Model Agnostic Meta Learning (MAML)





Meta RL via gradients

MAML outline

Require $p(\mathcal{T})$: distribution over tasks

Require α , β : step size hyper-parameters

1. randomly initialise θ

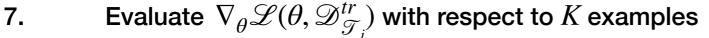
2. while not done do

sample batch of tasks $\mathcal{T}_i \sim p(\mathcal{T})$

for each \mathcal{T}_i do

Sample $\mathscr{D}^{tr}_{\mathscr{T}_i} \sim \mathscr{D}_{\mathscr{T}_i}$

Sample $\mathcal{D}_{\mathcal{T}_i}^{test} \sim \mathcal{D}_{\mathcal{T}_i}$



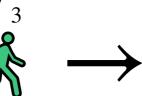
Compute adapted parameters with gradient descent: $\phi_i = \theta - \alpha \nabla_{\theta} \mathcal{L}(\theta, \mathcal{D}_{\mathcal{T}}^{tr})$

9. Update
$$\theta \leftarrow \theta - \beta \nabla_{\theta} \sum_{i} \mathcal{L}(\phi_{i}, \mathcal{D}_{\mathcal{T}_{i}}^{test})$$















learning/adaption