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VAPOR-WAVE GRAPHICS, DOMAIN SPECIFIC LANGUAGE

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INTRODUCTION

This poster presents the MVP of a domain-specific language (DSL) designed for generating images and visual elements in the vaporwave aesthetic. The DSL was implemented in Python using PyParsing, enabling users to describe graphical compositions in a simple and intuitive syntax.

Key motivations:

1. Explore the intersection of programming languages and visual art;
2. Provide a minimalist and nostalgic tool for image generation;
3. Develop a prototype focused on clarity and extensibility.

INFORMAÇÕES E DICAS SOBRE TEX/LATEX

- LaTeX Project.
- Comprehensive TeX Archive Network (CTAN).
- TeX Users Group (TUG).
- LaTeX — Wikibooks.
- TeX-LaTeX Stack Exchange.

LITERATURE REVIEW

The intersection of domain-specific languages and generative art has been explored in previous works:

- Implicit reference: ... (**McCormack2005**).
- Explicit reference: **Hudak1996** discussed the value of DSLs in capturing domain knowledge effectively.

Citações e referências podem ser inseridas neste documento usando os comandos do pacote BibLaTeX, conforme exemplos no arquivo-fonte deste modelo. Os dados de cada referência podem ser obtidos de um arquivo BibTeX (`*.bib`), geralmente na própria página de acesso ou download da publicação (artigos, livros, etc.) ou, ainda, a partir do Google Acadêmico, etc.

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- ZoteroBib.
- BibTeX Editor.

MATERIALS AND METHODS

The DSL will be build using:

- Python for rapid prototyping;
- PyParsing to define grammar rules;
- A simple interpreter to convert DSL scripts into graphical outputs using PIL (Pillow).

$$\frac{\mathrm{d}y}{\mathrm{d}x} = \gamma \operatorname{sen} x$$

A Equação (1) foi inserida usando o ambiente LaTeX `equation` e numerada automaticamente:

$$f(x) = \frac{1}{\alpha} \int_0^L \left(\frac{x^2}{2} - \frac{x^3}{3} \right) \mathrm{d}x \tag{1}$$

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- Formula Sheet.
- LaTeX Equation Editor (*by* Tutorials Point).

RESULTS AND DISCUSSION

The MVP of the DSL successfully allows the user to generate vaporwave-style compositions using simple commands. The following figure shows a sample output created using the DSL:

Figura 1 – Sample image generated with the DSL

Fonte: own work (2025)

RESULTS AND DISCUSSION (CONTINUED)

Figura 2 – Command-to-Output Diagram

Fonte: own work (2025)

Figura 3 – Syntax Tree of Sample Command

Fonte: own work (2025)

Tabela 1 – Commands and Visual Results

Command	Shape	Color
circle(...)	Circle	Pink
rect(...)	Rectangle	Blue
gradient(...)	Background	Purple

Fonte: own work (2025)

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- Tables Generator.
- LaTeX Tables Editor.

CONCLUSIONS

- Developed a functional MVP of a DSL for vaporwave graphics.
- Demonstrated the ability to parse and render aesthetic visuals via code.
- Laid groundwork for future extensions, such as animations and user-defined styles.

REFERÊNCIAS