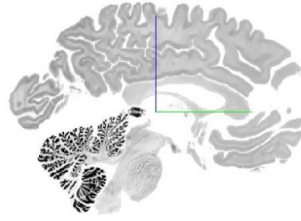


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### 3D Brain Modelling by HIBALL



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A new collaboration between German and Canadian institutions has been launched with a goal to develop a high-resolution 3D map of functional neuroanatomy using artificial intelligence and high-performance computing.

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The new project, named the Helmholtz International BigBrain Analytics and Learning Laboratory ( [HIBALL](#) ), is a collaboration between McGill University and Forschungszentrum Jülich, led by [Katrin Amunts](#) of the European Human Brain Project ( [HBP](#) ), and [Alan Evans](#) of Canada's Healthy Brains for Healthy Lives [initiative](#). Its broad aim is to "reinforce[e] utilisation and co-development of the latest AI and high-performance computing (HPC) technologies for building highly detailed 3D brain models."

With the help of machine and deep learning technologies, it aims to create next-generation microscopic human brain models based on the BigBrain model first [published](#) in 2013. Back then the authors, including Amunts and Evans, presented an ultrahigh-resolution (20  $\mu\text{m}$ ) three-dimensional reconstruction of a human brain derived from 7,404 histological sections, ie a human post-mortem brain was sectioned, stained for cell bodies, scanned at very high resolution, and then digitally reconstructed in 3D.

Aiming to extend this model and integrate multimodal data, HIBALL hopes to see the applications of its prospective models in neuroimaging, AI research and brain-inspired computing, and multi-scale brain simulation.

The new lab will closely cooperate with initiatives in Canada and Europe in the field of AI and brain health and build on resources such as [EBRAINS Atlases](#) and [FENIX](#).

Source: [Human brain Project](#)

Image credit: [hbp.eu](#)

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