

Hyper-Representations as Generative Models: Sampling Unseen Neural Network Weights

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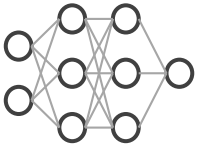
Investigating Populations of NN Models

Dataset

0	0	0	0	0
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4



Architecture



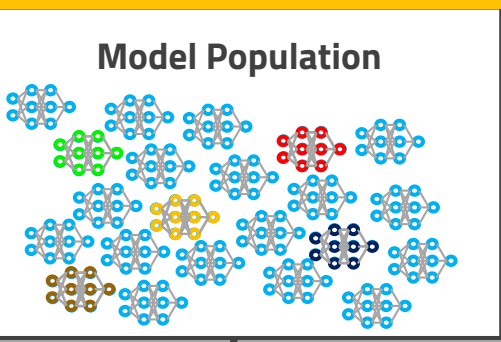
Hyperparameters

- Optimizer
- Activation
- Initialization Method
- Learning Rate
- L2-Regularization

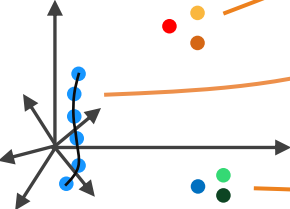
Hyper-Representations:

- Meaningful self-supervised representations of populations of Neural Network models

Model Population




Representation Space



Contribution of this Paper:

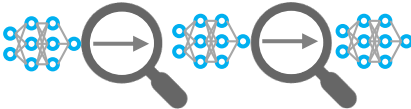
- Sample Hyper-Representations to generate novel weights

Model Analysis



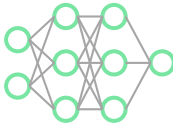
versioning, diagnostics, ...

Learning Dynamics



early-stopping, model selection, ...

Model Generation



initialization, transfer-learning, meta-learning, ...

Acknowledgements

Find our work at hsg.ai/neurips22

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