

Samuel Botter Martins

Assistant professor, data scientist, researcher, and YouTube creator. Skilled machine learning professional with a solid theoretical background and practical experience in designing ML solutions for different areas. Strong communication skills. *Eligible to work in Europe.*

 samucoding.com (website & ML blog)  linkedin.com/in/samuel-botter-martins  github.com/iamsamucoding
 youtube.com/xavecoding (aimed at Portuguese speakers)  samuel.martins@ifsp.edu.br

Experience

- 10/2020 – present **Coordinator of Data Science Specialization**, Federal Institute of São Paulo, Campinas-SP, Brazil
Faculty management, project and student supervision, and fundraising.
- 06/2020 – present **YouTube Creator – Channel: [xavecoding](https://youtube.com/xavecoding)** (aimed at Portuguese speakers)
Channel dedicated to courses and tutorials on ML and computer science topics.
- 07/2016 – present **Assistant Professor**, Federal Institute of São Paulo, Campinas-SP, Brazil
- Conducting lectures and tutorials for undergraduate and graduate students.
 - Guiding and mentoring graduate and undergraduate students in research projects.
- 01/2012 – 12/2012 **Web Developer**, Tray E-Commerce Platform, Marília-SP, Brazil
- 08/2004 – 08/2016 **Radio Broadcaster (volunteer work)**, Millenium FM 104.9, Pompéia-SP, Brazil
Presentation of radio programs, recording and production of commercials.

Education

- 03/2015 – 11/2020 **Ph.D. in Machine Learning**, UNICAMP (Brazil) & University of Groningen (Netherlands)
Research on ML for **medical image analysis**. [[Ph.D. thesis](#)]
- Designed **automatic unsupervised solutions** to detect brain anomalies in MR images.
 - Combination of image processing (e.g., *suppixels*) and one-class classification (OC-SVM).
 - High anomaly detection rates (86%+) on stroke images with a reduction by up 20x false positives.
 - Developed a **deep-learning-based approach** to *detect abnormal hippocampi* from epilepsy patients.
 - Detection accuracies from 86% to 100% (in some specific scenarios).
 - Applied **visual analytics** to understand the model and results, improving accuracy by up 13%.
 - Proposed an automatic method based on *statistical learning* (probabilistic models and texture classifications) for **anomalous brain image segmentation** - reduced *segmentation errors* by up 15%.
- 03/2013 – 02/2015 **M.Sc. in Machine Learning**, UNICAMP (Brazil)
Research on ML for **face recognition and negative mining**. [[Dissertation](#)]
- Investigated state-of-the-art **deep features for face recognition** in *unconstrained scenarios*.
 - Designed an *SVM-based method* that mines **informative negative samples** within interactive times.
- 03/2008 – 12/2012 **B.Sc. in Computer Science**, University of São Paulo (Brazil)

Skills

Key skills	<ul style="list-style-type: none">• Machine learning algorithms• (Medical) Image processing and analysis• Computational vision• Neural networks, deep learning, CNNs, GANs• Experiment design and quantitative analysis• Data visualization and visual analytics	
Tools and Packages	 Python, C/C++, Java, SQL  Git, Linux  ITK-snap, napari  Pandas, NumPy, Matplotlib  SKlearn, XGboost, PyCaret  Keras, Pytorch  Skimage, OpenCV, nibabel	
Languages	English (fluent), Italian (basic), Portuguese (native)	

Selected Publications and Awards

- 09/2022 **Federated Learning Enables Big Data for Rare Cancer Boundary Detection**, *Nature*. (accepted for publication) [[arXiv paper](#)]
- 10/2021 **Unsupervised Brain Anomaly Detection in MR Images**, *SIBGRAPI*.
[Best Ph.D. thesis award of the Workshop of Theses and Dissertations](#) [[Paper](#)][[Presentation](#)]
- 02/2021 **BADRESC: Brain Anomaly Detection based on Registration Errors and Supervoxel Classification**, *BIOSTECT BIOIMAGING*. [Best student paper awards](#) [[Paper](#)]
- 11/2019 **Adaptive probabilistic atlas for abnormal brain image segmentation**, *Medical Physics*. [[Paper](#)]
- 11/2019 **A fast and automatic lung and trachea CT-image segmentation method**, *Medical Physics*. [[Paper](#)]
- 10/2017 **A fast and robust negative mining approach for face recognition systems**, *SIBGRAPI*. [[Paper](#)]