

# Fabio Marcos De Abreu Santos

## AI/Software Engineer, Data Engineer

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## SUMMARY

Emerging technology enthusiast:

Highly developed technical and research skillset blended with an advanced educational background.

Excel at researching highly complex technical challenges and synthesizing key trends with special attention to artificial intelligence and technical strategy. Comfortable in both leadership and supportive roles who relishes opportunities to build relationships with diverse stakeholder groups.

## WORK EXPERIENCE

August 2019-Current

### AI/Software Engineer, Data Engineer

🏢 NAU  
📍 Flagstaff, Arizona, United States

School of Informatics, Computing and Cyber Systems

AI design: Knowledge modeling and data analysis to investigate expertise (skills) in open-source software using ML, NLP, BERT, Python, R, and Java inside the Ph.D. program.

Results:

A proposal to automatically label the GitHub projects using ML with a prediction of the skills required to solve open issues.

Articles:

"Supporting the Task-driven Skill Identification in Open Source Project Issue Tracking Systems" - to appear in Empirical Software Engineering and Measurement - ESEM 2022.



"How to choose a task? Mismatches in perspectives of newcomers and existing contributors" to appear in Empirical Software Engineering and Measurement - ESEM 2022.

"Can I Solve it? Identifying the APIs Required to Complete OSS Tasks" - Mining Software Repositories Conference - MSR 2021

Mentoring Capstone projects including ticket classification using machine learn techniques for General Dynamics Systems and sound identification using machine learning techniques for environmental-related research.

October 2018-Current

### **AI Software Engineer, Information Systems Integration**

 DBEM Think Tank  
 Brazil



Reducing the complexity and execution time of matching large graphs and knowledge ontologies, applying Markov chains, implementing a variation of the Page Rank algorithm with random walks and frequent itemsets combined with algebraic operations on the graphs.

Article: Matching Network of Ontologies: a Random Walk and Frequent Itemsets Approach

Publisher: IEEE 2022

September 2018-July 2019

### **AI Researcher and Software engineer**

 IBM  
 Brazil

Document comprehension project with knowledge modeling for natural resource management with multimedia resources using the hyper knowledge model with node.js and graph databases.

March 2017-September 2018

### **AI Software Engineer, Ontology Alignment**

 ALICE Group (UniRio)  
 Brazil

Artificial Intelligence (AI) subject matter expert responsible for conducting leading-edge research into new challenges involving reasoning and knowledge modeling over networks of ontologies.

Key projects include creating tools to explore a network matching tool for ontologies.

Articles:



SUBINTERNM: Optimizing the Matching of Networks of ontologies - Ontology Matching 2020 @ ISWC

A proposal for optimizing internetwork matching of ontologies - Ontology Matching 2018 @ ISWC

Paving a research roadmap on network of ontologies. - Ontology Matching @ ISWC.

2012-2017

### **Systems Analyst and IT Manager**

 Directorate of Communications and IT  
 Brazil

Responsible for all IT planning and strategy, leading the directorate IT team to achieve the bests solutions to the global Institution. Supervision IT operations and data centers. A member from COTEC-TI (IT Technician Council). I supported strategic level decisions and discussions with C-Level, based on technical and costs evaluations using methods like Pay Back, IRR (Internal Rate of Return), and TCO (Total Cost of Ownership).

Main projects:

Cisco Jabber, LogRhythm SIEM, IBM Connections, New help desk procedures, IT restructuring.


Results:

Projects helped the Institution to save budget and improve efficiency over 30% of some indicators. Started the concept of software factory over the development structure. Improved the private cloud usage via datacenters consolidation, bringing business areas services to the datacenter and preparing initial studies to hybrid cloud adoption to present the concept to C-Level.

2002-2011

### **System Analyst and Developer**

 Admiral Sylvio de Camargo Instrucional Center

 Brazil

Responsible to develop and maintain an amphibious warfare simulator using Lua, Java, and C programming languages and a Linux server running Fedora/Ubuntu and PostgreSQL using a customized XP agile method. Engine developer, DBA, and support specialist.

Project:


Simulator with more than half a million code lines the project included some challenges, like real-time processing, military situation modeling, advanced data structures, and tools for users and support.


Results:

Open Source Software adoption project to reduce license costs. Substitution of an Informix database running a 4gl language to a PostgreSQL database with Lua and C. The geoprocessing tool was also changed from an ArcGis tool to an r3tree based data structure using a heightmap. The hardware costs were also decreased from a high-cost Unix server to Linux distribution.

2005-2006

### **Java developer and instructor**


 BRQ

 Brazil

Component of assurance team. Java, Struts, EJB, WebSphere, DB2, CICS using RUP. Implementation and test of applications.

1995-2000

### **Oracle DBA and system analyst**

 Brazilian Navy

 Brazil

Project of all database infrastructure and processes to integrate personnel databases. Leading the new civil HR system project.

## EDUCATION

2019-Current

### PhD

🏠 Northern Arizona University

📍 United States

Mining software repositories to identify opportunities to match software engineers' skills with open- source software projects using: Agile methodology (Kanban), Python(pandas, jupyter, scikit learn), R, NEO4J, PostgreSQL, and Java.

- Informatics and Computing
- Software Engineering

2017-2022

### PhD

🏠 Universidade Federal do Estado do Rio de Janeiro

📍 Rio de Janeiro, Brazil

The Knowledge Representation and Reasoning: focuses on the Modeling aspect, and studies alternatives for the modeling and representation of the knowledge of the human and computational agents that interact in an Information System.

Dissertation: Matching Network of Ontologies: a Pattern Mining Approach

- Informatics
- Knowledge Modeling and Reasoning (AI)

2000-2002

### MSc

🏠 Pontifícia Universidade Católica do Rio de Janeiro

📍 Rio de Janeiro, Brazil

The dissertation proposed mobile computing architectures for use in the exercises of the Marines Corps.

- Informatics
- Databases

## SKILLS

B2B Software   Software Engineering   Javascript Frameworks and Libraries   Node.JS   Python   EJB   JAVA  
SIEM   Amazon Web Services   AWS   Cisco   Data Science   Data Structure   DB2   Machine Learning  
Markov   Data Analysis   Database   Informix   Oracle   Postgresql   Systems Analyst   Linux   UNIX  
LUA   Panda   RUP   Scrum   Open Source   Real-Time   Data Structures   Websphere   CICS   Arcgis  
Total Cost of Ownership   Monte Carlo   Mentoring   Simulator   Help Desk   Budget   HR   Kanban

Instructor

## **HONORS & AWARDS**

The Honor Society of Phi Kappa Phi

<https://meritpages.com/fabiomar>

## **LANGUAGES**

English - Advanced

French - Intermediate

## **WORK AUTHORIZATION**

I am authorized to work in the following countries:

- Brazil
- United States