Relatório de Computação Gráfica: Logo Github

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***Abstract*—This document is a report o and instructions for LaTeX. This and the IEEEtran.cls file define the components of your paper [title, text, heads, etc.]. *CRITICAL: Do Not Use Symbols, Special Characters, Footnotes, or Math in Paper Title or Abstract.**

***Index Terms*—component, formatting, style, styling, insert**

I. Introdução

Este Documento é um relatorio da reprodução da logo do GitHub através da utilização da biblioteca OpenGL.

II. Componentes da Logo

A logo do github representada nesta atividade é composta pela silhueta do mascote da companhia, o Octocat. O mascote foi criado por Simon Oxley e é uma mistura entre polvo e gato, o motivo é o conceito de *"octopus merge"* que é empregado no git, um sistema de controle de versões. A logo foi empregada inicialmente em páginas que retornavam com erros do servidor mas a identidade visual do mascote com o Github foi tanta que hoje ele é empregado na logo da companhia. Para simplificar a representação da logo, ela será divida nas seguintes etapas:

- Canvas branco aonde a logo será projetada
- Circulo, é o circulo central onde a silhueta do Octocat é projetada.
- Octocat, será sub-dividido em :
  - Cabeça
  - Corpo
  - Orelha esquerda
  - Orelha direita
  - Tentaculo
  - Ventosas
- GitHub, fonte com o nome da empresa

III. Especificação Técnica

A implementação da atividade foi realizada na linguagem Python versão 3.7 , utilizando os pacotes do PyOpenGL versão 3. Também foi utilizado o editor Inkscape, para modelar a logo a partir das coordenadas dos objetos.

IV. Bezier

Curvas de Bézier são amplamente empregadas no desenvolvimento de computação gráfica. Estas superficies são geradas matematicamente por um conjunto curvas, que por sua vez são geradas a partir de um conjunto de pontos de controle. A utilização destas curvas permite desenhar objetos com contornos mais suaves, basta definir intuitivamente os pontos de controle a fim de gerar a curva desejada. A figura x, apresenta uma curva cubica. O cálculo de uma curva de Bézier é semelhante a interpolação, este trabalho realizou o calculo utilizando OpenGL a partir das seguintes funções

A. glMap2d

Define um *evaluator* que irá realizar avaliar e produzir os valores dos vértices a partir dos pontos de controle fornecidos. Tem como parametro *GL_MAP2_VERTEX_3*

V. Canvas

VI. Circulo

A primeira etapa da implementação foi desenhar o circulo de fundo, onde é projetada a logo. O código a seguir apresenta o procedimento utilizado para obter as coordenadas para formar um circulo. O circulo é gerado a partir do desenho de triangulos, que são calculados utilizando trigonometria. Para obter uma representação visual mais fiel, o circulo representado utiliza 50 triangulos. O código utiliza a função *glBegin* com o parametro *GL_POLYGON* que define que os valores utilizado serão vertices de poligono, que serão desenhados a partir da função *glVertex2f*, onde os parametros *cosine, sine* são as cordenadas do respectivo vertice.

VII. Cabeça

A cabeça do Octocat possui um formato complexo de se reproduzir a partir de poligonos, inicialmente foi desenhada partir da combinação de circulos, conforme a figura x. Após verificar a disparidade com o a cabeça presente na logo o desenho foi alterado para uma elipse conforme a figura x, o resultado também não foi satisfatorio. Após isto, o desenho da cabeça foi feito, a partir das curvas de Bézier. A figura x apresenta os pontos de controle utilizados, e a figura x apresenta a superficie resultande. A função *bezier* figura x é a responsável por desenhar a cabeça do Octocat, a cor branca é definida pela função *glColor3f*, já

A. LaTeX-Specific Advice

Please use "soft" (e.g., `\eqref{Eq}`) cross references instead of "hard" references (e.g., `(1)`). That will make it possible to combine sections, add equations, or change the order of figures or citations without having to go through the file line by line.

Please don't use the `{eqnarray}` equation environment. Use `{align}` or `{IEEEeqnarray}` instead. The `{eqnarray}` environment leaves unsightly spaces around relation symbols.

Please note that the `{subequations}` environment in LaTeX will increment the main equation counter even when there are no equation numbers displayed. If you forget that, you might write an article in which the equation numbers skip from (17) to (20), causing the copy editors to wonder if you've discovered a new method of counting.

BibTeX does not work by magic. It doesn't get the bibliographic data from thin air but from .bib files. If you use BibTeX to produce a bibliography you must send the .bib files.

LaTeX can't read your mind. If you assign the same label to a subsubsection and a table, you might find that Table I has been cross referenced as Table IV-B3.

LaTeX does not have precognitive abilities. If you put a `\label` command before the command that updates the counter it's supposed to be using, the label will pick up the last counter to be cross referenced instead. In particular, a `\label` command should not go before the caption of a figure or a table.

Do not use `\nonumber` inside the `{array}` environment. It will not stop equation numbers inside `{array}` (there won't be any anyway) and it might stop a wanted equation number in the surrounding equation.

B. Some Common Mistakes

- The word "data" is plural, not singular.
- The subscript for the permeability of vacuum μ_0, and other common scientific constants, is zero with subscript formatting, not a lowercase letter "o".
- In American English, commas, semicolons, periods, question and exclamation marks are located within quotation marks only when a complete thought or name is cited, such as a title or full quotation. When quotation marks are used, instead of a bold or italic typeface, to highlight a word or phrase, punctuation should appear outside of the quotation marks. A parenthetical phrase or statement at the end of a sentence is punctuated outside of the closing parenthesis (like this). (A parenthetical sentence is punctuated within the parentheses.)
- A graph within a graph is an "inset", not an "insert". The word alternatively is preferred to the word "alternately" (unless you really mean something that alternates).
- Do not use the word "essentially" to mean "approximately" or "effectively".
- In your paper title, if the words "that uses" can accurately replace the word "using", capitalize the "u"; if not, keep using lower-cased.
- Be aware of the different meanings of the homophones "affect" and "effect", "complement" and "compliment", "discreet" and "discrete", "principal" and "principle".
- Do not confuse "imply" and "infer".
- The prefix "non" is not a word; it should be joined to the word it modifies, usually without a hyphen.
- There is no period after the "et" in the Latin abbreviation "et al.".
- The abbreviation "i.e." means "that is", and the abbreviation "e.g." means "for example".

An excellent style manual for science writers is [7].

C. Authors and Affiliations

The class file is designed for, but not limited to, six authors. A minimum of one author is required for all conference articles. Author names should be listed starting from left to right and then moving down to the next line. This is the author sequence that will be used in future citations and by indexing services. Names should not be listed in columns nor group by affiliation. Please keep your affiliations as succinct as possible (for example, do not differentiate among departments of the same organization).

D. Identify the Headings

Headings, or heads, are organizational devices that guide the reader through your paper. There are two types: component heads and text heads.

Component heads identify the different components of your paper and are not topically subordinate to each other. Examples include Acknowledgments and References and, for these, the correct style to use is "Heading 5". Use "figure caption" for your Figure captions, and "table head" for your table title. Run-in heads, such as "Abstract", will require you to apply a style (in this case, italic) in addition to the style provided by the drop down menu to differentiate the head from the text.

Text heads organize the topics on a relational, hierarchical basis. For example, the paper title is the primary text head because all subsequent material relates and elaborates on this one topic. If there are two or more sub-topics, the next level head (uppercase Roman numerals) should be used and, conversely, if there are not at least two sub-topics, then no subheads should be introduced.

E. Figures and Tables

a) Positioning Figures and Tables: Place figures and tables at the top and bottom of columns. Avoid placing them in the middle of columns. Large figures and tables may span across both columns. Figure captions should be below the figures; table heads should appear above the tables. Insert figures and tables after they are cited in the text. Use the abbreviation "Fig. 1", even at the beginning of a sentence.

Figure Labels: Use 8 point Times New Roman for Figure labels. Use words rather than symbols or abbreviations when writing Figure axis labels to avoid confusing the reader. As an

TABLE I
TABLE TYPE STYLES

Table Head	Table Column Head		
	Table column subhead	*Subhead*	*Subhead*
copy	More table copy[a]		

[a]Sample of a Table footnote.

Fig. 1. Example of a figure caption.

example, write the quantity "Magnetization", or "Magnetization, M", not just "M". If including units in the label, present them within parentheses. Do not label axes only with units. In the example, write "Magnetization (A/m)" or "Magnetization {A[m(1)]}", not just "A/m". Do not label axes with a ratio of quantities and units. For example, write "Temperature (K)", not "Temperature/K".

ACKNOWLEDGMENT

The preferred spelling of the word "acknowledgment" in America is without an "e" after the "g". Avoid the stilted expression "one of us (R. B. G.) thanks ...". Instead, try "R. B. G. thanks...". Put sponsor acknowledgments in the unnumbered footnote on the first page.

REFERENCES

Please number citations consecutively within brackets [1]. The sentence punctuation follows the bracket [2]. Refer simply to the reference number, as in [3]—do not use "Ref. [3]" or "reference [3]" except at the beginning of a sentence: "Reference [3] was the first ..."

Number footnotes separately in superscripts. Place the actual footnote at the bottom of the column in which it was cited. Do not put footnotes in the abstract or reference list. Use letters for table footnotes.

Unless there are six authors or more give all authors' names; do not use "et al.". Papers that have not been published, even if they have been submitted for publication, should be cited as "unpublished" [4]. Papers that have been accepted for publication should be cited as "in press" [5]. Capitalize only the first word in a paper title, except for proper nouns and element symbols.

For papers published in translation journals, please give the English citation first, followed by the original foreign-language citation [6].

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