

Project 1: Deep-Q-Learning-for-Navigation

Udacity Deep Reinforcement Learning Nanodegree Program

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Figure 1: Spring Training 2009, Peoria, AZ.

Abstract

In this sample paper, we describe the formatting requirements for content for the STAR assignment for the Introduction to Computer Graphics class, Fall 2015. Please fill this section with the abstract. This template is based on the SIGGRAPH proceedings template and the following sections will contain dummy sections and text which you can edit. Use www.overleaf.com to collaborate and keep track of your document. [Tex Example Site](#)

CR Categories: I.3.3 [Computer Graphics]: STAR Topic—CRcat index I.3.7 [Computer Graphics]: STAR Topic—CRcat index;

Keywords: Reinforcement Learning, Deep Learning

1 Introduction

Introduction to your work and the motivation for the STAR topic research. The crucial problem and its solution. The current work will be a survey of the state of the art.



Figure 2: This is how you insert an image'

2 Related Work and Background

Please fill in this section with the already done work and summarize the research that has been done, which you will expand upon in the latter sections.

The SIGGRAPH citation format is the “author year” format [?]. The year is separated from the author by a single space [?]. Two authors are separated by the word “and” [?]. More than two authors are represented by the primary author and “et al.” [?].

Multiple citations at a single point in the content are separated by semicolons [?: ?].

3 State of the Art

This will actually have the sections that describe and organize the state of the art research. Divide the works into subsections and go through them in detail.

Following are the general guidelines for SIGGRAPH submissions: Please use a serif (Times, Times New Roman, etc.) typeface for the body of your content. This serif typeface should be used for everything except the title of your content and section headings, which should be set in a sans-serif (Helvetica, etc.) typeface.

Your content should be prepared with 9-point text and 10-point line spacing. This includes the references section. Do not reduce the typeface size or the line spacing of any part of your content, in an effort to fit more into a specific number of pages.

All typefaces used in your content must be embedded in the PDF you create.

Paragraphs are prepared without any indentation on the first line, and with a 10-point-tall space between paragraphs.

Please do not add page numbers to your content. They will be added during production.

3.1 L^AT_EX

The “acmsiggraph” L^AT_EX class will faithfully implement the formatting specifications found in this document. Please look at the

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“template.tex” file that accompanies the \LaTeX and \BIBTeX class files, noting these points:

- In order to leave the correct amount of space clear for the rights management text, you must do two things:
 1. Use the proper parameter to the \documentclass command at the top of your source file: use “`tog`” for technical papers accepted to our annual events and published as TOG articles, and use “`conference`” for all other types of content. The parameter determines the amount of space left clear for the rights management text.
 2. Use the \copyrightspace command. It should be placed immediately before the first section of your paper.

If you do not use any parameter to the \documentclass command, and use the \copyrightspace command, you’ll end up with much more blank space than you want or need.

- Many authors like to have a large image - called a “teaser” image - after the title, author, and affiliation and before the body of the paper. There is a command - \teaser - which can be used to place such an image. (As has been done in this example document.) Under certain circumstances, the space left clear for the rights management text will move to the base of the right column on the first page. This is acceptable.
- Use the \keywords command to define your own keywords, and the \keywordlist command to prepare and print that block of text.
- Use the \CRcatlist environment and the \CRcat command to define the CR categories appropriate for your paper.
- There are also “review” and “preprint” variations of this document class, to be used for material submitted for review, and accepted content to be distributed as a “preprint.” These variations have special commands associated with them; see the “template.tex” file for more information.

3.2 PDF

The \LaTeX file can be compiled into a *PDF*

4 Mathematical Formulae

The following section can be found at www.sharelatex.com.

4.1 First example

The well known Pythagorean theorem $x^2 + y^2 = z^2$ was proved to be invalid for other exponents. Meaning the next equation has no integer solutions:

$$x^n + y^n = z^n$$

4.2 Second example

In physics, the mass-energy equivalence is stated by the equation $E = mc^2$, discovered in 1905 by Albert Einstein.

The mass-energy equivalence is described by the famous equation

$$E = mc^2$$

discovered in 1905 by Albert Einstein. In natural units ($c = 1$), the formula expresses the identity

$$E = m \quad (1)$$

4.3 Third example

This is a simple math expression $\sqrt{x^2 + 1}$ inside text. And this is also the same: $\sqrt{x^2 + 1}$ but by using another command.

This is a simple math expression without numbering

$$\sqrt{x^2 + 1}$$

separated from text.

This is also the same:

$$\sqrt{x^2 + 1}$$

... and this:

$$\sqrt{x^2 + 1}$$

4.4 Fourth example

Multi line expressions

$$2x^2 + 3(x - 1)(x - 2) = 2x^2 + 3(x^2 - 3x + 2) \quad (2)$$

$$\begin{aligned} &= 2x^2 + 3x^2 - 9x + 6 \\ &= 5x^2 - 9x + 6 \end{aligned} \quad (3)$$

4.5 Advanced examples

Refer to <https://en.wikibooks.org/wiki/LaTeX/Advanced-Mathematics> for more advanced examples.

$$\lim_{x \rightarrow 0} \frac{e^x - 1}{2x} \stackrel{\left[\frac{0}{0} \right]}{=} \lim_{x \rightarrow 0} \frac{e^x}{2} = \frac{1}{2}$$

$$x = a_0 + \cfrac{1}{a_1 + \cfrac{1}{a_2 + \cfrac{1}{a_3 + a_4}}} \quad (4)$$

5 Macros

The following section can be found at www.sharelatex.com. The commands have been defined as macros before the beginning of the document. Scroll up to check them.

In a document there are different types of **commands** that define the way the elements are displayed. This command may insert special elements: $\alpha\beta\Gamma$ Example a list

- First item
- § Second item

The set of real numbers are usually represented by a blackboard bold capital r: \mathbb{R} .

Other numerical systems have similar notations. The complex numbers \mathbb{C} , the rational numbers \mathbb{Q} and the integer numbers \mathbb{Z} .

To save some time when writing too many expressions with exponents is by defining a new command to make simpler:

$$(x + y)^2$$

And even the exponent can be changed

$$(y + y)^4$$

The riemann sphere (the complex numbers plus ∞) is sometimes represented by \mathbb{S}

6 Tables

A simple table can be constructed using \LaTeX

| Col1 | Col2 | Col2 | Col3 |
|------|------|-------|------|
| 1 | 6 | 87837 | 787 |
| 2 | 7 | 78 | 5415 |
| 3 | 545 | 778 | 7507 |
| 4 | 545 | 18744 | 7560 |
| 5 | 88 | 788 | 6344 |

For more complicated formatting refer to <https://www.sharelatex.com/learn/Tables>

Before the start of the document you need certain settings.

7 Images

The following code arranges 2 images and a table

8 Contact Information

If you have questions or suggestions regarding this document, please contact Stephen Spencer at "spencer@cs.washington.edu".

Acknowledgements

To Robert, for all the bagels.

References

- ESPEHOLT, L., SOYER, H., MUNOS, R., SIMONYAN, K., MNIH, V., WARD, T., DORON, Y., FIROIU, V., HARLEY, T., DUNNING, I., LEGG, S., AND KAVUKCUOGLU, K. 2018. IMPALA: scalable distributed deep-rl with importance weighted actor-learner architectures. *CoRR abs/1802.01561*.

| Country List | | |
|---------------------------|-------------------|--------------|
| Country Name or Area Name | ISO AL-PHA 2 Code | ISO AL-PHA 3 |
| Afghanistan | AF | AFG |
| Aland Islands | AX | ALA |
| Albania | AL | ALB |
| Algeria | DZ | DZA |
| American Samoa | AS | ASM |
| Andorra | AD | AND |
| Angola | AO | AGO |

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WANG, Z., DE FREITAS, N., AND LANCTOT, M. 2015. Dueling network architectures for deep reinforcement learning. *CoRR abs/1511.06581*.



Figure 3: This is a figure caption

| | | |
|-------|-------|-------|
| One | Two | Three |
| Three | One | Two |
| Two | Three | One |

Table 1: This is a table caption



Figure 4: This is a figure caption