Learning to Learn on High Performance Computing

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Introduction

- Brain-like learning capabilities can now be produced in non-spiking neural networks using Machine Learning [1]
- Learning to learn [2] is a specific optimization solution for acquiring constraints to improve learning

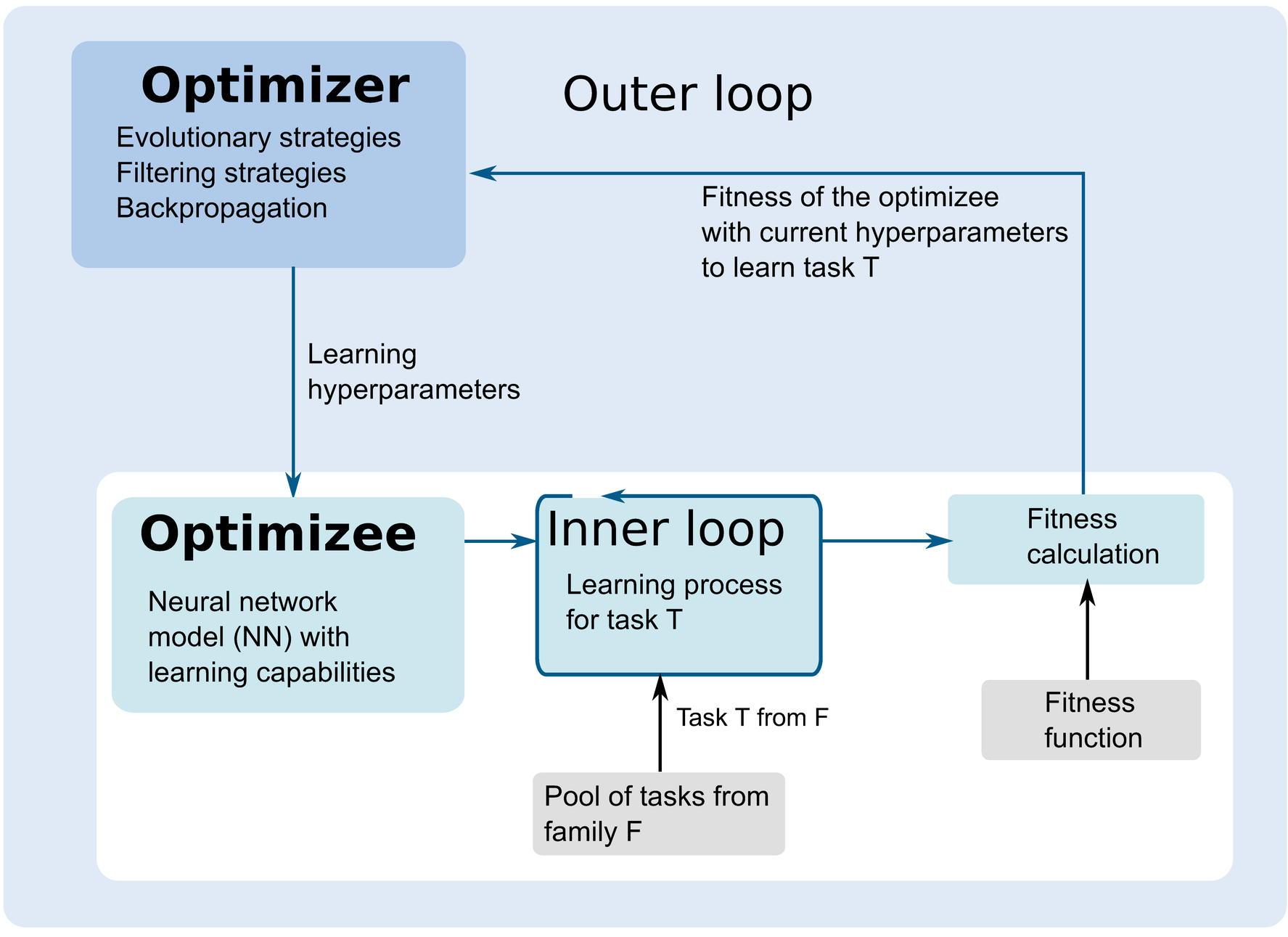
Learning to learn on High Performance Computing (HPC)

- **Problem:** Optimization problems run on single node or embarrassingly parallel on multiple nodes
- **Goals:**
  Handling complex problems over large sets for arbitrary tools and algorithms parallelized on multi-node HPC
  High throughput hyperparameter search and optimization at (exa-) scale
- **Our approach:**
  L2L framework

Learning to learn framework (L2L)

- **Meta-learning** and **hyperparameter optimization** on HPC
- Mostly includes **gradient-free** optimizers
- Two loop optimization process

Code available on GitHub



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