# Uso de Projetos de Código Aberto no Ensino de Inteligência Artificial

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***Abstract.*** *Something...*

***Resumo.*** *Algo...*

## 1. Introdução

A aprendizagem por projetos consiste em propor aos alunos cenários semelhantes aos do mundo real e conduzi-los através da construção de uma solução possível. A aprendizagem por projetos está fortemente associada aos conceitos de aprendizagem pela prática (*learning by doing*) [Anzai and Simon 1979, Schank et al. 1999, Bessen 2015], aprendizagem autêntica [Herrington and Oliver 2000, Herrington 2006, Lombardi 2007] e educação direta [Lakey 2010]. Este trabalho tem como o objetivo apresentar como o uso do desenvolvimento de software livre contribui para o ensino de Inteligência Artificial (IA).

O Bispix[1] é um software livre que foi criado para a realização de projetos na disciplina de IA. O propósito é de que os alunos desenvolvam extensões do Bispix utilizando o modelo de ciclo de vida de software *Fork and Pull* [Alasbali and Benatallah 2015, Buffardi 2015]. Todo o processo é realizado através do GitHub, permitindo aos alunos o desenvolvimento a partir de um código pré-existente (algo bastante comum no mundo real).

Será apresentado em mais detalhes a seguir alguns conceitos importantes como a aprendizagem pela prática (Seção 2), aprendizagem autêntica (Seção 3) e educação direta (Seção 4). Logo após, apresentamos o Bispix (Seção 5), e como ele está estruturado. Por fim, apresentamos algumas perspectivas de como gerar resultados de pesquisas interessantes com esta iniciativa (Seção 6).

## 2. Aprendizagem pelo Fazer

aprendizagem pela prática (*learning by doing*) [Anzai and Simon 1979, Schank et al. 1999, Bessen 2015]

[1]http://www.github.com/freeufg/bispix

## 3. Aprendizagem Autêntica

## 4. Educação Direta

## 5. Bispix

## 6. Perspectivas de Pesquisa

## 7. First Page

The first page must display the paper title, the name and address of the authors, the abstract in English and "resumo" in Portuguese ("resumos" are required only for papers written in Portuguese). The title must be centered over the whole page, in 16 point boldface font and with 12 points of space before itself. Author names must be centered in 12 point font, bold, all of them disposed in the same line, separated by commas and with 12 points of space after the title. Addresses must be centered in 12 point font, also with 12 points of space after the authors' names. E-mail addresses should be written using font Courier New, 10 point nominal size, with 6 points of space before and 6 points of space after.

The abstract and "resumo" (if is the case) must be in 12 point Times font, indented 0.8cm on both sides. The word **Abstract** and **Resumo**, should be written in boldface and must precede the text.

## 8. CD-ROMs and Printed Proceedings

In some conferences, the papers are published on CD-ROM while only the abstract is published in the printed Proceedings. In this case, authors are invited to prepare two final versions of the paper. One, complete, to be published on the CD and the other, containing only the first page, with abstract and "resumo" (for papers in Portuguese).

## 9. Sections and Paragraphs

Section titles must be in boldface, 13pt, flush left. There should be an extra 12 pt of space before each title. Section numbering is optional. The first paragraph of each section should not be indented, while the first lines of subsequent paragraphs should be indented by 1.27 cm.

### 9.1. Subsections

The subsection titles must be in boldface, 12pt, flush left.

## 10. Figures and Captions

Figure and table captions should be centered if less than one line (Figure 1), otherwise justified and indented by 0.8cm on both margins, as shown in Figure 2. The caption font must be Helvetica, 10 point, boldface, with 6 points of space before and after each caption.

In tables, try to avoid the use of colored or shaded backgrounds, and avoid thick, doubled, or unnecessary framing lines. When reporting empirical data, do not use more decimal digits than warranted by their precision and reproducibility. Table caption must be placed before the table (see Table 1) and the font used must also be Helvetica, 10 point, boldface, with 6 points of space before and after each caption.


**Figura 1. A typical figure**

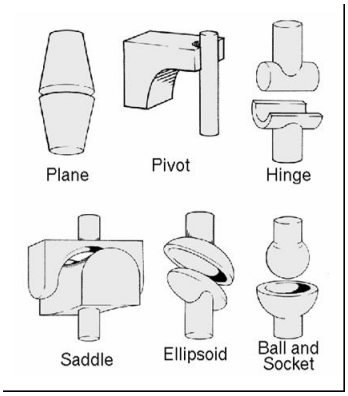


**Figura 2. This figure is an example of a figure caption taking more than one line and justified considering margins mentioned in Section 10.**

## 11. Images

All images and illustrations should be in black-and-white, or gray tones, excepting for the papers that will be electronically available (on CD-ROMs, internet, etc.). The image resolution on paper should be about 600 dpi for black-and-white images, and 150-300 dpi for grayscale images. Do not include images with excessive resolution, as they may take hours to print, without any visible difference in the result.

## 12. References

Bibliographic references must be unambiguous and uniform. We recommend giving the author names references in brackets, e.g. [**?**], [**?**], and [**?**].

The references must be listed using 12 point font size, with 6 points of space before each reference. The first line of each reference should not be indented, while the subsequent should be indented by 0.5 cm.

**Tabela 1. Variables to be considered on the evaluation of interaction techniques**

| | Value 1 | Value 2 |
|---|---|---|
| Case 1 | $1.0 \pm 0.1$ | $1.75 \times 10^{-5} \pm 5 \times 10^{-7}$ |
| Case 2 | 0.003(1) | 100.0 |

## Referências


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