Glass Brain – Development of a visual analogy for learning and teaching.

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The brain is a complex structure particularly when investigating its internal organization. Students find it hard to work out how the different regions are arranged relative to one another. The “Glass Brain” has been developed to provide a simple starting point for understanding this complexity.

Both histological sections and MRI sections provide too much detail for the beginning student to handle. Initial studies used Osirix software to generate a rotational brain model that only showed the outside of the brain and specified internal structures.

The Osirix model was presented as a short video with limited ability for interactivity. It was based on a series of MRI sections with regions of interest outlined. These images were passed on to the EMG group who used them to generate the glass brain.

The Glass Brain is fully interactive – the external brain shell, internal structures and pathways are all independently switchable (any combination). The structures can be rotated to any position by cursor drag and zoomed. Version 2 (under development) will have labelling of specific parts of the structures.

As with any analogy one has to be careful to point out the limitations of the Glass Brain e.g. only certain structures and pathways shown, some approximation of shape and size due to rendering of structures, pathways represent large numbers of individual axons. However these differences can provide a useful basis for learning as well as the simplicity of the Glass Brain itself.

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