

# Meta-Learning Symposium

**Risto Miikkulainen, Quoc Le, Kenneth Stanley, Chrisantha Fernando**



**UBER**



# Definition

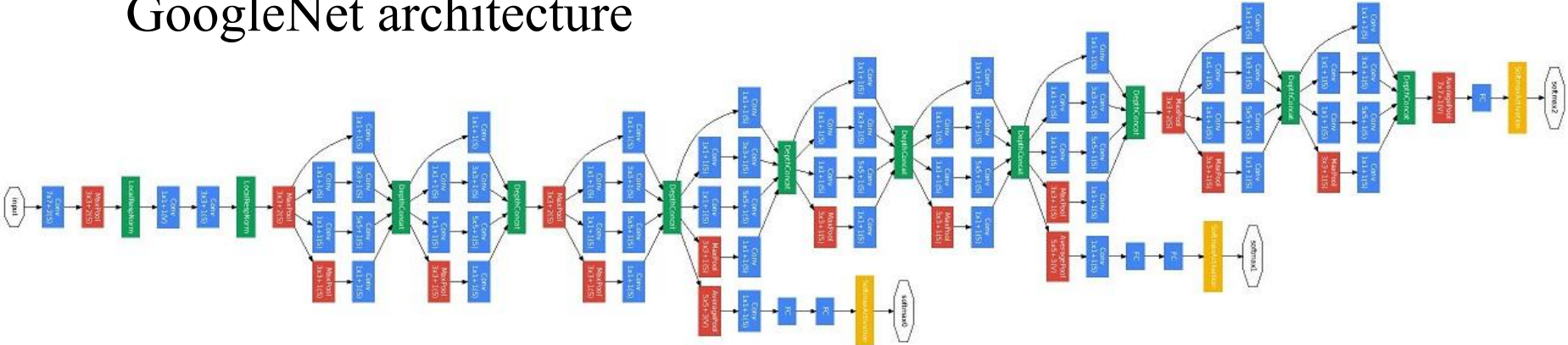
The framework of using one learning system to modify or optimize certain aspects of another learning system.

# The importance of meta-learning

- Machine Learning systems become increasingly complex:
  - Many hyperparameters,
  - Special design & architecture components
  
- How can the complexity, i.e. the design, components, and hyperparameters, be configured automatically so that these systems perform as well as possible?

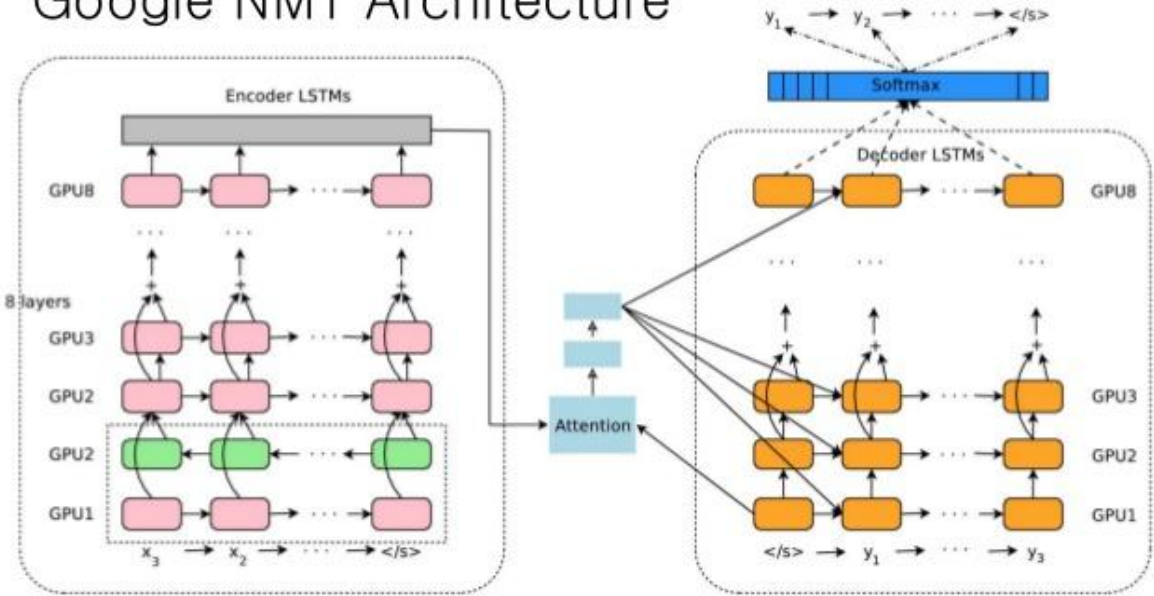
# The importance of meta-learning

## GoogleNet architecture



# The importance of meta-learning

## Google NMT Architecture



# Key approaches in recent years

- Evolutionary Optimization
- Bayesian Optimization
- Gradient Descent
- Reinforcement Learning

# Our schedule

- 2.10 - 3.10 Topic 1: Evolutionary Optimization
- 3.10 - 3.50 Topic 2: Bayesian Optimization
- 4.00 - 4.30 Coffee Break
- 4.30 - 5.50 Topic 3: Gradient Descent
- 5.50 - 6.30 Topic 4: Reinforcement Learning
- 6.30 - 7.30 Dinner Break
- 7.30 - 8.10 Topic 4: Reinforcement Learning
- 8.10 - 9.30 Panel Discussion