

**September, 16**

**From 10:00 to 12:00**

**Room C412, Sand 14**

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**Shared dynamic model aligned hypernetworks for contextual reinforcement learning**

**Abstract:**

We face the challenge of zero-shot generalization in contextual reinforcement learning problems. A distinction is generally made between two cases: either explicit context information is available for the agent, or it is not and has to be inferred from data.

We propose DMA\*-SH, an approach that builds on dynamic model aligned context inference. It emergently forms context representations while never being informed explicitly about the actual contextual situation it is in. We first show that normalization and random masking can significantly improve the encoded context representation.

Second, we enhance context utilization using a hypernetwork which predicts context-dependent weights that are shared between dynamic model, policy, and value function estimation neural modules.

Across a diverse set of contextualized environments, we show that our approach achieves superior results, even compared to context-aware baselines.