CMP9764M - Advanced Robotics – Week 5 – Probabilistic Movement Primitives

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A picture containing graphical user interface

Description automatically generated

Learning from demonstrations

Two broad approaches:

Direct: Supervised training of policy (mapping states to actions) using the demonstration trajectries as ground truth (a.k.a behaviour cloning)

Indirect: Learn the unknown reward function/ goal of the teacher and derive the policy from these, a.k.a

There are different ways to learn from examples:

* Imitation learning
* Emulation, mimicking
* Robot learning from demonstrations
* Observation learning

**Learning from Demonstration approaches**

* Gaussian mixture model/ Gaussian mixture regression
* Gaussian Process
* HMM
* Inverse Reinforcement Learning (Reinforcement Learning/Optimal control)
* Dynamic Movement Primitives
* (Deep) Probabilistic Movement Primitives
* Deep Movement Primitives

hierarchical probability distributions

Paper on Probabilistic movement primitives -

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