Human Brain Project

15-18 OCTOBER 2018 MAASTRICHT

HUMAN BRAIN PROJECT SUMMIT

Maastricht University

provincie limburg

Co-funded by
the European Union

Human Brain Project

Hyperparameter optimization for networks with structural plasticity using L2L

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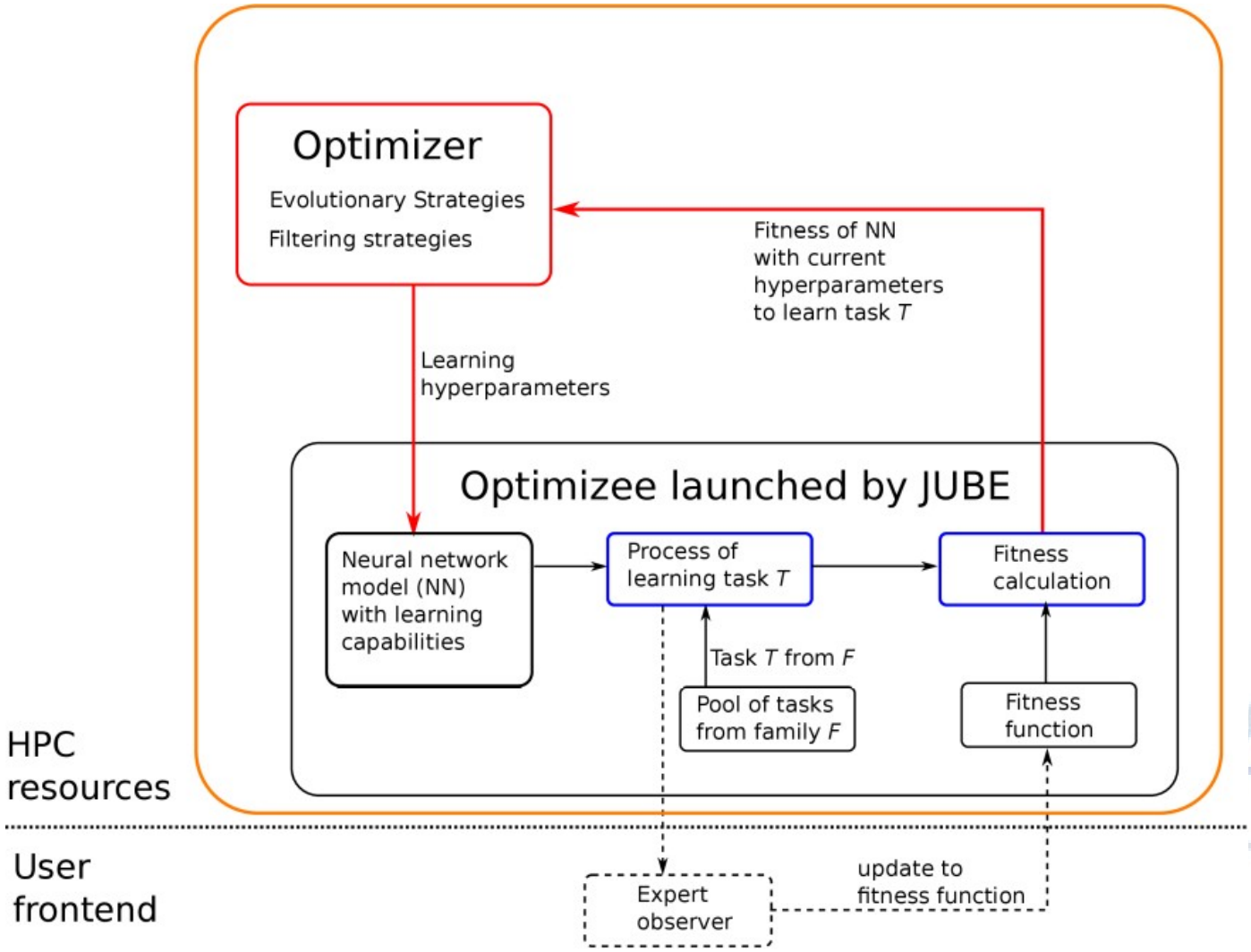
Introduction



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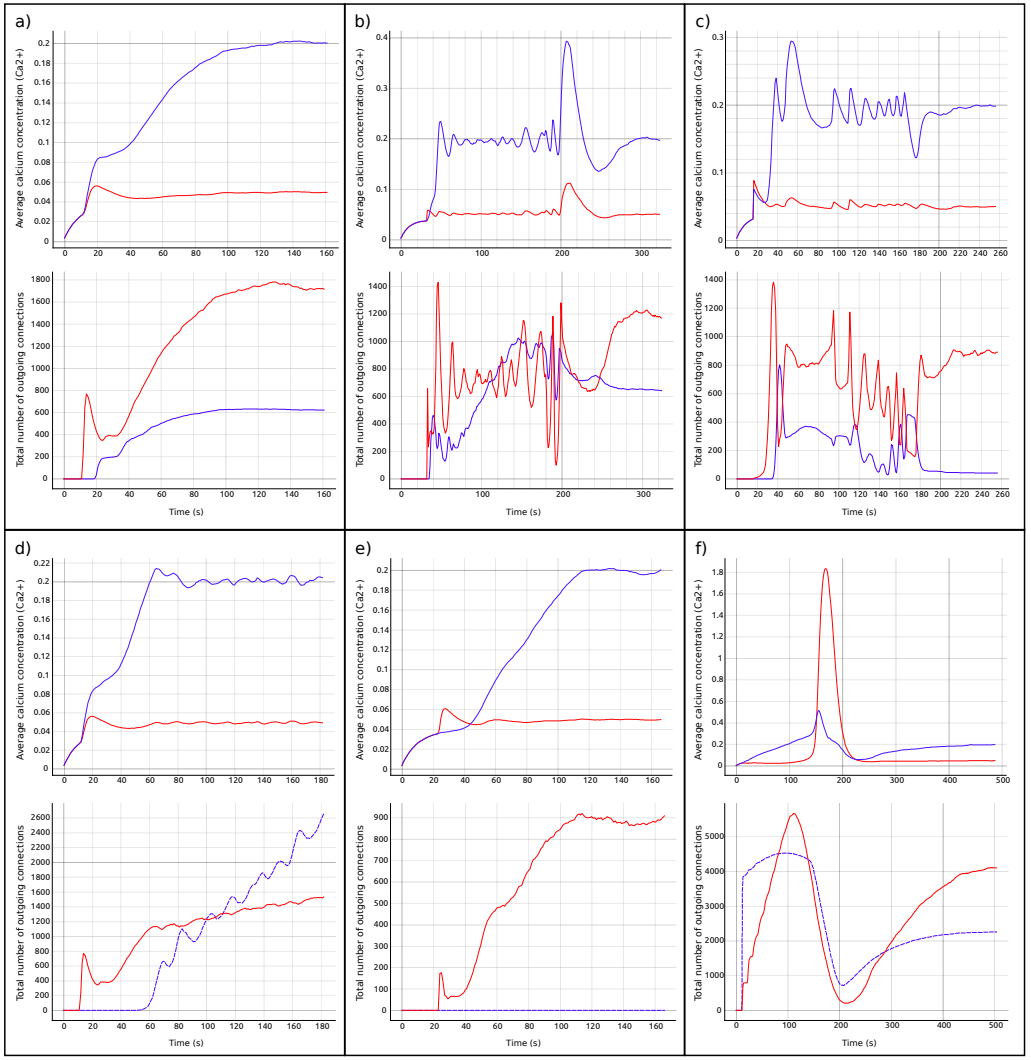
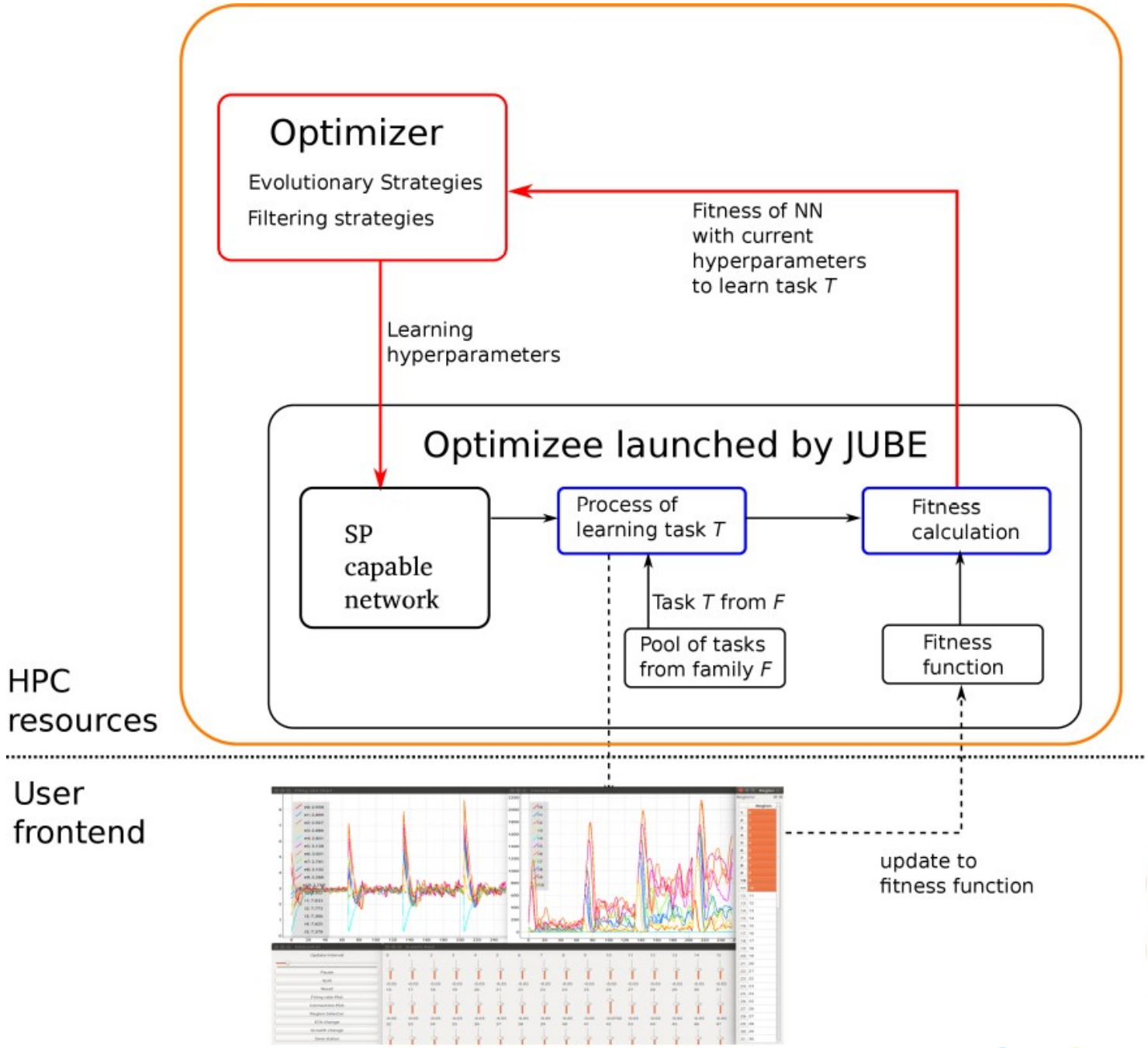
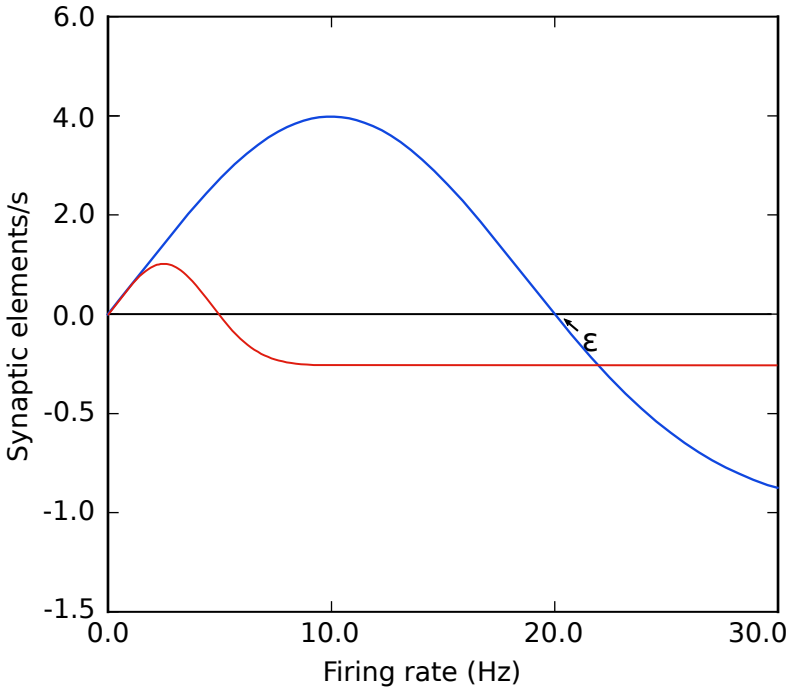
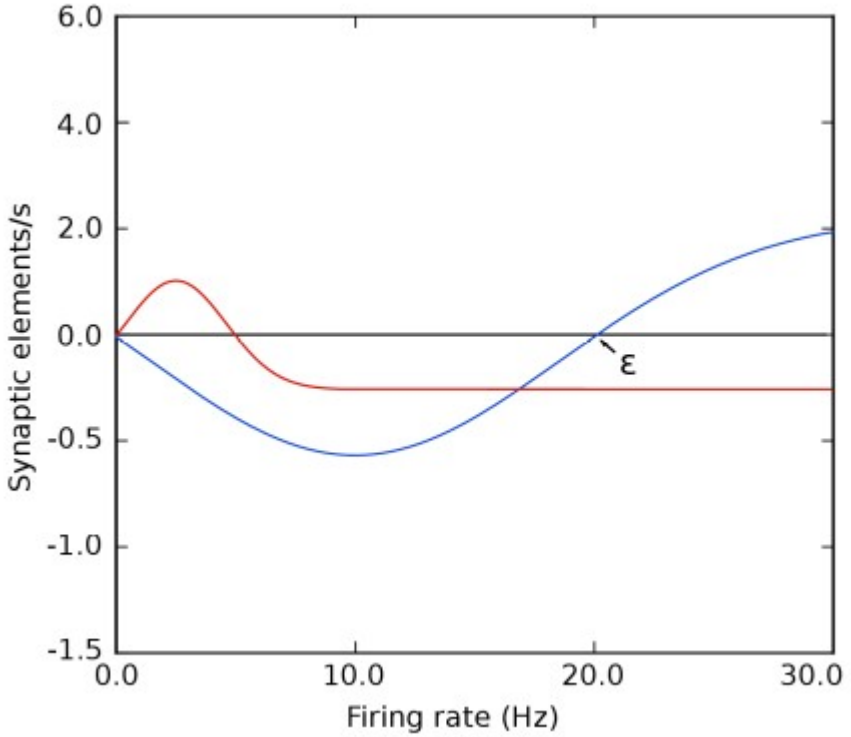
Introduction



- Internal fitness: a normal growth curve
- External fitness: Different measures of the network like correlation coefficients and activation patterns after input

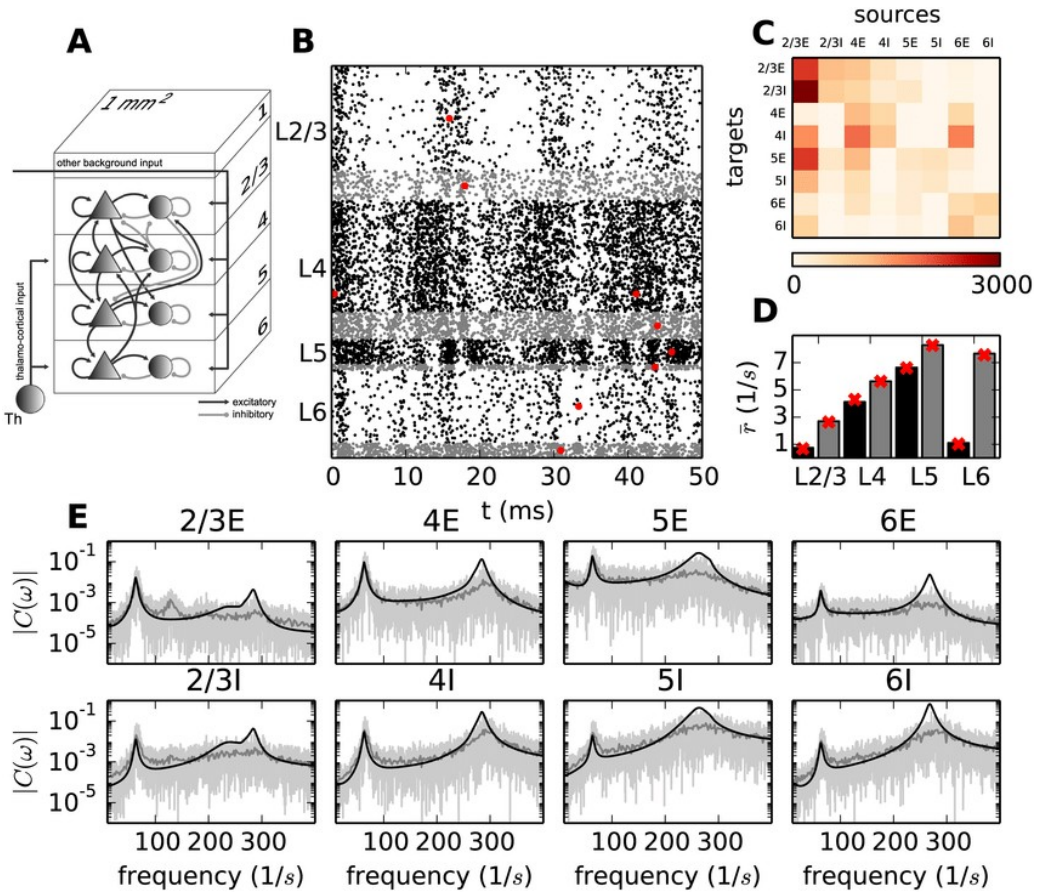






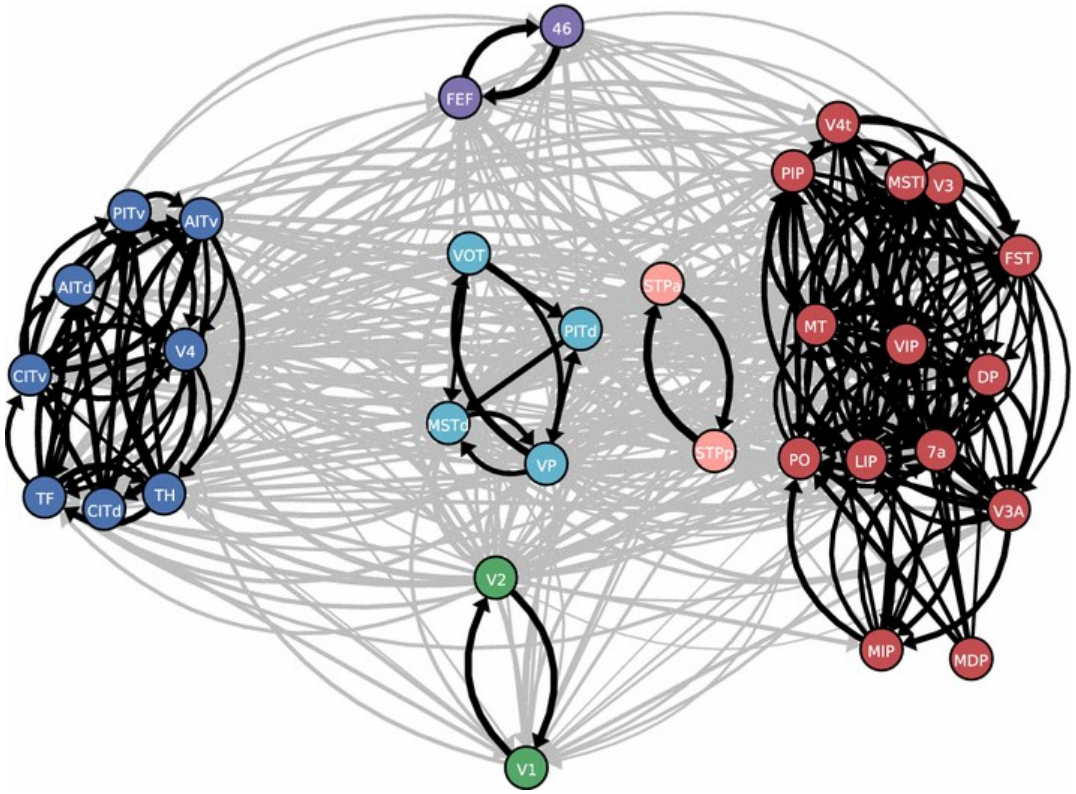
- Multiple types of synapses: different delays and weight distributions
- Different growth curves per type of synapse

- Identify relationships between slow and fast synapses
- Learn how collaborative action of different synapses impacts activity



[Boss, Diesmann, Helias, 2016]

- New goals per network
- Complex multi-objective optimization



[Schmidt, 2018]

- New goals per network
- Complex multi-objective optimization

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Goals and future work

- Combine structural and synaptic plasticity
  - Integrate weight based deletions of synapses
- Develop a reusable framework to explore fitting and optimization of models with plasticity
- Visualization and efficient transfer of information between simulation and exploration