## An understanding of the brain The NeuroML ecosystem for standardised multi-scale modelling in neuroscience Anatomy Electrophysiology Functional imaging Multiple experimental figures/images go here. Showing Ankur Sinha Silver Lab different spatial scales. Department of Neuroscience, Physiology, & Pharmacology University College London 2024-02-26 1/21 A mechanistic understanding of the brain The model life cycle

## The model life cycle Figure showing multiple scales of modelling goes here. • tweaked version of life cycle figure from paper goes here. • remove NeuroML, add data

2/21

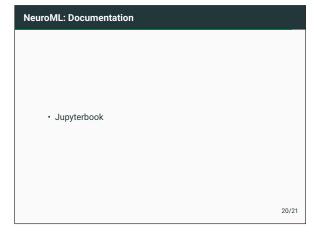
## Standards enable FAIR neuroscience But, too many standards? • NWB/BIDS for data • NeuroML/SBML etc. for modelling • Add logos 5/21

5/21	6/21
NeuroML	NeuroML: scope
Introduction to NeuroML.	• Figure 2 from paper
7/21	8/21

NeuroML: software ecosystem	NeuroML: software ecosystem: core tools
• Figure 3	• Figure 4
9/21	10/21
NeuroML: create models	NeuroML: validate models
Figure 5     Code example	• Figure 6
11/21	12/21
NeuroML: visualise models	NeuroML: simulate models
• Figure 7	
• Figure 8 • Figure 9	Example simulation: neuron/netpyne
13/21	14/21
NeuroML: fit models	NeuroML: share and re-use models
Figure from docs	GitHub, OSBv1, OSBv2, NeuroML-DB
Mention inspyred	
15/21	16/21

NeuroML: the standard	NeuroML: the APIs
Schema, component types	• Python API
17/21	18/21

NeuroML: LEMS	
• LEMS, advantages	
	19/21



• GSoC, Outreachy, good computer science students