



Statistics > Machine Learning

Bayesian multitask inverse reinforcement learning

[Christos Dimitrakakis](#), [Constantin Rothkopf](#)

(Submitted on 18 Jun 2011 (v1), last revised 17 Nov 2011 (this version, v2))

We generalise the problem of inverse reinforcement learning to multiple tasks, from multiple demonstrations. Each one may represent one expert trying to solve a different task, or as different experts trying to solve the same task. Our main contribution is to formalise the problem as statistical preference elicitation, via a number of structured priors, whose form captures our biases about the relatedness of different tasks or expert policies. In doing so, we introduce a prior on policy optimality, which is more natural to specify. We show that our framework allows us not only to learn to efficiently from multiple experts but to also effectively differentiate between the goals of each. Possible applications include analysing the intrinsic motivations of subjects in behavioural experiments and learning from multiple teachers.

Comments: Corrected version. 13 pages, 8 figures
 Subjects: **Machine Learning (stat.ML)**; Artificial Intelligence (cs.AI)
 MSC classes: 62C10, 91B08, 91B10
 ACM classes: G.3
 Journal reference: Recent Advances in Reinforcement Learning LNCS 7188, pp. 273-284, 2012
 DOI: [10.1007/978-3-642-29946-9_27](https://doi.org/10.1007/978-3-642-29946-9_27)
 Cite as: [arXiv:1106.3655](https://arxiv.org/abs/1106.3655) [stat.ML]
 (or [arXiv:1106.3655v2](https://arxiv.org/abs/1106.3655v2) [stat.ML] for this version)

Submission history

From: Christos Dimitrakakis [[view email](#)]
[\[v1\]](#) Sat, 18 Jun 2011 15:00:45 GMT (32kb)
[\[v2\]](#) Thu, 17 Nov 2011 15:16:11 GMT (63kb)

[Which authors of this paper are endorsers?](#)

Link back to: [arXiv](#), [form interface](#), [contact](#).

Download:

- [PDF](#)
- [PostScript](#)
- [Other formats](#)

Current browse context:

stat.ML
[< prev](#) | [next >](#)
[new](#) | [recent](#) | [1106](#)

Change to browse by:

cs
 cs.AI
 stat

References & Citations

- [NASA ADS](#)

Bookmark([what is this?](#))

