

ANDRÉ BUCHMANN MÜLLER

Engineer & Researcher

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ACADEMIC EXPERIENCE

Master's Student

Universidade de São Paulo

📅 April 2024 – April 2026 📍 São Paulo, Brazil

- GPA 3.80/4.00
- Helped develop a ML-based surrogate model using Python (scikit-learn) to train Support Vector Regression (SVR) models using stochastic synthetic data for design flow estimation in hydraulic residential systems.
- Built and released *ifc-hydro*, an open-source Python library that automates hydraulic system analysis from IFC models using graph data structures.

Selected Publications

- MÜLLER, A.B. and F.R. CORRÊA (2026). "IFC-based graph representations for cross-domain engineering analysis". In: *Preprint submitted to Automation in Construction*.
- MÜLLER, A.B. et al. (2025). "Automation in the calculation of dynamic pressures in building water systems using IFC: Data extraction in BIM". in: *SBTIC*, v. 5. Florianópolis - SC. DOI: 10.46421/sbtic.v5i00.7418.
- MÜLLER A.B.; CORRÊA, F.R. and CARDOSO F.F. (2024). "Innovation and sustainability in the production chain of plumbing systems". In: *XX ENTAC*. Maceió - AL. DOI: 10.46421/entac.v20i1.6023.

Exchange Student

Universität Duisburg-Essen

📅 August 2017 – August 2018 📍 Essen, Germany

- Did coursework and projects in computational mechanics, applying FEA tools (ANSYS, Abaqus) and Python to perform static/dynamic structural analyses.
- Developed scripts in Python, C++ and Fortran to prototype advanced computational design solutions.

Bachelor's Student

Universidade de Brasília

📅 August 2014 – December 2019 📍 Brasília, Brazil

- GPA 3.00/4.00
- Tutored students in Linear Algebra and Architectural Design, strengthening communication skills and supporting peers academic performance.

PROFESSIONAL EXPERIENCE

Consultant

DB Engineering & Consulting

📅 February 2025 – Present 📍 São Paulo, Brazil (Remote)

- Developed life-cycle cost (LCC) and ridership models (PTV Visum/Python) for the California High-Speed Rail Authority, linking service strategies to long-term cost and risk.
- Led a digital-transformation pilot for the Buenos Aires Metro, designing digital-twin (Autodesk Tandem) and VR/AR tools (Unity) to streamline operations and maintenance of rolling-stock assets.

EDUCATION

Master's Degree,

Innovation in Construction

Universidade de São Paulo

📅 April 2024 – April 2026

Academic exchange,

Computational Mechanics

Universität Duisburg-Essen

📅 October 2017 – August 2018

Bachelor's Degree,

Civil Engineering

Universidade de Brasília

📅 August 2014 – December 2019

LANGUAGES

Portuguese

English

Spanish

German



PROGRAMMING

Python

MATLAB

C++

ifcopenshell

scikit-learn

pytorch

pandas

numpy

matplotlib

scipy

TOOLS

EnergyPlus

Modelica

AutoCAD

Revit

Civil 3D

Navisworks

InfraWorks

Inventor

Forma

Tandem

ArcGIS

QGIS

Unity (game engine)

3D Printing

Laser Cutting

PROFESSIONAL EXPERIENCE

- Led BIM/GIS coordination for **TIC Sorocaba** (São Paulo metropolitan rail), integrating alignment and existing-asset models across disciplines to support route and constructability decisions.
- Helped to deliver an executive RailAcademy course for CNT, coordinating instructors and participants to build client capability in rail planning and operations.

Junior Engineer

THEMAG Engenharia

📅 April 2022 – November 2022 📍 Brasília, Brazil (On-site)

- Contributed to structural analysis and assessment of bridges and viaducts (**Rodoanel Norte**), supporting design and constructability decisions.
- Participated in risk-oriented assessments of critical infrastructure (dams, piles) for **Vale**, working with heterogeneous inspection data.
- Designed hydraulic and geotechnical repairs for the Carajás Railway to preserve freight service continuity.

Project Manager

THEMAG Engenharia

📅 November 2022 – February 2025 📍 São Paulo, Brazil (On-site)

- Led BIM coordination for **Angra 3** nuclear power plant electro-mechanical design with >160k deliverables across civil, electrical and mechanical packages, enforcing BEP, LOD and clash-detection standards on Autodesk and Hexagon stack.
- Automated model QA, quantity take-off and data flows for Angra 3, cutting manual review cycles and improving model-to-document consistency.
- Led bids >R\$100M for energy and infra, shaping technical scope, schedules and pricing to meet tender specs and improve win probability.

Product Manager

AltoQi

📅 March 2021 – April 2022 📍 Florianópolis, Brazil (Remote)

- Shipped roadmap for AltoQi Builder (BIM MEP) and AltoQi Cloud (CDE), owning discovery-to-launch for a B2B SaaS suite used by AEC firms across Brazil.
- Ran customer discovery and IFC/MVD **interoperability workshops** with engineering firms, turning field pain points into prioritized backlog items.
- Co-launched Builds.com, an AEC collaboration platform, defining personas, value proposition and MVP scope from zero to public release.

Researcher

Universidade de Brasília

📅 November 2019 – April 2022 📍 Brasília, Brazil (Remote)

- Led BIM-based design and coordination of 71,000 m² of sanitary, plumbing and mechanical systems for **federal prison reference projects**.
- Built templates, components and standards that improved multi-discipline compliance.

Engineering Intern

Banco do Brasil - Data Center Engineering Sector

📅 August 2018 – December 2019 📍 Brasília, Brazil (On-site)

- Co-developed the data-center Strategic Asset Management Plan (SAMP), defining KPIs and monitoring strategies to link technical performance, asset risk and project oversight.

SKILLS

BIM Digital Twins GIS VR/AR
Machine Learning Structural Analysis

Scientific Research
Project Development
Project Management
Software Development

Teamwork Verbal Communication
Written Communication

OTHER ACTIVITIES

International School on Solar Energy

Universidade de Brasília

📅 March 2016 📍 Brasília, Brazil

Teen Entrepreneurs Project

Junior Achievement Brazil

📅 March 2012 📍 Brasília, Brazil

REFEREES

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