STRIK, Bruno Henrique

IFPR Instituto Federal do Paraná Campus Astorga

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SUMMARY

Assistant professor, researcher, and innovation manager at Brazil's Federal Institute of Paraná (IFPR), with over a decade of experience bridging theoretical computer science and hands-on technological application in public education. Holds a Master's degree in Computer Science focused on Applied AI in Education, complemented by postgraduate specializations in Electronic Project Development and Industrial Automation Engineering. A Gold Medalist at WorldSkills Americas (2012) and Silver Medalist at Brazil's Knowledge Olympics (2010), I have led educational robotics programs since 2016, coordinated interdisciplinary innovation initiatives, and managed technology transfer projects at the institutional level. My portfolio includes the development of IoT-based asset management systems deployed across 33 campuses, motion-capture robotic prosthetics, CNC prototyping equipment, and registered software solutions. Currently seeking PhD opportunities to investigate the sustainable integration of emerging technologies — including Generative AI, Educational Robotics, and IoT — into STEM education systems, with particular interest in contexts across the Global South and developing countries.

EDUCATION

Master of Science in Computer Science | 2023 – 2025
State University of Londrina (UEL), Brazil
Thesis: "An AI-based approach to identify and classify learning problems in object-oriented programming through source code analysis."
Focus: Applied Artificial Intelligence, Software Quality, and Computer Science Education.
Achievement: Recipient of a full academic merit scholarship from CAPES (Brazilian Federal Agency for Support and Evaluation of Graduate Education).

Postgraduate Specialization in Automation and Industrial Electronics Engineering | 2020 – 2021
União Brasileira de Faculdades (UNIBF), Brazil

Postgraduate Specialization in Electronic Project Development Engineering | 2020 – 2021
União Brasileira de Faculdades (UNIBF), Brazil

Bachelor of Science in Internet Systems | 2009 – 2011
Pontifical Catholic University of Paraná (PUC/PR), Brazil

ACADEMIC & PROFESSIONAL EXPERIENCE

Federal Institute of Paraná (IFPR) – Campus Astorga, Brazil | 2015 – Present

Assistant Professor of Basic, Technical, and Technological Education

Vanguard Educational Project Coordinator (2015 – 2020): Leveraged a period of open curriculum flexibility in the integrated technical high school program to pioneer project-based learning methodologies. Developed interdisciplinary modules connecting software engineering, hardware prototyping, and real-world problem-solving.

Educational Robotics Coordinator (2016 – Present): Founded and directed the campus robotics program. Mentor students in hardware, programming, and collaborative problem-solving for local, regional, and state-level robotics olympiads.

Innovation Management Representative (NIT) (2016 – Present): Lead initiatives to bridge academic research with local industry needs, manage intellectual property, and foster a culture of innovation within the institution.

Head of Cabinet to the General Directorate (2026 – Present): Manage institutional administration, strategic planning, and cross-departmental technological integration.

Teaching (2015 – Present): Instruct technical courses in Robotics, Programming Logic, Software Engineering, Systems Analysis, and Database Management.

Voalle Group (formerly Elitesoft Corp) – Brazil | 2014 – 2015

Systems Analyst

Engineered core features for Integrator v5, an enterprise ERP platform serving 150+ regional telecommunications providers.

Built direct hardware and network interfaces integrating the ERP with telecom infrastructure, including IVR (Interactive Voice Response) systems and MikroTik networking equipment.

SENAI Serviço Nacional de Aprendizagem Industrial (National Service for Industrial Training) – Paraná, Brazil | 2011 – 2014

Technical Teaching Instructor & Course Coordinator

Coordinated the Technical Training for local and regional WorldSkills competitions in former modalities IT Software Solutions for Business, Web Design and IT for Visually Impaired students.

Instruct technical courses in Programming Logic, Networking, Hardware Maintenance and Database Management.

PRIZES

Gold Medal, WorldSkills Americas 2012 – Category: IT Software Solutions for Business.

Silver Medal, Knowledge Olympics (Olimpíada do Conhecimento) 2010 – Category: Information Technology.

RESEARCH INTERESTS

Applied AI & Smart Education: Pedagogical adaptation, academic integrity, and the impact of Generative AI on technical learning.

Educational Robotics & IoT: Development and assessment of low-cost, hands-on technological solutions (Arduino, ESP32, sensors) to enhance STEM engagement.

Comparative Education Policy: Analysis of how educational technology policies are shaped and implemented in developing countries (Global South).

Innovation Management: Bridging academic research, public institutional needs, and local industry ecosystems.

KEY PROJECTS

PAIPE: Educational Robotics Club (2025–Present): Founded and coordinate an after-school robotics club at IFPR Campus Astorga, using project-based and collaborative learning methodologies. Students develop robot prototypes and automation systems, presenting their work at scientific events and exhibitions. The initiative addresses common difficulties students face with abstract programming concepts by grounding learning in tangible, hands-on projects.

RFID-Based Automated Asset Management System for IFPR (2025–Present): Leading the implementation and testing of a scalable IoT-based RFID solution for real-time asset tracking across 33 campuses of the Federal Institute of Paraná. Adapted from the SMARTBP project developed at Itaipu Technological Park's Open Technologies and IoT Competency Center. This system addresses the complex challenge of managing thousands of assets distributed across multiple geographic locations, replacing manual inventory processes with automated, real-time traceability. Funded by: Itaipu Technological Park Foundation.

IFPR Astorga Robotics Olympiad (2016–Present): Founded and coordinated the campus robotics olympiad, promoting educational robotics within the IFPR community and preparing students for regional and state-level competitions.

Responsible AI: Awareness Campaign on Healthy AI Use in Schools (2025–Present): Leading an extension project focused on promoting responsible AI use among students in Astorga and surrounding regions. The project addresses plagiarism prevention, ethical AI use, and awareness of both risks and benefits, aligned with UN Sustainable Development Goal 4.4 (Quality Education). Target audience: 240 students at IFPR Astorga and 1,546 students across four municipalities. Funded by: Federal Institute of Paraná.

Intelligent Gas Control System for Poultry Houses Using ESP32 and MICS-6814 Sensor (2025): Developed an IoT-based environmental monitoring system for agricultural applications, using ESP32 microcontrollers and multi-gas sensors to provide real-time air quality data and automated control responses.

Motion-Capture Robotic Hand Prototype (2025): Developed a 3D-printed robotic prosthesis that replicates human hand gestures in real-time. Integrated Python, OpenCV, and MediaPipe for computer vision-based motion capture, with serial communication to Arduino-controlled servo motors. Designed as an educational tool to demonstrate remote manipulation, kinematics, and assistive robotics applications.

Sistema FIAD (FIAD System) – Registered Software (2022): Developed and registered an institutional management system with the Brazilian National Institute of Industrial Property (INPI). Registration Number: 512023000462-6.

Laser CNC Router for PCB Manufacturing (2021–2022): Designed and built a functional CNC router prototype specifically dimensioned for rapid, low-cost prototyping of printed circuit boards in educational settings. Enabled students to transition from digital design to physical hardware implementation within classroom constraints.

A Esfinge (The Sphinx): Multireferential and Interdisciplinary Perspectives in Education (2017–2020): Participated in an interdisciplinary research group bringing together scholars from Education, Arts, Philosophy, Geography, Biology, and Computer Science. The project explored the complexity of Brazilian education through multiple theoretical lenses, combining historical analysis, empirical research, and technological innovation to develop new pedagogical tools and curricular approaches.

Computerized Weather Station (2016–2017): Developed an IoT-based meteorological monitoring system with real-time data collection and visualization, used as a hands-on teaching tool for sensor integration and data analysis.

Remote-Controlled Irrigation System (2017): Created an automated irrigation system with remote activation capabilities, demonstrating practical applications of IoT in agriculture and resource management.

Solar-Powered Stirling Engine Prototype (2017): Designed and built a functional prototype of a Stirling engine powered by solar energy, exploring renewable energy concepts through hands-on engineering education.

Assistive Safety Equipment for Visually Impaired Users (2017): Developed a wearable assistive device to enhance safety and spatial awareness for visually impaired individuals, combining sensor technology with user-centered design principles.

Simplified Student Attendance Management System 1.0 & 2.0 (2015–2016): Created a lightweight, efficient system for tracking student attendance in educational institutions, addressing the need for digital record-keeping in resource-constrained environments.

Feedback Senai System (2011): Bachelor's thesis project: developed a feedback management system for SENAI's educational programs.

SELECTED PUBLICATIONS

STRIK, B. H., HERNANDEZ, I. A. R., BELTRAMIN, A., LIMANA, A. **A Survey on Student Perceptions of the Academic Use of Artificial Intelligence in Brazil, Argentina, and Paraguay.** XV Science and Engineering Innovation Fair Iguassu Inova (FICiencias).

STRIK, B. H. (2025). **Inteligência Artificial Generativa: primeiros passos** (Generative Artificial Intelligence: First Steps). 1st ed. São Paulo: Uiclap.

STRIK, B. H. (2024). **Kodular em Ação: desenvolvendo apps para Android** (Kodular in Action: developing Android apps). 1st ed. São Paulo: Uiclap.

MENOLLI, A. & STRIK, B. H. (2025). "**Educational Insights from Code: Mapping Learning Challenges in Object-Oriented Programming through Code-Based Evidence.**" XXXIX Brazilian Symposium on Software Engineering (SBES).

STRIK, B. H., MENOLLI, A. & BRANCHER, J. D. (2024). "**GPT AI in Computer Science Education: A Systematic Mapping Study.**" XXXV Brazilian Symposium on Informatics in Education (SBIE).

LANGUAGES

Portuguese (Native)

English (Fluent, IELTS 7.5)