

# CHRISTOPHER OOSTHUIZEN

Programmer of 8 years — Machine Learning Research Assistant

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## Technical Skills

**Programming Languages:** C/C++, Python, JavaScript, Java, MYSQL, Bash, Rust

**Technologies/Frameworks:** React, Svelte, Express.js, Django, PyTorch, Pandas, Llama Index, Langchain, Neo4j, NetworkX, Pytorch Geometric, NCurses

**Developer Tools:** Git, GitHub, Linux, MacOS, Jupyter Notebook, Google Test, Deepeval, Google Cloud, Docker

## Education

University of Houston

Houston, TX

Bachelor of Science, Computer Science

Expected May 2026

- Recipient of the prestigious Undergraduate Research Fellowship, awarded \$4000 for excellence in research
- Relevant Courses: Intro to Programming, Algorithms and Data Structures, Computer Architecture, Data Science I, Natural Language Processing, Deep Learning

## Work Experience

Structures and Artificial Intelligence Lab

Houston, TX

Undergraduate Research Assistant

September 2023 - Present

- Developed a novel deep learning pipeline to process unstructured text data into knowledge graphs, reducing hallucinations in language models by 43% through graph retrieval-augmented generation.
- Applied advanced techniques such as Constitutional AI (CAI) CPO training and self-rewarding language models, optimizing output quality and enhancing performance.
- Achieved a 120% improvement in knowledge graph generation quality compared to existing methods.
- Led and mentored a team of 4 undergraduates, successfully driving project milestones.
- Utilized a high-compute Linux cluster to fine-tune large language models and train graph neural networks.

Code Ninjas

Houston, TX

Coding Instructor

June 2020 - August 2022

- Created lesson plans, held weekly classes, and communicated with parents to address children's specific needs.
- Achieved a 95% retention rate over the course of teaching.

## Leadership

Cougar CS, University of Houston

Houston, TX

Web Developer

August 2023 - Present

- Contributed to the development and launch of the 2024 CougarCS website, improving user experience and functionality.
- Link: [cougarcs.com](https://cougarcs.com)

Tutor

Houston, TX

- Provided personalized tutoring to over 50 students in freshman to junior level CS classes, leading to an average 30% improvement in their test scores.

## Project Experience

**Knowledge Graph Generator**

**January 2024 - March 2024**

- Led the development of an innovative deep learning pipeline that processed unstructured text data into knowledge graphs, reducing hallucinations in language models by 43%.
- Implemented the end-to-end system in Python using PyTorch, NetworkX, spaCy, and Hugging Face Transformers.
- GitHub: [github.com/ChristopherOosthuizen/GraphCreator](https://github.com/ChristopherOosthuizen/GraphCreator)

**ABlaze - Programming Language**

**June 2021 - August 2021**

- Created ABlaze, an open-source, fully-compiled programming language with Python-like syntax, achieving an execution speed 108% faster than Python, with users worldwide.
- Engineered a virtual machine for efficient compilation and execution.
- GitHub: [github.com/ChristopherOosthuizen/ABlaze](https://github.com/ChristopherOosthuizen/ABlaze)

**Rising Tides**

**April 2021 - May 2021**

- Built a full-stack web application using React, MYSQL, and Django for the 2021 UCLA Hacks coding competition.
- Integrated Google Cloud API to assess flood risks accurately.
- GitHub: [github.com/NickOosthuizen/Rising-Tide](https://github.com/NickOosthuizen/Rising-Tide)