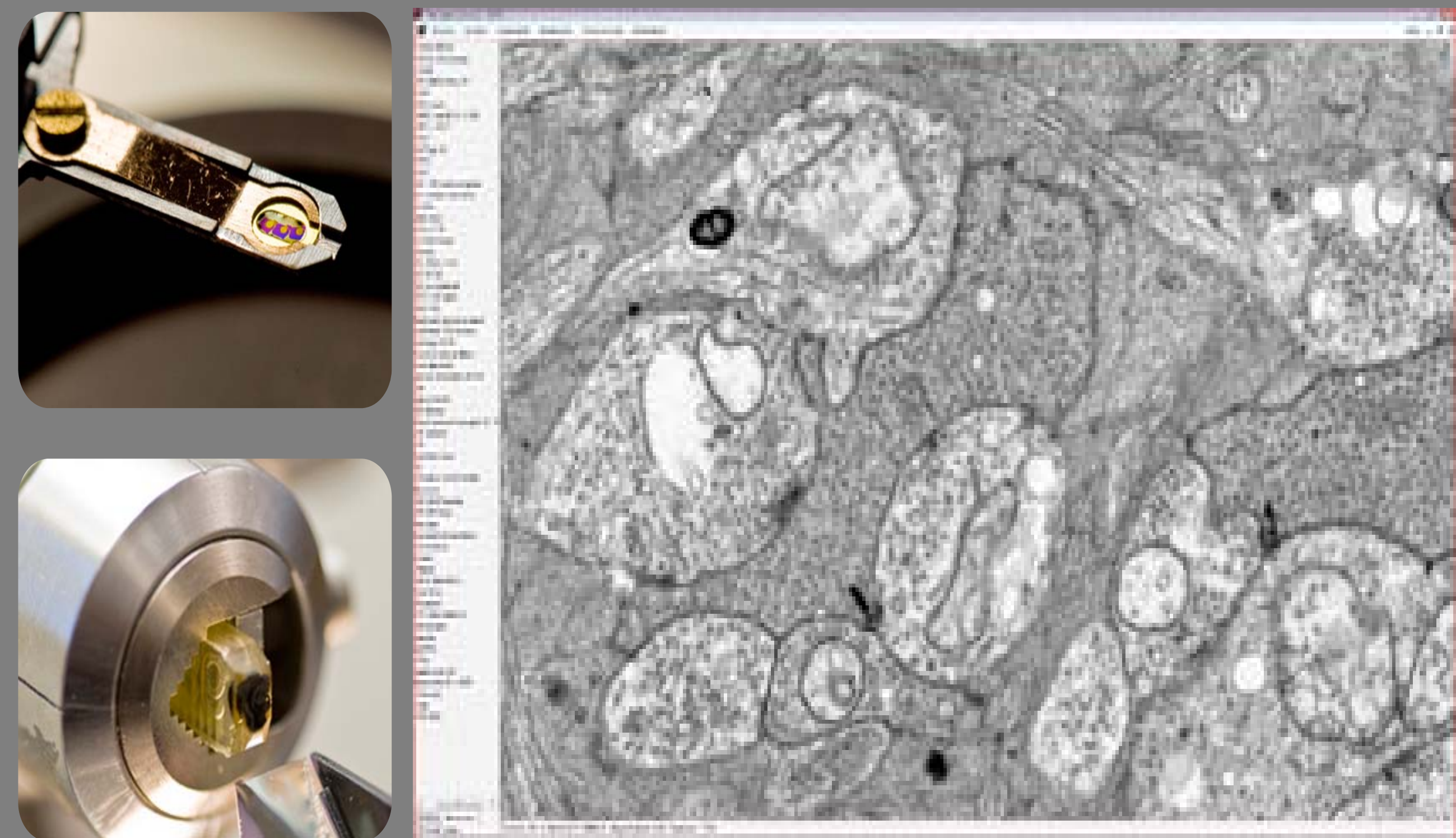
Visualization for Reverse Engineering the Retina

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Background

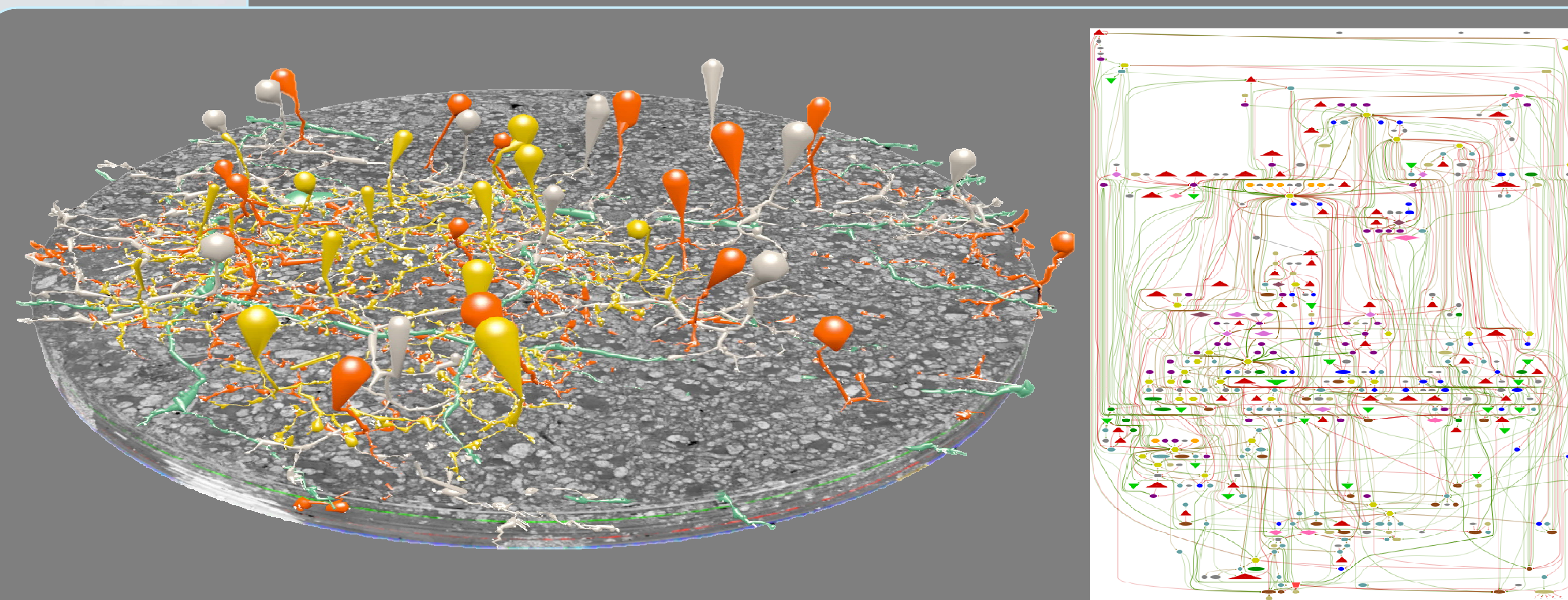
Connectomics is the study of nervous systems by looking at connections of cells. We are working to assist connectomics researchers reverse engineer the mammalian retina.



Biologists harvest rabbit retina connectome data at a resolution of 2nm -- detailed enough to see structures inside of the cells.

Analysis challenge

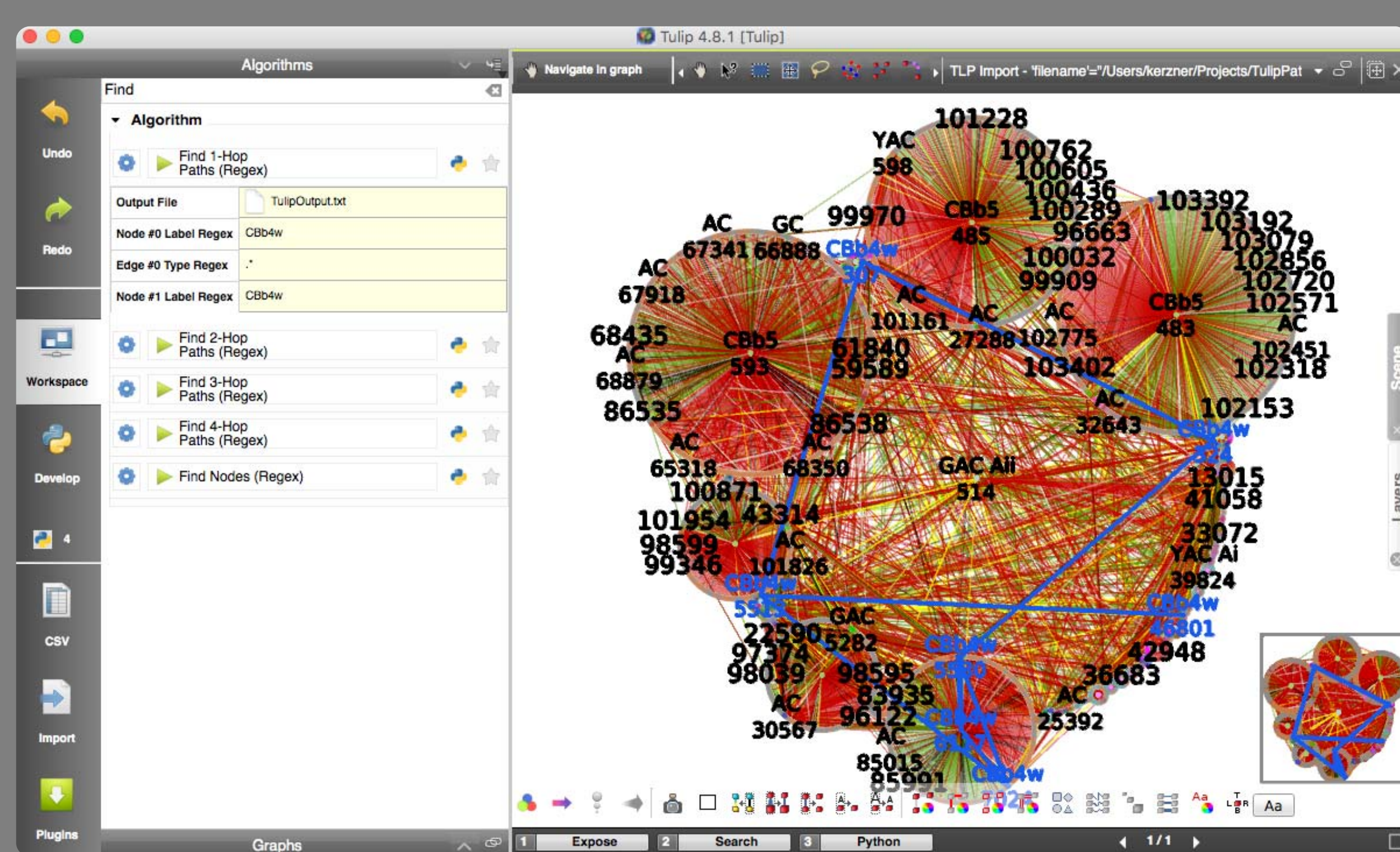
After generating a connectome, researchers must analyze a combination of network statistics, network circuitry (paths), and cell's 3D structures.



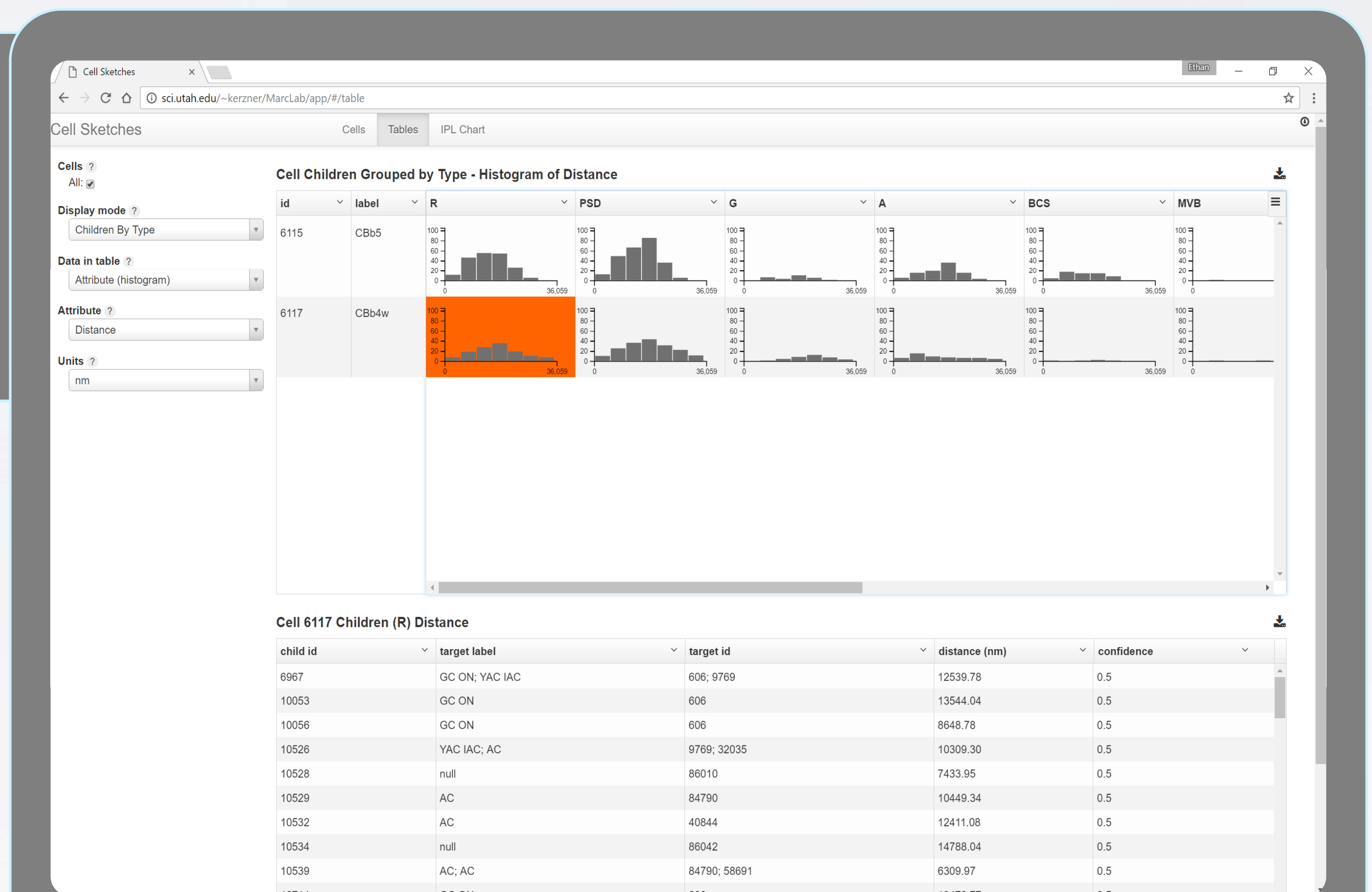
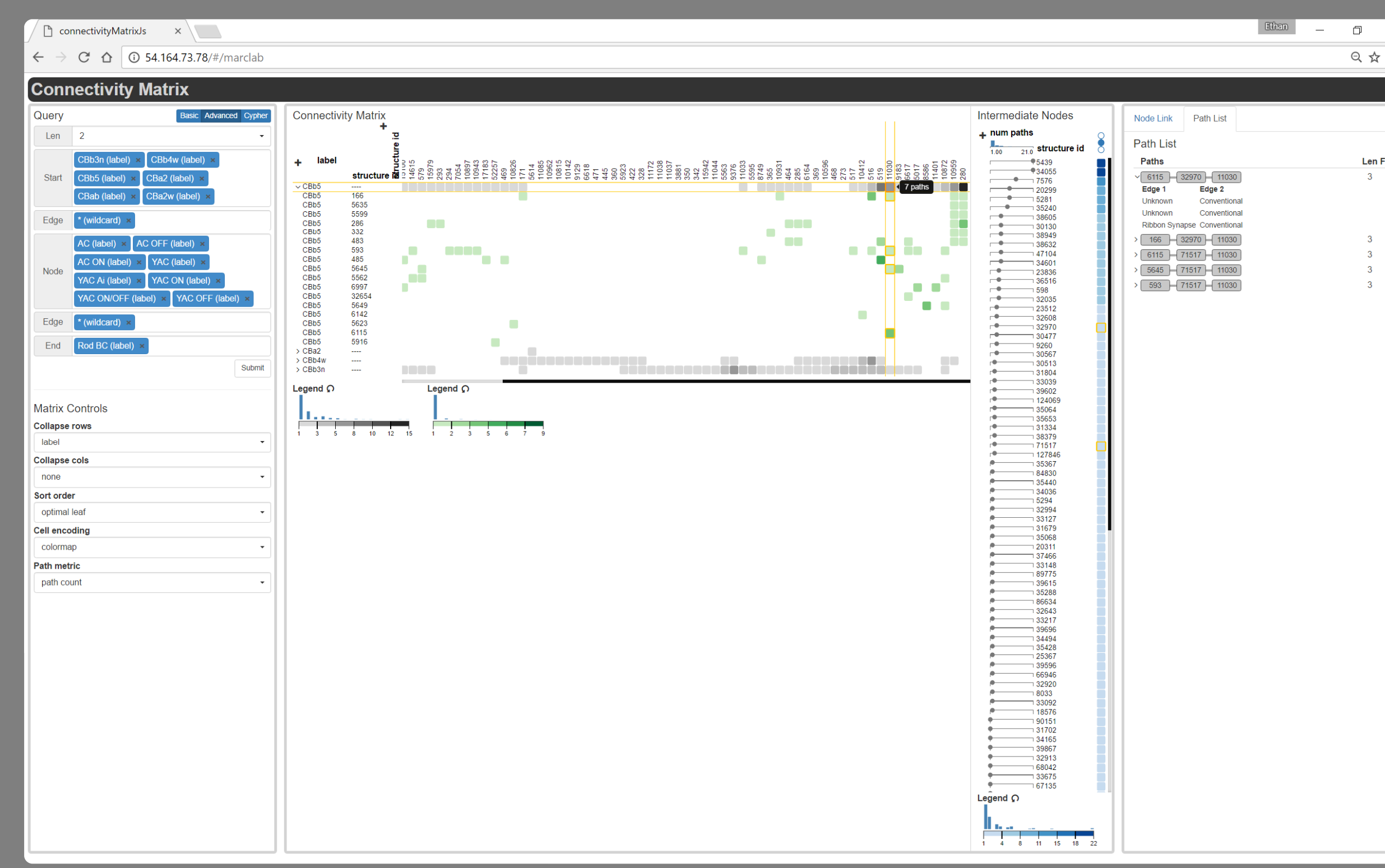
A subset of the 15K cells and 100K synapses of a rabbit connectome rendered in 3D and a node-link diagram.

New visualization tools and techniques

We have expanded the capabilities of existing tools and created new prototypes. Although more work is needed to productize this software, it has already accelerated scientific discoveries.



An existing network visualization tool augmented for to find network circuitry and a novel prototype for visualizing that data in a way that's useful for researchers.



Experimental visualizations for comparing certain statistics about cells.

Acknowledgements

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