



Student project / BA-/MA-Thesis

Cooperative agent behavior using a Probabilistic Programming Language (PPL)

Topic

Probabilistic programming languages (PPLs) combine formal descriptions of computations with uncertain knowledge and are of strong interest for artificial intelligence and cognitive science researchers. Many different PPLs have been developed in recent years (e.g. <http://webppl.org/>, <https://pyro.ai/> and others).

PPLs are very powerful when dealing with uncertainties in a formal and structured way, allowing to express complex probabilistic relationships in a declarative manner. One scenario with a lot of inherent uncertainty pertains to cooperation with other agents, as their plans and intentions can only be inferred from their behavior.

The idea of this thesis topic is for a student to select a suitable PPL to implement an intelligent agent for the Overcooked domain, i.e. to develop an agent that can cook recipes and ideally cooperate with another agent.

Recommended skills

- Proficient knowledge in probability theory
- Prior knowledge with probabilistic inference

Contact

- Jan Pöppel
- jpoeppe@techfak.uni-bielefeld.de



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