

Brain maps online

Digital atlases of the brains of humans, monkeys, dogs, cats, mice, birds and other animals have been created and posted online by researchers at the UC Davis Center for Neuroscience.

BrainMaps.org features the highest resolution whole-brain atlases ever constructed, with over 50 terabytes of brain image data directly accessible online. Users can explore the brains of humans and a variety of other species at an unprecedented level of detail, from a broad view of the brain to the fine details of nerves and connections. The website also includes a suite of free, downloadable tools for navigating and analyzing brain data.

"Many users have described it as a 'Google Maps' of the brain," said Shawn Mikula, a postdoctoral researcher at UC Davis who is first author on a paper describing the work.

The high-resolution maps will enable researchers to use "virtual microscopy" to compare healthy brains with others, looking at structure, gene expression and the distribution of different proteins. They will enable better understanding of the organization of normal brains, and could help researchers in identifying fine morphological and chemical abnormalities underlying Alzheimer's, Parkinson's and other neurological diseases, Mikula said.

To make the maps, the researchers started with sections of brain mounted on microscope slides. Those slides were scanned to create image files or "virtual slides," and assembled like tiles into composite images. The maps have a resolution of better than half a micrometer per pixel, or 55,000 dots per inch, with virtual slides approaching 30 gigabytes in size each.

Source: University of California - Davis

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