

# Rafael Seidi Oyamada

PH.D. CANDIDATE

Milan, Italy

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## Education

### Ph.D. student in Computer Science

Milan - Italy

UNIVERSITY OF MILAN

2022-now

My research project aims at developing deep learning techniques for process mining. The main interests lie in the development of generative models for process simulation and encoding/embedding methods for process (event) data.

### M.Sc. in Computer Science

Londrina, PR - Brazil

LONDRINA STATE UNIVERSITY

2019-2021

During my master's I had a short experience as a teaching assistant and worked on two similar research lines on databases and ML applied to databases. I finished the program having three accepted publications and defended my thesis whose main contribution was a framework for the automatic configuration of graph databases using meta-learning.

### B.Sc. in Computer Science

Londrina, PR - Brazil

LONDRINA STATE UNIVERSITY

2013-2018

During my Bachelor's I developed basic skills in different areas working as a Research Intern, Mentor/Teaching Assistant, and Software Engineer. My final thesis approached the problem of detecting anomalies in software-defined networks (SDN).

## Bio

Rafael is a Ph.D. student in Computer Science at the University of Milan. He received his BSc and MSc degrees in 2019 and 2021, respectively, both in Computer Science at Londrina State University. His current research interests lie primarily in deep generative models and representational learning. In particular, he works with generative models for enhancing business processes and encoding methods for log (event) data extracted from information systems. Alternative interests include databases for similarity-based retrieval, graph algorithms, and meta-learning.

## Publications

1. Matiazzo, M.; Castro-Silva, V.; **Oyamada, R.S.**; Kaster, D.S., *Usage of Datasets for Evaluation in Similarity Retrieval: Popular Choices and a New Similarity-based Dataset Selection Approach*, Similarity Search and Applications (SISAP), 2023 (to appear).
2. **Oyamada, R.S.**; Tavares, G.M.; Ceravolo, P.; *CoSMo: a Framework for Implementing Conditioned Process Simulation Models*, in arXiv/2303.17879, 2023 (preprint). [Link](#).
3. Barbon Jr., S.; Ceravolo, P.; **Oyamada, R.S.**; Tavares, G.M., *Trace Encoding in Process Mining: a Survey and Benchmarking*, Engineering Applications of Artificial Intelligence, 2023. [Link](#).
4. **Oyamada, R.S.**; Shimomura, L.C.; Barbon, S.; Kaster, D.S., *A Meta-learning Configuration Framework for Graph-based Similarity Search Indexes*, Information Systems 2023. [Link](#).
5. Shimomura, L.C.; **Oyamada, R.S.**; Vieira, M.R.; Kaster, D.S., *A survey on graph-based methods for similarity searches in metric spaces*, Information Systems 2021. [Link](#).
6. **Oyamada, R.S.**; Shimomura, L.C.; Barbon, S.; Kaster, D.S., *Towards Proximity Graph Auto-Configuration: an Approach Based on Meta-learning*, ADBIS 2020. [Link](#).

## Event attendances

### SNAMS - International Conference on Social Networks Analysis, Management, and Security

Milan, Italy

ORGANIZER.

December 2022

## **IRIXYS Workshop**

PRESENTATION: A CONDITIONED ARCHITECTURE FOR BUSINESS PROCESS SIMULATIONS.

Gargnano, Italy

October 2022

## **ItaData - Italian Conference on Big Data and Data Science**

LISTENER.

Milan, Italy

September 2022

## **Process Mining Summer School**

LISTENER.

Aachen, Germany

July 2022

## **Unioeste Cascavel/PPGComp**

PRESENTATION: META-LEARNING FOR AUTO-SELECTION AND AUTO-CONFIGURATION OF PROXIMITY GRAPHS.

Cascavel, Brazil

November 2020

## **ADBIS - European Conference on Advances in Databases and Information Systems**

PRESENTATION: TOWARDS PROXIMITY GRAPHS AUTO-CONFIGURATION: AN APPROACH BASED ON META-LEARNING.

Lyon, France (remote)

August 2020

# **Employment**

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## **Research and Development**

Milan, Italy

AVIO

September 2023 - present

- Working as a research scientist and developing new solutions involving mainly automation and analytics. The initial goal is to evaluate and understand the underlying processes of the company. Subsequently, learned solutions combined with process mining tools will be applied in order to optimize the company's processes.
- Technologies: python, pytorch, sklearn, WandB, Dash (plotly).
- Theoretical background: machine learning, deep learning, and process mining.

## **Data Scientist (remote)**

Silicon Valley, California, USA

RADIOLIFE

March 2021 - June 2022

- Worked on a project where the proposed idea was the development of a device capable of detecting Covid-19 in a few seconds. My tasks included monitoring, analyzing, processing, and managing data generated by such devices to validate the product, provide insights, and deploy ML models learned from it.
- Technologies: python, C++, sklearn, WandB, micromlgen, Dash (plotly), MongoDB, and AWS.
- Theoretical background: supervised learning and ensemble methods.

## **Software Engineer**

Londrina, PR, Brazil

TATA CONSULTANCY SERVICES

June 2018 - March 2019

- Worked on banking projects. In the first project, my tasks included supporting and maintaining the system in both front and back end. In the second one, I implemented systems from scratch.
- Technologies: javascript, react, nodeJS, PostgreSQL, and MongoDB.
- Theoretical background: design patterns, software architecture, and best practices for development.

## **Python Developer**

Londrina, PR, Brazil

PEDRIALI & VASCONCELLOS - LAW FIRM

April 2016 - April 2017

- Worked on the development of python software and scripts to improve and optimize routine tasks in the office, in order to accelerate the employees' production. Examples of my tasks included the auto-filling of proceedings sheets, auto-scheduling, management of contracts, and web scraping.
- Technologies: Python, beautifulsoup, selenium, and excel.

## **Teaching Assistant (undergraduate)**

Londrina, PR, Brazil

LONDRINA STATE UNIVERSITY

August 2014 - August 2015

- Worked as Teaching Mentor for two years. I supported students in the disciplines of Programming Techniques (2015) and Data Structures (2016).
- Technologies: C, bash scripting, and Linux.

## **Information Technology Mentor**

Londrina, PR, Brazil

LONDRINA STATE UNIVERSITY

Jan. 2018 - Apr. 2018

- Worked on a social project for digital inclusion, where the main purpose was the introduction of IT basic concepts to the elderly and kids. We approached concepts that included web navigation, sending e-mails, social media, and file management.

## **Undergraduate Research Intern**

Londrina, PR, Brazil

AGRONOMIC INSTITUTE OF PARANA (IAPAR)

August 2013 - August 2014

- Worked with a device that aimed at collecting digital information (e.g. leaf weight) from coffee plants through electromagnetic waves.
- Assisted in the analysis of data collected from coffee plants.
- Technologies: Java.

## Other

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- **Languages** – Portuguese (native), English (proficient, Toefl iBT score – 87), and Italian (beginner).
- **Skills** – Python · Pytorch · Numpy · Pandas · Git · Unix · Latex · PostgreSQL · AWS · DynamoDB · Microservices (Flask).
- **Theoretical background** – Supervised Learning · Meta-learning · Recommendation Systems · Graph theory · Graph databases · Similarity Search · Knowledge Representation · Generative Models (e.g. GPT) · Encoding methods · Process Mining.