



Computer Science > Artificial Intelligence

# Machine Learning Markets

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(Submitted on 22 Jun 2011)

Prediction markets show considerable promise for developing flexible mechanisms for machine learning. Here, machine learning markets for multivariate systems are defined, and a utility-based framework is established for their analysis. This differs from the usual approach of defining static betting functions. It is shown that such markets can implement model combination methods used in machine learning, such as product of expert and mixture of expert approaches as equilibrium pricing models, by varying agent utility functions. They can also implement models composed of local potentials, and message passing methods. Prediction markets also allow for more flexible combinations, by combining multiple different utility functions. Conversely, the market mechanisms implement inference in the relevant probabilistic models. This means that market mechanism can be utilized for implementing parallelized model building and inference for probabilistic modelling.

Comments: Proceedings of the Fourteenth International Conference on Artificial Intelligence and Statistics 2011

Subjects: **Artificial Intelligence (cs.AI)**; Multiagent Systems (cs.MA); Neural and Evolutionary Computing (cs.NE); Trading and Market Microstructure (q-fin.TR); Machine Learning (stat.ML)

Journal reference: Journal of Machine Learning Research W&CP 15 (AISTATS):716-724, 2011

Cite as: **arXiv:1106.4509 [cs.AI]**  
(or **arXiv:1106.4509v1 [cs.AI]** for this version)

## Submission history

From: Amos Storkey [[view email](#)]

[v1] Wed, 22 Jun 2011 17:12:42 GMT (35kb,DS)

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