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Summary

Computer Science student at PUC Minas with a GPA of **9.475/10.0**, focused on **computer graphics**, **artificial intelligence**, and high-performance computing. Experienced in building graph and automata visualization tools, GPU-accelerated C++ machine learning frameworks, and AI-driven automation solutions as an independent contractor. Fluent in English, with strong foundations in algorithms, machine learning, model interpretability, and interactive TypeScript applications.

Education

Bachelor of Science in Computer Science *Belo Horizonte, Brazil*
PUC Minas — Pontifícia Universidade Católica de Minas Gerais *2022 – Present*

- GPA: **9.475 / 10.0**, consistently ranked among top students in the cohort
- Academic Distinctions: Dean's List / Laurea recognition for outstanding academic performance
- Teaching Assistant (Monitor): Histology, Graph Theory, Computability Theory, and Database Systems

Medicine (incomplete, transferred to Computer Science) *Belo Horizonte, Brazil*
Faculdade Ciências Médicas de Minas Gerais *2020 – 2022*

- Two years of training in anatomy, physiology, biochemistry, histology, and pathology

Experience

Software Development Intern *Belo Horizonte, Brazil*
Tribunal de Contas do Estado de Minas Gerais (TCE-MG) *Apr 2026 – Present*

- Support software development and technology initiatives within the State Court of Accounts of Minas Gerais, contributing to internal systems and public-sector digital transformation projects

Freelance Data Analyst & AI Automation Engineer *Brazil*
Self-employed (Independent Contractor) *2023 – Present*

- Designed and implemented an internal management system for a furniture store, supporting operational workflows, data organization, and process automation
- Developed a relationship-graph analysis system to identify potential nepotism patterns by modeling entities and connections as graph structures
- Collected, structured, and analyzed patient data for a research project involving participants from the UFMG university hospital, supporting exploratory analysis and reporting
- Built a PyTorch-based automation system for soybean crop disease identification, designing and training custom deep learning models for image-based classification

Undergraduate Researcher: CNPq Scholarship & Teaching Assistant (Monitor) *Belo Horizonte, Brazil*
PUC Minas — LICAP Lab *2023 – 2025*

- Published at **IHC 2024** (XXIII Brazilian Symposium on Human Factors in Computing Systems, ACM): *"Persuasive Technology for Managing the Routine of Families with Children and Adolescents with ADHD: A User-Centered Approach"*, received an **Honorable Mention** doi:10.1145/3702038.3702101. Complementary publication in the **Journal of the Brazilian Computer Society (JBCS)**: doi:10.5753/jbcs.2026.5670
- Current independent research proposal: interpretability of deep learning and foundation models using the **kernel trick** and custom-designed kernels to measure geometric similarity across each layer's representation space, enabling mechanistic understanding of model decisions
- Mentored undergraduate students in Graph Theory, Computability & Automata Theory, Database Systems, and Histology

- Conducted office hours, graded assignments, and produced supplementary educational materials

Personal Projects

Selected personal projects demonstrating knowledge and proficiency in computer graphics and artificial intelligence.

Pineapple: C++ Machine Learning Framework FernandoCsm-Knight/Pineapple

- Built a PyTorch/TensorFlow-inspired deep learning framework from scratch in C++, featuring automatic differentiation, tensor operations, and a modular layer API
- Implements **parallel computing** on both CPU (multithreading) and GPU (CUDA), achieving significant performance gains over naive implementations
- Covers neural network architectures, optimizers, and loss functions, designed for research and performance-critical applications

Graphic Paint: Graph & Automaton Visual Editor Graphic-Paint · Live Demo

- A web-based drawing application (Excalidraw-inspired, built with TypeScript) for constructing directed/undirected graphs and finite automata (DFA, NFA, ε-NFA, Pushdown Automata)
- Supports **input simulation on automata** and **graph algorithm execution** (BFS, DFS, shortest path, MST, etc.) directly within the canvas
- Deployed on **Vercel**; includes user authentication and cloud data persistence

Stellar Classification Stellar-Classification

- Applied classical and modern ML classifiers (Random Forest, SVM, Neural Networks) to astronomical datasets for automated star/galaxy/quasar classification

Certifications & Awards

- **Microsoft Azure AI Fundamentals (AI-900)** — Microsoft
- **Red Hat Certified System Administrator II (RHCSA)** — Red Hat
- **Honorable Mention** — Academic Congress / Scientific Initiation (PUC Minas)
- **Academic Distinction** — Dean's recognition for outstanding GPA and performance

Technical Skills

Programming Languages	C, C++, Python, Java, TypeScript, JavaScript, Rust
ML / AI	Deep Learning, Kernel Methods, Model Interpretability, Computer Vision, NLP
Frameworks	PyTorch, TensorFlow, scikit-learn, React, Node.js
Parallel Computing	CUDA, Multithreading (C++), OpenMP, PThreads
Cloud & DevOps	Microsoft Azure, Linux (RHEL/Ubuntu), Vercel, Git, Docker
Databases	PostgreSQL, MySQL, MongoDB, Firebase
Languages	**Portuguese** (Native), **English** (Fluent, professional working proficiency)