

DIEGO TRIGO ARAUJO

High School Student | Computer Science, Engineering & Applied Mathematics
São José dos Campos / Guarulhos, SP, Brazil | [Diego Trigo Araujo](#) | [GitHub](#) | [LinkedIn](#)

PROFILE

High school student focused on computer science, engineering and applied mathematics, with experience building software, robotics projects and technical communities. Interested in research that turns mathematical or computational ideas into working systems.

EDUCATION

Instituto Alpha Lumen | *São José dos Campos, Brazil* | 2026–Present

- High school student (2nd year); awarded a full scholarship.

ETEC Santa Ifigênia | *São Paulo, Brazil* | 2025–2026

- Completed the 1st year of high school before transferring to Instituto Alpha Lumen.

TECHNICAL SKILLS

Programming: C/C++, Python, Rust, Java **Tools:** Git, GitHub, Linux/macOS, Docker, PostgreSQL, Cloudflare, Railway, Vercel

Topics: Algorithms, graph theory, optimization, systems programming, backend/cloud, embedded systems, simulation, robotics

SELECTED RESEARCH & PROJECTS

ORBIT-Lab — CubeSat Attitude-Control Testbed | 2026–Present

- Developing a CubeSat testbed combining mathematical/physical modeling, simulation, reaction-wheel attitude control, sensors, embedded software and hardware-in-the-loop validation.

Braess Paradox Computational Research — High School Thesis | *Instituto Alpha Lumen* | 2026

- Co-developing a traffic-assignment study on a real São José dos Campos road network using graph theory, Dijkstra shortest paths, BPR costs, Frank–Wolfe optimization, OSMnx and NetworkX.

Independent Software Projects | 2021–Present

- Built public projects across low-level computing, backend/cloud systems and developer tooling, including a 6502 virtual-machine project; maintains an active public GitHub portfolio.

LEADERSHIP & TECHNICAL ACTIVITIES

Servidores dos Programadores — Discord Community | *Administrator* | 23,305 members

- Help administer one of Brazil's largest programming-focused Discord communities, supporting developers through moderation, technical discussions, events and community organization.

AlphaBots #1860 — FIRST Robotics Competition | *Programming Owner / Developer* | 2026–Present

- Lead programming work within the team, contribute to robot software and engineering integration, and teach programming and technical topics to team members.

NOIC — Robotics Content Creator | 2026–Present

- Create educational materials for the robotics area, focused primarily on programming and control-related topics.

Hack-SP | *CTO / VP* 2026

- Worked on production software and infrastructure as CTO, including backend services, deployments, database/cloud tooling.

HONORS, PROGRAMS & SELECTED EXPERIENCE

Brazilian Technology Olympiad 2026 — Data Science Award recipient.

NASA Space Apps Challenge — Global Nominee; co-developed tempo11.earth using NASA TEMPO satellite data.

SigmaCamp — Participant in a one-week STEM camp at ETAPA.

Prandiano Mathematics Museum — Scholarship recipient; completed P1, P2 and P3, including vector calculus, linear algebra, calculus and physical demonstrations.

Oracle — Invited speaker at age 15; presented on JVM optimization using AI agents.

Selected Hackathons — Qualcomm Edge AI Hackathon, NASA Space Apps Challenge and OpenAI-related challenges.

ADDITIONAL

Languages: Portuguese (native), English (B1 solid; progressing toward B2) | **Music:** Guitar — 5 years of formal training; nearing completion of the program.

Interests: computer systems, algorithms, aerospace, applied mathematics and physics