This poster summarizes our submission to the 2023 IEEE SciVis contest. This year’s contest focused on the visualization of neuronal network simulations of plasticity changes in the human brain, i.e., across neurons and synapses in multiple simulation setups. The overall size of the contest data was about 50GB. The goal was to solve four analysis tasks on that dataset: Overview, plasticity changes, ensemble visualization, and workflow.

**NOVEL VR SOLUTION**
- Immersive exploration of the brain topology
- Exploring temporal patterns in a linked view
- Drilling into the hierarchical clustering
- Side-by-side ensemble analysis of simulations
- Shelf metaphor for saving and loading analyses
- HTC Vive Setup

**EXPLODED VIEW**
For unbalanced drill-down clustering

**EXTENDED MEAN-SHIFT EDGE BUNDLING**
"BRAIN MAP" v.d.Grinten Projection for Brain Data, Sp.-Filling Curves

**MODIFIED SPLITTING ALGORITHM**
For faster PIP calc.

**TANGIBLE INTERACTION FOR 3D VIS**

**FORMAT PAINTER**
Apply drill-down and encoding to ensembles

**Backend**
- MongoDB
- Redis
- GRPC

**Unity Frontend**
- GO
- IATK
- STEAM VR

**VR devices**
- HTC Vive link box
- 2 HTC Vive trackers
- 2 HTC Vive controllers
- 3-4 HTC Vive base stations
- HTC Vive Pro 2

Project website: https://vis-au.github.io/scivis23
Contact: Hans-Jörg Schulz, hjschulz@cs.au.dk