Resource Summary Report

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Blue Brain Project

RRID:SCR_002994
Type: Tool

Proper Citation

Blue Brain Project (RRID:SCR_002994)

Resource Information

URL: http://bluebrain.epfl.ch/

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Description: A Swiss-led project with the aim of reverse engineering the mammalian brain and achieving a complete virtual human brain. The researchers have demonstrated the validity of their method by developing a realistic model of a rat cortical column, consisting of about 10,000 neurons. The eventual goal is to simulate systems of millions and hundreds of millions of neurons. The virtual brain will be an exceptional tool giving neuroscientists a new understanding of the brain and a better understanding of neurological diseases. In five years of work, Henry Markram's team has perfected a facility that can create realistic models of one of the brain's essential building blocks. This process is entirely data driven and essentially automatically executed on the supercomputer. Meanwhile the generated models show a behavior already observed in years of neuroscientific experiments. These models will be basic building blocks for larger scale models leading towards a complete virtual brain.

Abbreviations: Blue Brain

Synonyms: Bluebrain

Resource Type: data or information resource, topical portal, portal

Keywords: brain, neuron, microcircuit, simulation, cortex, cortical column, model

Related Condition: Neurological disease

Funding:

Resource Name: Blue Brain Project

Resource ID: SCR_002994

Alternate IDs: nif-0000-30208

Record Creation Time: 20220129T080216+0000

Record Last Update: 20250516T053652+0000

Ratings and Alerts

No rating or validation information has been found for Blue Brain Project.

No alerts have been found for Blue Brain Project.

Data and Source Information

Source: SciCrunch Registry

Usage and Citation Metrics

We found 16 mentions in open access literature.

Listed below are recent publications. The full list is available at dkNET.

Shore AN, et al. (2024) Heterozygous expression of a Kcnt1 gain-of-function variant has differential effects on somatostatin- and parvalbumin-expressing cortical GABAergic neurons. eLife, 13.

Gillespie TH, et al. (2022) The Neuron Phenotype Ontology: A FAIR Approach to Proposing and Classifying Neuronal Types. Neuroinformatics, 20(3), 793.

Forsell L, et al. (2020) BrainWiki-A Wiki-Style, User Driven, Comparative Brain Anatomy Tool. Frontiers in neuroanatomy, 14, 548172.

Gleeson P, et al. (2019) Open Source Brain: A Collaborative Resource for Visualizing, Analyzing, Simulating, and Developing Standardized Models of Neurons and Circuits. Neuron, 103(3), 395.

Acebes A, et al. (2017) Brain Mapping and Synapse Quantification In vivo: It's Time to Imaging. Frontiers in neuroanatomy, 11, 17.

Rojo C, et al. (2016) Laminar Differences in Dendritic Structure of Pyramidal Neurons in the Juvenile Rat Somatosensory Cortex. Cerebral cortex (New York, N.Y. : 1991), 26(6), 2811.

Peng H, et al. (2015) BigNeuron: Large-Scale 3D Neuron Reconstruction from Optical Microscopy Images. Neuron, 87(2), 252.

Chaudhri VK, et al. (2014) Comparative analysis of knowledge representation and reasoning requirements across a range of life sciences textbooks. Journal of biomedical semantics, 5, 51.

Anton-Sanchez L, et al. (2014) Three-dimensional distribution of cortical synapses: a replicated point pattern-based analysis. Frontiers in neuroanatomy, 8, 85.

Comin CH, et al. (2013) Shape, connectedness and dynamics in neuronal networks. Journal of neuroscience methods, 220(2), 100.

Parekh R, et al. (2013) Neuronal morphology goes digital: a research hub for cellular and system neuroscience. Neuron, 77(6), 1017.

Ito K, et al. (2010) Technical and organizational considerations for the long-term maintenance and development of digital brain atlases and web-based databases. Frontiers in systems neuroscience, 4, 26.

Bushnell PJ, et al. (2010) Behavioral toxicology in the 21st century: challenges and opportunities for behavioral scientists. Summary of a symposium presented at the annual meeting of the neurobehavioral teratology society, June, 2009. Neurotoxicology and teratology, 32(3), 313.

King JG, et al. (2009) A Component-Based Extension Framework for Large-Scale Parallel Simulations in NEURON. Frontiers in neuroinformatics, 3, 10.

Bernard A, et al. (2009) Shifting the paradigm: new approaches for characterizing and classifying neurons. Current opinion in neurobiology, 19(5), 530.

De Schutter E, et al. (2008) Why are computational neuroscience and systems biology so separate? PLoS computational biology, 4(5), e1000078.