

# IMMERSIVE EXPLORATION OF BRAIN SIMULATION DATA

AARHUS UNIVERSITY IEEE SCIVIS CONTEST TEAM



Visualization

Database

Interaction

Domain

## NOVEL VR SOLUTION

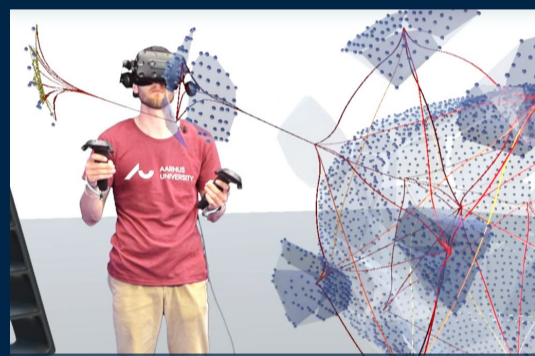
## SELECTED CONTRIBUTIONS



Immersive exploration of the brain topology



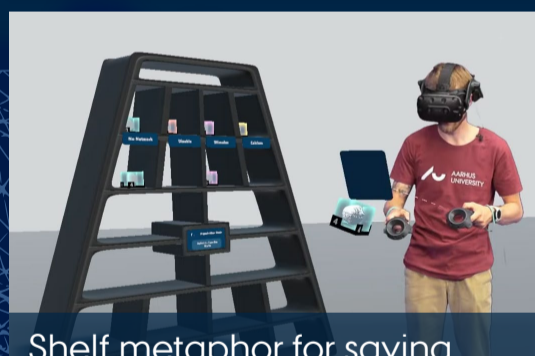
Exploring temporal patterns in a linked view



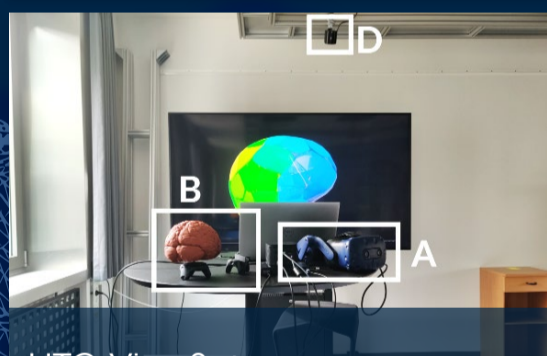
Drilling into the hierarchical clustering



Side-by-side ensemble analysis of simulations

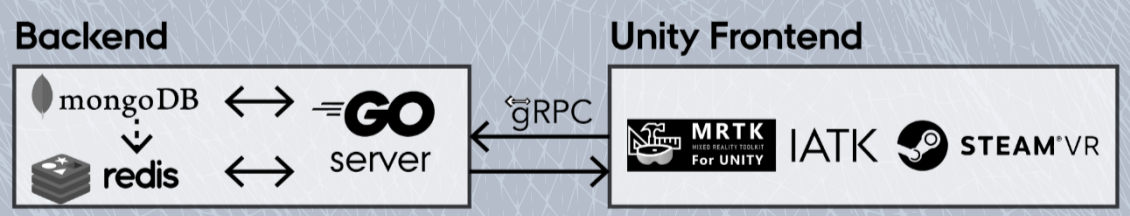


Shelf metaphor for saving and loading analyses

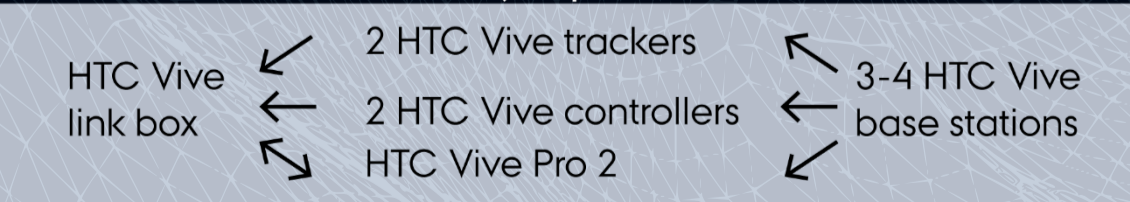


HTC Vive Setup

Dell XPS 17 9720

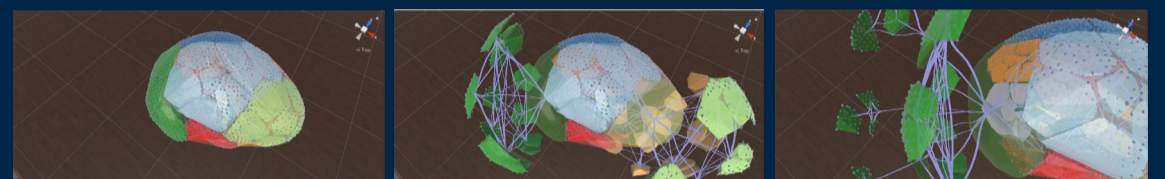


VR devices

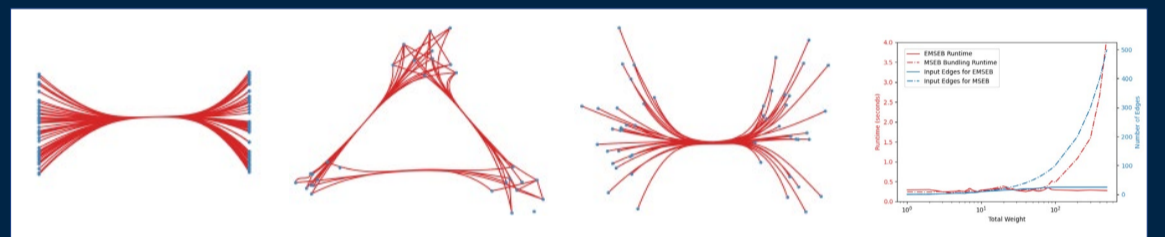


### EXPLODED VIEW

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.

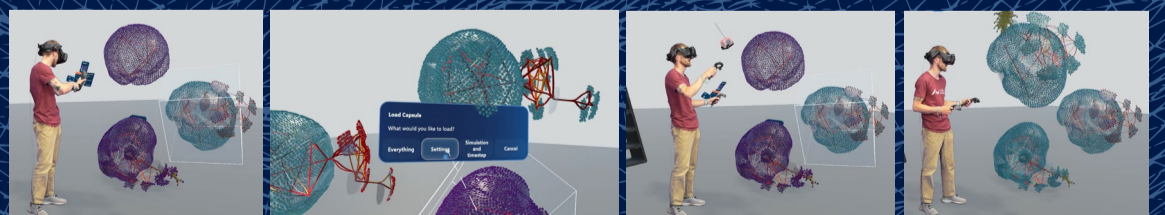


### TANGIBLE INTERACTION FOR 3D VIS



### FORMAT PAINTER

Apply drill-down and encoding to ensembles



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.

Project website: <https://vis-au.github.io/scivis23>

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