

BrainML: Neuroinformatics for Data Sharing

Daniel Gardner¹, Michael Abato¹, Kevin H. Knuth¹, Youping Xiao¹

¹Laboratory of Neuroinformatics, Weill Medical Coll. of Cornell Univ., 1300 York Ave., New York, New York 10021

Sharing of data, and informatics methods aiding description, archiving, and exchange of data, can aid collaboration, design and test of hypotheses and models, reanalysis and meta-analysis, and synthesis from different techniques, approaches, or preparations. An NIH draft policy mandating data sharing as of 2003 will be aided by standards for both data and descriptive metadata. BrainML is an evolving XML-derived multilevel data description suite built upon the metalanguage BrainMetaL (Xiao et al, *Biophys. J.* 2002). BrainML schemas describe and relate datasets, queries, tools, and models. Detector metadata characterize data sources; selector metadata specify datasets, aiding search. Lexicons, controlled-vocabulary hierarchies, link metadata terms to the attributes they describe. Schemas and lexicons may be extended compatibly by other resources, allowing exchange and cross-comparisons of data, analysis of queries, and relations among dictionaries and definitions, via XSL transforms. BrainML can schematize both central databases and peer-to-peer webs such as our projected GENIE, the Generalized Extensible Neuroscience Internet Examiner. BrainML and GENIE may be tracked at brainml.org; BrainMetaL schemas are referenced at brainml.org/brainmetal. Supported by: NIMH Human Brain Project/Neuroinformatics research via MH57153.