Bernstein Network Computational Neuroscience

... is a research network in the field of computational neuroscience. It unites different scientific disciplines, such as physics, biology, mathematics, medical science, psychology, computer science, engineering and philosophy in the endeavor to understand how the brain functions. The close combination of neurobiological experiments with theoretical models and computer simulations allows scientists of the Bernstein Network to pursue innovative approaches with regard to one of the most complex structures nature has created in the course of evolution: the natural brain.

The network started in 2004 with a funding initiative of the Federal Ministry of Education and Research (BMBF) to develop and interconnect research structures in computational neuroscience throughout Germany and to promote the transfer of theoretical insight into clinical and technical applications.

It is named after the German physiologist and biophysicist Julius Bernstein (1839-1917) whose „Membrane Theory“ provided the first biophysical explanation for how nerve cells encode and transmit information by electrical currents.

Discuss your data requirements with us!

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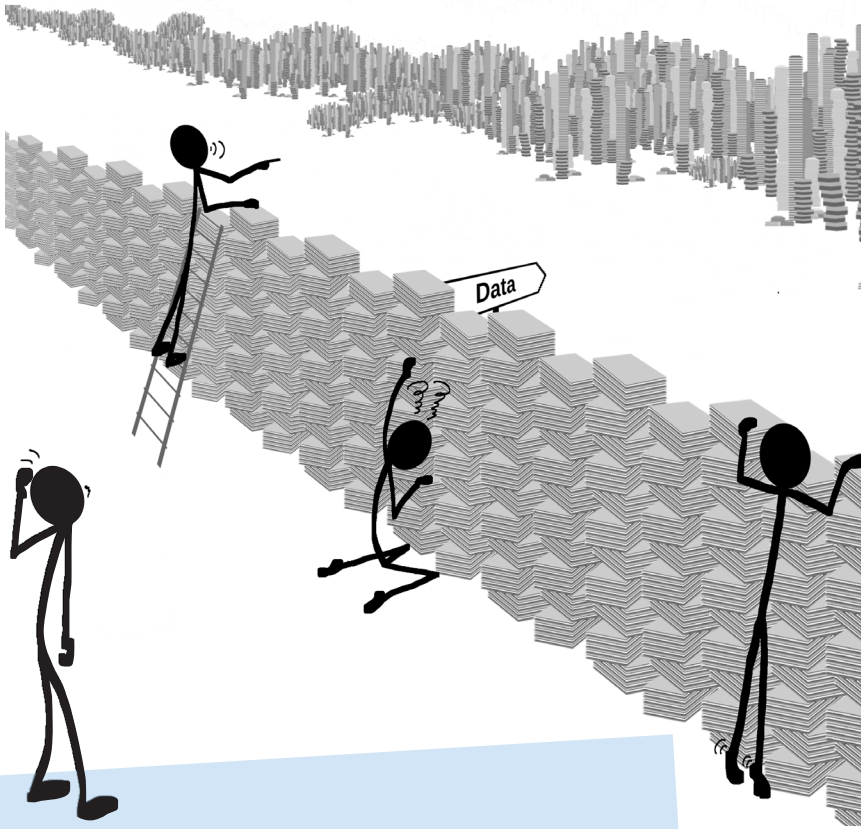

Bernstein Facility for Data Technology — G-Node

Neuroinformatics for efficient ***Data Management*** *in Neuroscience*

Data Annotation

Metadata is a key component for reproducibility and provenance tracking. Collect and manage all information about your experiment with odML.

odML

open metadata Markup Language

- File format for storing any metadata
- Flexible structure
- Adaptability to specifics of experiment
- Automated collection of metadata in the laboratory
- Machine-readable
- Spreadsheet interface
- Further libraries and tools

JÜLICH Forschungszentrum

Data Organization

Keep track of your data by organizing data and metadata together in an open, versatile format

nix

File Format for Neuroscientific Data

- Storage of different data types
- Intuitive, coherent file structure
- Integration of metadata (odML)
- Integration of analysis tools
- Storage of analysis results
- Compatibility with main platforms and languages

Java C++ MATLAB neo python

Data Storage and Sharing

Securely store and access your data, share with collaborators and publish your data

gin

Modern Research Data Management for Neuroscience

- Private data repository
- Research data management via various client interfaces
- Syncronization based on git
- Version control
- Secure web-access
- Access control
- Data sharing with collaborators
- DOI registration service

G-Node is one of three core facilities of the Bernstein Network. It develops **tools and infrastructure**, which support data access, data analysis and data exchange to foster reproducible research, collaboration, data sharing and publication.

We help to fully exploit the scientific potential of research data.

We provide tools and services for comprehensive research data management from acquisition to publication.

We facilitate data sharing and data organisation for processing, analysis and further reference.