A Complementary Way of Teaching Reinforcement Learning and Decision Making

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Abstract

Reinforcement Learning and Decision Making is a complex subject. Being the focus of research of a variety of fields including artificial intelligence, psychology, machine learning, operations research, control theory, animal and human neuroscience, economics, and ethology, it is expected that the vast amount of available information could become counterproductive. Beginners often find themselves lost while trying to grasp the key concepts that are truly vital for understanding. Additionally, reinforcement learning and decision making, being a relatively new field, is often taught by world-class researchers that frequently unintentionally omit explaining core concepts that might seem too basic, but are as well fundamental. This creates a gap of knowledge that, if left unfilled, causes trouble for learning the more advanced topics.

Fortunately, as reinforcement learning and decision making is also studied by fields like animal and human neuroscience, ethology, and psychology, often the concepts can be taught on an intuitive level. The notion of learning by interacting with the environment should be easy to understand to all of us as this is one of the ways we learn. The work described on this paper is an attempt to deliver reinforcement learning and decision making concepts using different teaching techniques that potentially promote intuitive learning. The idea is that these work would serve beginners fill the gaps of knowledge, as a 'primer' to prepare them for the more advanced and in-depth material.

Keywords: teaching tutorials jupyter intuition

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1 Introduction

RLDM requires electronic submissions. This year's electronic submission site is

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Please read the instructions below, and follow them faithfully. Note that there is also a template `rldm.rtf` for Microsoft Word, which is available from the website below.

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The paper size for RLDM is "US Letter" (rather than "A4"). Margins are 1.5cm around all sides. Use 11 point type with a vertical spacing of 12 points. Palatino is the preferred typeface throughout. Paragraphs are separated by 1/2 line space, with no indentation.

Paper title is 17 point, initial caps/lower case, bold, centered between 2 horizontal rules. Top rule is 4 points thick and bottom rule is 1 point thick. Allow 0.6cm space above and below title to rules.

The lead author's name is to be listed first (left-most), and the co-authors' names (if different address) are set to follow. If there is only one co-author, list both author and co-author side by side.

3 Using Intuition as a Primer

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This document is an example of `thebibliography` environment using in bibliography management. Three items are cited: *The LaTeX Companion* book [1], the Einstein journal paper [2], and the Donald Knuth's website [3]. The LaTeX related items are [1, 3].

4 Creating Awareness through Experimentation

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5 Building Knowledge through Assigned Readings

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