

# 1 Motivation

Is this active learning? Yes. What if there's a cost to observing directed samples, and also a cost for computation.

You're trying to make decisions, but are cognitively bounded and only have samples to go on. From [1], we know there are classes of functions which cannot be learned passively from samples, and moreover, thought is expensive, and boundedness needs to be taken seriously.

So we have to pay for

- Computation
- Inaccuracy
- Directed Samples

Different kinds of reasoning: theoretical and pragmatic. We can choose utilities to maximize

# 2 Setting

Maximizing expected utility is impossible as a cognitively bounded agent, and the

Cost of computation, per flop  
Cost of computation, per network layer

Let  $\mathcal{U}$

## 2.1 Examples

## References

- [1] Eric Balkanski, Aviad Rubinstein, and Yaron Singer. The limitations of optimization from samples. *CoRR*, abs/1512.06238, 2015.
- [2] Samuel J Gershman, Eric J Horvitz, and Joshua B Tenenbaum. Computational rationality: A converging paradigm for intelligence in brains, minds, and machines. *Science*, 349(6245):273–278, 2015.