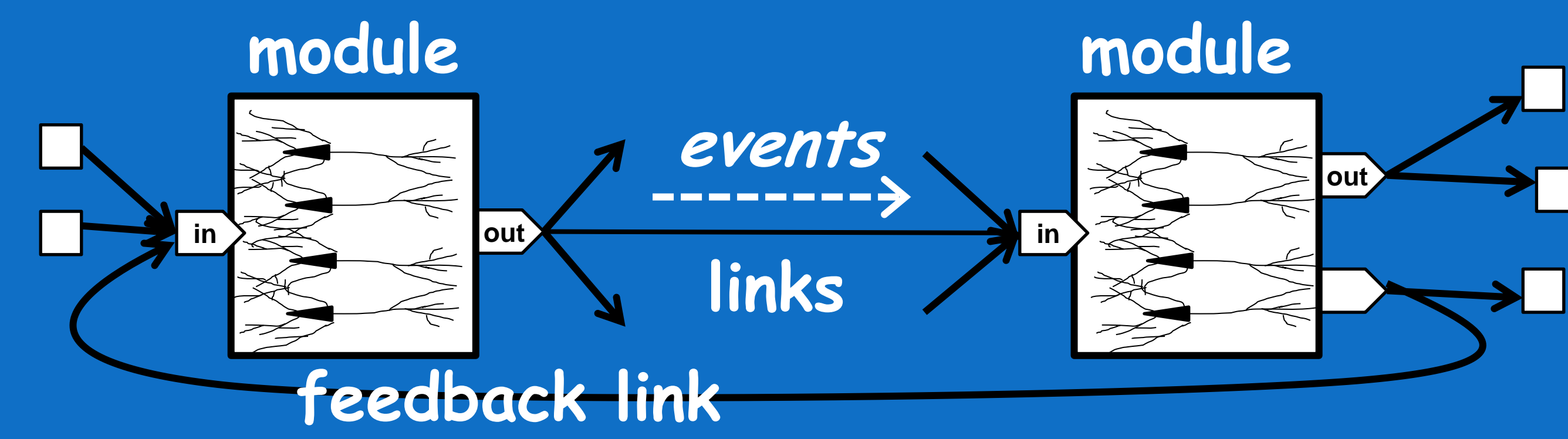


# NeurOS™ and NeuroBlocks™

## A Neural Operating System and Building Blocks\*



Build cognitive functions...  
...by linking reusable modules...  
...into directed neural graphs



module	Group/layer of neurons with similar function
link	Multiplexed event signal path: multiple axons
neural graph	Directed flow, loops, nestable sub-graphs
event	New neuron spiking rate

**NeurOS Designer IDE**

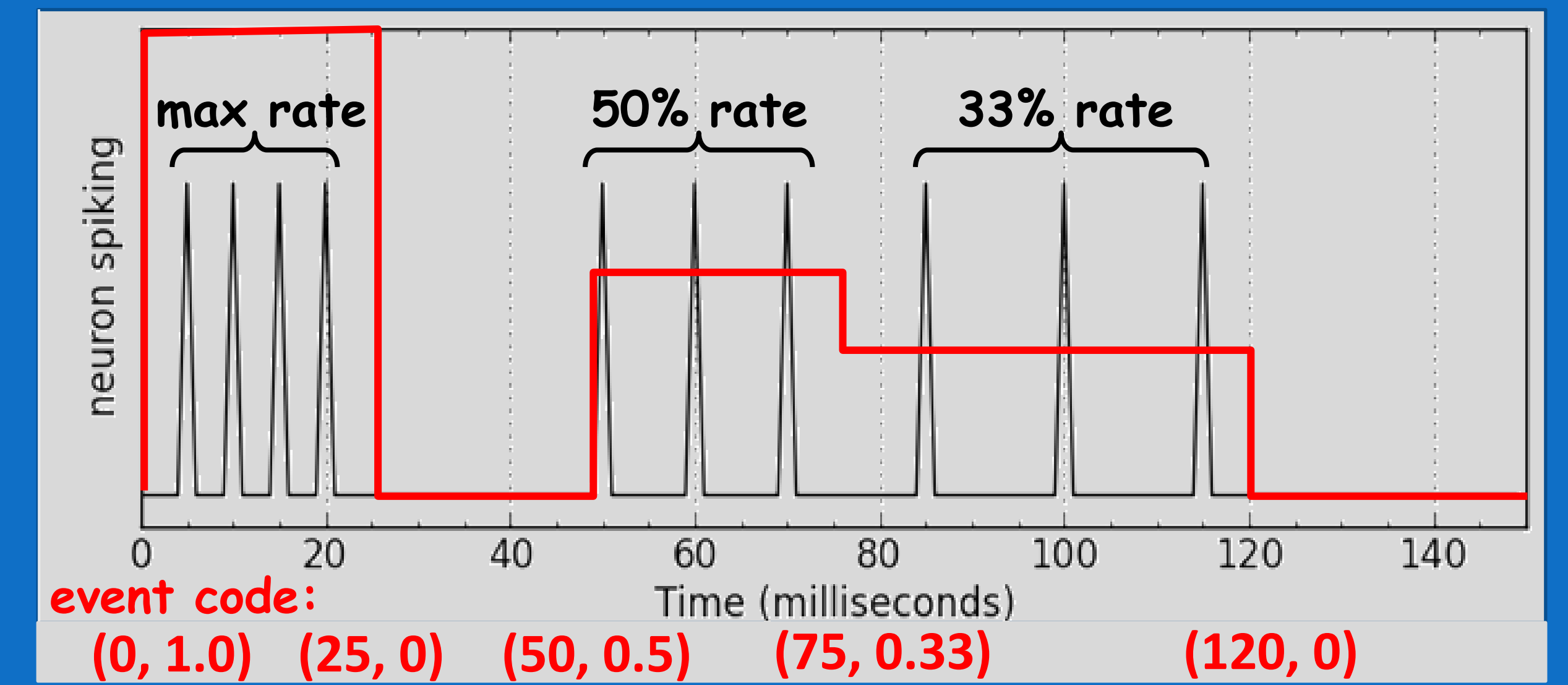
*neural design canvas drag&drop, no coding*

**NeuroBlocks reusable modules**

*Output module displays*

*progressive recognitions*

### spiking rates and NeurOS event coding



### NeurOS Memory Module Types

Working Memory	Short-term activation persistence <i>Concurrency, synchronization, context</i>
Sets	Concurrent features in any order <i>Semantic range: any/OR, a few, some, many, most, all/AND</i>
Sequences	Time-independent feature sequences <i>Parameters: non-exact sequence matching</i>
Temporal Sequences	Time-relative feature sequences <i>Parameters: non-exact matching, speed range</i>
Reify	Inverse: generate pattern features <i>e.g., feedback to commingle with inputs</i>

### Breadth of usage, sub-assemblies

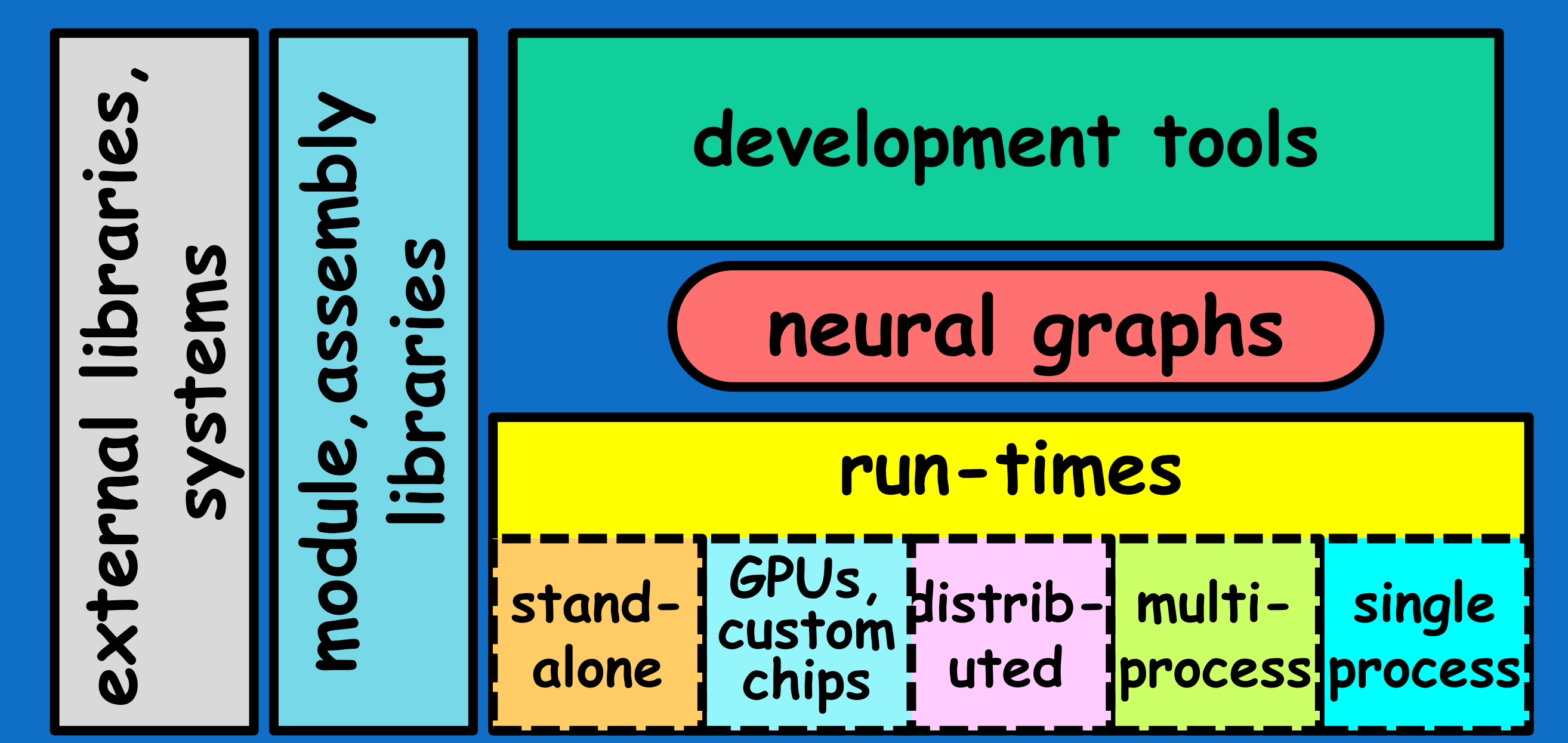
- perception
- working memory
- pattern learning and matching
- words and sequences
- phrases/concepts
- prediction
- synonyms, naming
- conjunction-disjunction
- classification
- behavior
- context priming
- state modulation
- teaching
- batch/online learning
- concentration/interruption
- imagination
- search enhancement
- association chaining

### Name That Tune example application

#### Demos

- Motion tracking
- Behavior
- Anagrams
- Crossword puzzles
- Cousins
- Name That Tune

#### NeurOS architecture



open, portable, scalable, embeddable, extensible