Ian Dos Reis e Aragão

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Sao Paulo, SP, Brazil, Rua Machado Bittencourt

Interdisciplinary technologist and researcher advancing co-intelligent systems across neuroadaptive computing, human-computer interaction, and embodied interface architectures—bridging cognition and computation to amplify agency, extend access, and embed ethical intelligence into innovation, where design affirms dignity.

EDUCATION

B.Sc. in Information Systems — *The Higher School of Advertising and Marketing (ESPM)*, São Paulo, Brazil
Graduated with Distinction • GPA: 3.50 • Completed: 2019

- ESPM is a top-tier Brazilian University specializing in communication, innovation, and business strategy—recognized for its applied approach to technology and entrepreneurial education.
- Awarded a **Scientific Research Fellowship** for academic merit
- Recipient of the **ESPM Business Incubator Grant** for entrepreneurial innovation
- First undergraduate in the program to initiate and complete a **Scientific Initiation Research Project**, and the first to lead **two full independent research projects** under the institution's program

RESEARCH EXPERIENCE

The Development of an Anthropomorphic Mechanical Arm

Scientific Initiation Project • Advisor: Prof. Dr. Humberto Sandmann
ESPM – São Paulo, Brazil | Jan 2018 – Oct 2019

Engineered a low-cost, EMG-responsive prosthetic arm aimed at improving mobility for underrepresented individuals with disabilities. This interdisciplinary research integrated neuroscience, robotics, and HCI through accessible, real-time systems.

- Conducted exploratory research combining neuroscience, robotics, and HCI to design a cost-effective assistive system
- Designed and assembled a functional anthropomorphic arm using 3D-printed components and servo motors for lifelike movement
- Programmed real-time signal interpretation algorithms in Arduino to convert EMG input from the Myo Armband into mechanical movement, resolving latency issues and enhancing gesture differentiation
- Developed a companion Android app enabling wireless control via Bluetooth with gesture recognition, adaptive calibration, and live neurofeedback to improve system responsiveness and user accessibility
- Presented at the **8th SEMIC Conference**; project contributed to institutional discourse on assistive innovation and digital accessibility

Virtual Reality Project: Immersive Real Estate Experience
Undergraduate Thesis • Advisor: Prof. Mauricio Pimentel
ESPM – São Paulo, Brazil | Aug 2018 – Jun 2019

Designed an immersive communication platform for real estate, merging spatial computing with behavioral UX. This system translated architectural blueprints into interactive environments optimized for spatial cognition, emotional engagement, and decision-making clarity—blending technical simulation with human-centered experience.

- Engineered 3D architectural walkthroughs in Unreal Engine, incorporating dynamic lighting, material physics, and interactive hotspots
- Applied principles of environmental psychology and spatial memory to guide user flow and improve comprehension in immersive settings
- Designed adaptive user interfaces that tailored information density and visual cues to cognitive load and user intent
- Integrated behavioral insights into interaction architecture, enhancing retention, affective engagement, and client decision speed
- Served as the technical and conceptual seed for **Intelligent Architecture (arq|int)**, later named one of Brazil's **Top 50 Startups**

Brain-Computer Interface: A New Frontier for Human-Machine Interaction
Scientific Initiation Project • Advisor: Prof. Dr. Humberto Sandmann
ESPM – São Paulo, Brazil | Jan 2017 – Dec 2017

Developed a proof-of-concept smart home platform enabling intention-driven interaction via EMG-based gesture control. The system merged HCI accessibility frameworks, IoT architecture, and adaptive neurointerfaces to empower users with limited mobility—serving as a technical and conceptual precursor to future research in embodied and neuroadaptive systems.

- Built a functional prototype integrating Myo Armband EMG signals with Arduino-controlled smart devices for gesture-based interaction
- Developed a custom Android application enabling wireless, real-time control of lights and appliances through Bluetooth communication
- Designed calibration algorithms and live feedback features to tailor system responsiveness to individual muscle signal profiles
- Structured the UX around inclusive design principles, adapting interface flow and feedback cues to user motor limitations
- Presented at the 7th SEMIC Conference, laying the foundation for subsequent research in BCI, neuroadaptive systems, and embodied interaction

ENTREPRENEURIAL INNOVATION & APPLIED LEADERSHIP

Intelligent Architecture (arq|int) — *Founder & Lead Technologist*
São Paulo, Brazil • Aug 2018 – Feb 2022

Founded and led a tech-driven startup at the intersection of immersive computing, architecture, and inclusive design translating cognition into interaction and inclusion into built environments. Directed both strategic vision and full-stack development across intelligent spatial systems.

Entrepreneurial Leadership

- Directed the company's strategic roadmap, bridging cognitive design with immersive visualization to reshape user interaction in real estate
- Developed scalable solutions and data-driven business strategies, increasing client acquisition and retention by 30%
- Built cross-sector partnerships with architecture and interior design firms to integrate adaptive virtual staging into commercial platforms
- Replaced physical showrooms with real-time immersive systems, advancing sustainability while cutting operational costs
- Articulated innovation goals at national forums, driving interest, investment, and industry-wide adaptation of immersive solutions

Virtual Reality Development

- Engineered high-fidelity VR environments using Unreal Engine, translating architectural blueprints into responsive, explorable simulations
- Led a multidisciplinary development team to build embodied environments optimized for cognitive clarity and decision-making
- Delivered personalized real-time demos that increased stakeholder confidence and accelerated project approvals
- Designed quality assurance protocols and onboarding architecture to ensure consistent delivery and client usability
- Authored comprehensive documentation to support system integration, adoption, and long-term maintainability
- Established new industry benchmarks by transforming static spatial data into adaptive, user-centered digital experiences

INSTITUTIONAL LEADERSHIP & ACADEMIC CULTURE

Research Culture & Academic Engagement
ESPM – São Paulo, Brazil | Jan 2017 – Oct 2019

Pioneered undergraduate research engagement and contributed to ESPM's academic reputation by leading seminars, mentoring peers, and publishing award-winning research—fostering an inclusive, student-centered academic culture.

- Published research findings in peer-reviewed journals and academic proceedings, elevating the university's research visibility
- Received institutional awards recognizing outstanding student-led scientific contributions
- Organized and led academic seminars and workshops, fostering student engagement and participation in applied research
- Mentored junior students, expanding access to research practices and cultivating a collaborative research environment

Immersive Learning Lab (VR Room Initiative)
ESPM – São Paulo, Brazil | Feb 2018 – Jun 2019

Conceived and led the development of ESPM's first dedicated Virtual Reality Room—an immersive learning lab designed to support experiential education, academic simulation, and pedagogical innovation through VR technologies and interdisciplinary faculty collaboration.

- Designed and implemented a high-fidelity VR lab equipped with Unreal Engine simulations and interactive media for use in classroom environments
- Collaborated with faculty across departments to integrate spatial computing into curricular strategies and instructional design
- Created interactive educational simulations tailored to cognitive engagement, enhancing student immersion and retention
- Facilitated institutional adoption of VR tools, contributing to measurable increases in digital fluency and learning outcomes campus-wide

PowerLab Initiative – Student Innovation Hub
ESPM – São Paulo, Brazil | Feb 2017 – Dec 2017

Founded and led the development of ESPM's first open-access tech lab—PowerLab—created to democratize access to emerging technologies through hands-on exploration in AI, neurotechnology, physical computing, and digital accessibility. The lab became a model for inclusive, student-led innovation within the institution.

- Established ESPM's first laboratory dedicated to undergraduate-driven research, practical prototyping, and interdisciplinary experimentation in frontier technologies
- Designed and implemented the lab's infrastructure using open-source hardware and accessible platforms to support student-led projects and scalable innovation
- Cultivated a culture of exploration, peer mentorship, and technical empowerment, enabling students to lead applied research in AI, neurotech, and HCI
- Institutionalized PowerLab as a lasting driver of ESPM's pedagogical shift toward inclusive, student-centered technological education

FELLOWSHIPS, HONORS & RECOGNITION

Scientific Initiation Research Fellowship
Projects and Research Support Office (EPAP), ESPM – São Paulo | Aug 2016 – Jun 2019
Merit-based fellowship awarded to support original undergraduate research in neurotechnology and human-computer interaction.

Research Excellence Award – SEMIC
8th Scientific Initiation Seminar, ESPM – São Paulo | Oct 2019
Top institutional honor recognizing the most impactful student research project; awarded for contributions to accessibility and neuroadaptive systems.

First Place – XII Entrepreneurship Fair
ESPM – São Paulo | Sep 2018
Selected as the most innovative student-led venture for immersive architectural visualization applied to real estate and user experience.

ESPM Business Incubator Grant
ESPM – São Paulo | Oct 2018
Institutional grant awarded for the development of Intelligent Architecture (arq|int), combining spatial computing, UX, and technical innovation.

Top 50 Startups – Santander Empreenda Brazil
Santander X Innovation Challenge | May 2019
Recognized among Brazil's top university startups for inclusive, research-driven technological innovation.

Most Promising Startup – Empreenda Santander
Santander X – São Paulo | Aug 2019
Nominated for national distinction based on technical merit, innovation potential, and scalable impact.

Santander X Global Finalist – Brazil Representative
Santander X Global Awards | Oct 2019
Selected to represent Brazil at Santander's invitation-only global entrepreneurship competition, featuring top university ventures worldwide.

SCIENTIFIC PRESENTATIONS & CONFERENCES

"The Development of an Anthropomorphic Mechanical Arm"
8th Scientific Initiation Seminar (SEMIC), ESPM – São Paulo | Oct 2019

Delivered oral presentation and published academic proceeding on the design and implementation of a low-cost EMG-responsive prosthetic arm. The project showcased real-time signal processing using Arduino and Myo Armband integration, and was recognized for its interdisciplinary contribution to assistive technology and digital accessibility.

“Brain-Computer Interface: A New Frontier for Human-Machine Interaction”
7th Scientific Initiation Seminar (SEMIC), ESPM – São Paulo | Oct 2018

Presented peer-reviewed research on EMG-based gesture recognition applied to smart home interfaces for users with mobility impairments. The study proposed adaptive feedback models based on HCI principles and was published in the official seminar proceedings.

“Mechanical Arm Demonstration – DEV²”
DEV² Technology Showcase, ESPM – São Paulo | Aug 2018

Led public demonstration of a functional neurocontrolled prosthetic prototype. Engaged a diverse audience—including students, faculty, and media—in the practical applications of bioelectric signal processing and accessible design in real-world assistive systems.

PUBLICATIONS & RESEARCH OUTPUT

Aragão, Ian dos Reis e.; Magnani, C. A. B. D.; Martins, M. A.; Prado, L. C.; Basso, P. G. M. R.
“Virtual Reality Project” (in Portuguese)
Electronic Resource · 84 pages · Course Conclusion Paper (Graduation Thesis)
Information Systems Program – The Higher School of Advertising and Marketing (ESPM) · São Paulo, Brazil · 2019

Aragão, Ian dos Reis e.
“The Development of an Anthropomorphic Mechanical Arm”
Electronic Resource · 16 pages · Article – VIII Scientific Initiation Seminar
The Higher School of Advertising and Marketing (ESPM) · São Paulo, Brazil · 2019

Aragão, Ian dos Reis e.
“The Development of an Anthropomorphic Mechanical Arm”
Electronic Resource · 67 pages · Final Report – Scientific Initiation Project
The Higher School of Advertising and Marketing (ESPM) · São Paulo, Brazil · 2019

Aragão, Ian dos Reis e.
“Brain-Computer Interface: A New Application for Human-Machine Interaction”
Electronic Resource · 16 pages · Article – VII Scientific Initiation Seminar
The Higher School of Advertising and Marketing (ESPM) · São Paulo, Brazil · 2018

Aragão, Ian dos Reis e.
“A New Human-Machine Interaction”
Electronic Resource · 103 pages · Final Report – Scientific Initiation Project
The Higher School of Advertising and Marketing (ESPM) · São Paulo, Brazil · 2017

GLOBAL ACADEMIC & CULTURAL ENGAGEMENT

Academic & Cultural Immersion Residency – Yale University Campus

Converse International School of Languages · New Haven, USA
Jul – Aug 2013

- Selected for an advanced English and cultural immersion program hosted on the Yale campus. Lived and studied alongside peers from six countries, participating in daily academic seminars, global dialogue sessions, and collaborative projects.
- Sharpened cross-cultural communication, intellectual adaptability, and ethical leadership in a high-level academic environment, an early experience that shaped my commitment to inclusive, globally engaged research.

EXPERIMENTAL & TECHINCAL METHODOLOGIES

Programming & Software Development

Build applied software solutions in Python, Java, and C++; develop full-stack applications using HTML, CSS, JavaScript (React, Angular); create Android mobile apps with sensor integration and adaptive feedback systems.

Immersive Systems & Game Engines

Engineer 3D environments in Unreal Engine and Unity for educational, architectural, and assistive simulations; implement UX flows tailored to spatial cognition and decision-making.

Cybersecurity & Network Engineering

Design and secure network infrastructure; implement threat mitigation protocols; perform penetration testing and ethical hacking for system resilience and data protection.

Human-Computer Interaction (HCI)

Design accessible interfaces using cognitive UX models, physiological input systems, and embodied interaction; develop calibration and real-time feedback systems to optimize usability.

IoT & Digital Fabrication

Integrate Arduino and Raspberry Pi in real-time interactive systems for smart homes and prosthetics; prototype using 3D printing and low-cost fabrication methods.

Artificial Intelligence & Machine Learning

Apply supervised models and signal classification algorithms to build adaptive systems; embed machine learning in assistive technologies and interactive platforms.

Brain-Computer Interface (BCI) Systems

Lead research in EMG/EEG acquisition and biosignal processing; develop neuroadaptive interfaces and brain-controlled prototypes with live calibration and intention-based interaction.

Assistive & Inclusive Innovation

Design cost-effective technologies for underrepresented populations; conduct field research on accessibility gaps among people with disabilities (PcDs) in Brazil; translate insights into functional, equity-driven solutions.

Project Management & Proof of Concept Development

Coordinate timelines and deliverables across research and product teams; lead cross-functional collaboration; prototype and test proof-of-concept systems to validate technical feasibility and interdisciplinary innovation.

COMPUTATIONAL TOOLS & DEVELOPMENT PLATFORMS

Development & Version Control
Git, GitHub, GitLab, Visual Studio Code, Eclipse, IntelliJ IDEA

Web & Full-Stack Development
HTML, CSS, JavaScript, React, Angular

Mobile & Embedded Platforms
Android Studio, Arduino IDE, Raspberry Pi

Immersive & Game Engines
Unreal Engine (incl. VR integrations), Unity

Modeling, Design & Visualization
Autodesk Maya, Adobe Photoshop, Adobe Illustrator, Blender

Data & Signal Processing
MATLAB, Myo SDK, OpenBCI

Cybersecurity & Network Analysis
Wireshark, Kali Linux

LANGUAGE PROFICIENCY

Portuguese – Native fluency across all domains (speaking, reading, writing)

English – Full professional proficiency in academic, technical, and collaborative settings

Japanese – Intermediate proficiency with conversational fluency and technical vocabulary

Spanish – Strong reading and listening comprehension; functional conversational ability

Italian & French – Foundational proficiency with reading fluency and emerging oral skills