Fabio Marcos De Abreu Santos

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Education & Training

Ph.D., Computer Sciences (Software Engineering) | Northern Arizona University (NAU) (2019 - 2023)

Ph.D., Computing (Information Systems, Knowledge modeling, and reasoning) | Federal University of Rio de Janeiro State (UniRio)(2017 - 2022)

MSc, Computing (Databases). | PUC-Rio University, Rio de Janeiro (2000 - 2002)

MBA, Economic Engineering & Industrial Administration | Federal University of Rio de Janeiro (UFRJ), Rio de Janeiro

BSc, Computing | PUC-Rio University, Rio de Janeiro

Research

Faculty | Grand Canyon University (GCU) (2023)

- Matching Contributors and Tasks Skills based on knowledge model.
- Measuring the newcomer contribution process.
- Using Large Language Models to predict Skills in open tasks.

Graduate Research Assistant | Northern Arizona University (NAU) (2021-2023)

- We mine GitHub repositories and feed a ETL processing pipeline to predict and label skills to solve open tasks in projects using GitHub. The data pipeline uses Python libraries (NLP: Spacy, Gensim, Fast-BERT, TF-DF, Doc2Vec) (Machine learning: scikit-learn), R (RStudio), PostgreSQL, Neo4J, and Java.
- A prototype to automatically label the GitHub projects using ML with a prediction of the skills required to solve open issues running using the Django web framework.
- The predictions are now using conversation data in GitHub discussions to employ social network analysis and graph metrics to improve the results.
- Mentoring projects, including ticket classification using machine learning techniques for General Dynamics Systems and sound identification using machine learning techniques for environmental-related research.

Research Software Engineer | IBM Research (2018-2019)

- Document comprehension project with knowledge modeling for natural resource management with multimedia resources using hyper knowledge. Tools: Node.js, allegro graph, and others. Kanban method.

DBEM Think Tank | Federal University of Rio de Janeiro State (UniRio) (2018-)

- A pattern mining using Markov chains and frequent itemsets to address the matching of large-scale networks of ontologies.

ALICE Group | Federal University of Rio de Janeiro State (UniRio) (2017 - 2018)

- Algebraic operations over graph representations of networks of ontologies to reduce the search scope in matching tasks.

Laboratório de Engenharia de Software (LES) **|** PUC-Rio University, and

VISGRAF Lab | Instituto de Matemática Pura e Aplicada (IMPA) Rio de Janeiro (2001-2002)

- Examined the creation of mobile computing architectures with active databases for use in the exercises of the Marines with the implementation of one of the proposed architectures.

Teaching

Faculty | Grand Canyon University (GCU) (2023)

- Program Lead for new BS (Applied AI).
- Teaching OOP, C++, Java, Social Network Analysis with MSR, ML and deep learning

Graduate Teacher Assistant | Northern Arizona University (NAU) (2019-2021)

- CS Capstone mentor for 11 teams including more than 50 students embracing: IT operations tickets classification using machine learn techniques; Sound identification using machine learning techniques for environmental-related research; Intelligent generation of presentations to schools using geo-referencing data to teach children about environment and sustainability; and Integration of test software to popular test frameworks.
- TA of Web Programming II and Secure Software Design Spring 2023.

Lecturer | Estácio de Sá University (2014 - 2019)

- Teaching disciplines in the undergraduate program: Information Systems Introduction, Java Web Programming, HCI, Algorithms Analysis, and others.

Lecturer | INFNET Institute (2014 - 2019)

- Teaching disciplines in the Software Engineering graduate program: Software Engineering Introduction and Unified Process.

Lecturer | LAUREATE EDUCATION INC - IBMR University Center (2018 - 2019)

- Teaching a discipline in the Strategic People Management, Strategic Business Management, and Digital Marketing MBA Programs graduate programs: Technology management.

Lecturer | Serviço Nacional de Aprendizagem Comercial (National Commercial Apprenticeship Service) (SENAC) (2008 - 2014)

- Teaching disciplines in the Software Engineering graduate program: Java Web Programming and Final Course Work.

Lecturer | City University Center (Univer Cidade) (2002 – 2013)

- Teaching disciplines in the undergraduate program: Java Web Programming, Databases 1 and 2, UML 1 and 2, Java Introduction

Lecturer | Carioca University Center (Uni Carioca) (1999 – 2005)

- Teaching disciplines in the graduation courses: Java Web Programming, Databases Work, Operation Systems.

Professional Experience

IT Superintendent (CIO) | Brazilian Navy (2012-2017)

- Relied upon for conducting Information Technology planning and responsible for setting organizational strategy for key technical projects and IT operations, ensuring key metrics such as payback, internal rate of return, and total cost of ownership calculations were communicated.
- Effectively created specific metrics and action plans derived from the IT Strategy Plan.
- Successful track record of delivering improved operational efficiencies resulting in tangible organizational cost savings.

- Spearheaded the private cloud usage to accomplish data center consolidation, which enabled onboarding of business areas into the data center and presented hybrid cloud findings to the executive leadership team.
- Alternate Vice Director of IT and Communications and IT CFO. Supervise the IT Director plan, management of suppliers, and third-party contracts. Validation of RFP, bids, and acquisitions. Approval of payments: procurement and contracts.

Head of Department, Digital Systems |Brazilian Navy (2012-2012)

- Excelled in a critical technical role that oversaw the standardization policy for all development teams throughout the Navy business units.
- Successfully led several projects, including an organization-wide software standardization policy that resulted in decreased security problems in deployed systems.

Project Manager, System Analyst, and Developer | Brazilian Navy (2022-2012)

- Accountable for the development and ongoing maintenance of an amphibious warfare simulator leveraging Lua and C programming languages that contained more than 500k lines of code using a customized XP agile method.
- Relied upon as a technical leader with extensive experience as both a database administrator and infrastructure specialist.
- Continuous improvement through innovation successfully decreased project costs from over R$ 300,000/annually to almost zero by analyzing technology and substitution or improving with Open-Source software.

Java Developer and Instructor | BRQ, Bradesco Seguros (2005-2006)

- IT development professional with a track record of delivering innovative, elegant solutions utilizing fit-for-the-purpose programming language Java with EJB, Struts, and RUP.

Publications

- **Santos, Fabio., Vargovich, Joseph., Trinkenreich, Bianca. et al. Tag that issue: applying API-domain labels in issue tracking systems. Empirical Software Engineering 28, 116 (2023). https://doi.org/10.1007/s10664-023-10329-4.**

Fabio Santos: Conceptualization, Formal Analysis, Data Curation, Methodology, Software, Writing – original draft, Writing – review & editing, Project Administration, Supervision and Validation.

- **Santos, Fabio., Penney, Jacob., Pimentel., João Felipe., Wiese, Igor., Steinmacher, Igor., Gerosa, Marco, Tell Me Who Are You Talking to and I Will Tell You What Issues Need Your Skills, 20th Mining Software Repositories (MSR), 2023.**

Fabio Santos: Conceptualization, Formal Analysis, Data Curation, Methodology, Software, Writing – original draft, Writing – review & editing, Visualization, Supervision, Project Administration and Validation.

- **Vargovich, Joseph., Santos, Fabio., Penney, Jacob., Gerosa, Marco, Steinmacher, Igor, GiveMeLabeledIssues: An Open Source Issue Recommendation System 20th Mining Software Repositories (MSR) – Data and Tool Showcase, 2023.**

Fabio Santos: Conceptualization, Formal Analysis, Data Curation, Methodology, Software, Writing – review & editing, Visualization, and Supervision.

- **Santos, Fabio, et al. How to choose a task? Mismatches in perspectives of newcomers and existing contributors. ACM/IEEE International Symposium on Empirical Software Engineering and Measurement (ESEM). 2022.**

Fabio Santos: Conceptualization, Formal Analysis, Data Curation, Methodology, Software, Writing – original draft, Writing – review & editing, Project Administration, Supervision and Validation.

- **Santos, Fabio., Wiese, Igor., Trinkenreich, Bianca., Steinmacher, Igor., Sarma, Anita., Gerosa, Marco, Can I Solve It? Identifying APIs Required to Complete OSS Tasks, 18th Mining Software Repositories (MSR), 2021.**

Fabio Santos: Conceptualization, Data Curation, Methodology, Software, Writing – original draft, Writing – review & editing.

- **Santos, Fabio, and Carlos E. Mello. Matching Network of Ontologies: A Random Walk and Frequent Itemsets Approach. IEEE Access 10 (2022): 44638-44659.**

Fabio Santos: Conceptualization, Formal Analysis, Data Curation, Methodology, Software, Writing – original draft, Writing – review & editing, Project Administration, Supervision and Validation.

- **Santos, Fabio, Kate Revoredo, and Fernanda Baiao, SUBINTERNM: Optimizing the Matching of Networksof Ontologies, Ontology Matching 77 (2020), Ontology Matching: OM-2020 - collocated with the 19th International Semantic Web Conference ISWC-2020.**

Fabio Santos: Conceptualization, Formal Analysis, Data Curation, Methodology, Software, Writing – original draft, Writing – review & editing, Project Administration, Supervision and Validation.

- **Santos, Fabio, Kate Revoredo, and Fernanda Baiao, A Proposal for Optimizing Internetwork Matching of Ontologies, Ontology Matching: OM-2018: Proceedings of the ISWC Workshop. 2018.**

Fabio Santos: Conceptualization, Formal Analysis, Data Curation, Methodology, Software, Writing – original draft, Writing – review & editing, Project Administration, Supervision and Validation.

- **Santos, Fabio, Kate Revoredo, and Fernanda Baiao, Paving a Research Roadmap on Network of Ontologies, Ontology Matching: OM-2017 - collocated with the 16th International Semantic Web Conference ISWC-2017.**

Fabio Santos: Conceptualization, Formal Analysis, Data Curation, Methodology, Software, Writing – original draft, Writing – review & editing, Project Administration, Supervision and Validation.

OTHER RESEARCH ITEMS (Presentations, Posters, Technical reports)

Santos, Fabio, Skill Recommendation for New Contributors in Open-Source Software. 45th ACM/IEEE International Conference on Software Engineering and Measurement (ESEM) – SRC. 2023.

Santos, Fabio, Supporting the Task-driven Skill Identification in Open Source Project Issue Tracking Systems. ACM/IEEE International Symposium on Empirical Software Engineering and Measurement (ESEM) – Doctoral Symposium. 2022.

de Abreu Santos, Fabio Marcos, Internetworking Matching of Network of Ontologies, ISWC 2018 - Doctoral Consortium.

De Abreu Santos, Fabio Marcos, Kate Revoredo, and Fernanda Baião, Paving a Research Roadmap on Network of Ontologies Poster presented at Ontology Matching: OM-2017.

De Abreu Santos, Fabio Marcos, Kate Revoredo, and Fernanda Baião, Network of Ontologies–A Systematic Mapping Study and Challenges Comparison, RelaTe-DIA (2017).

Fábio Marcos de A and do Brasil, Marinha and Casanova, Marco A and de Beauclair Seixas, Roberto, Alternativas do Emprego de Computação Móvel nos Exercícios do CFN, Santos, Revista Marítima Brasileira 1º Trimestre de 2004.

FMA Santos, MA Casanova, RB Seixas, Jogos de Guerra em Plataformas Móveis, Technical Report 2002

Training

Kanban and Scrum - Udemy (2018) - **AWS** - Cloud Treinamentos (Ongoing), **Data Boot Camp** – Data Science, and machine learning with Phyton, Jupiter, Panda, statistics and other tools (2018), **ITIL** - (2017), **Big Data Fundamentals** - AWS (2017), **DBA PostgreSQL** (2009), **Project Management** (2008), **Linux administration** (2005), **ArcGIS** (2004), **Java Programming** (2002), **DBA Oracle** (1997)

Service

ORGANIZATION AND REVIEWER FOR INTERNATIONAL CONFERENCES AND JOURNALS

Reviewer – Empirical Software Engineering Journal (EMSE) 2023

Reviewer of the journal of the Italian Association for Artificial Intelligence (AIxIA) 2022

WebChair of Chase 2021. 14th International Conference on Cooperative and Human Aspects of Software Engineering (CHASE 2021).

Program Committee of The Fifteenth International Conference on Advances in Semantic Processing - SEMAPRO 2021.

Program Committee of First International Workshop on Bridging the Gap between Semantics and Multimedia Processing (SeMP 2019), collocated with the IEEE ISM 2019.

COMMUNITIES

Phi Kappa Phi - Active Member, since 2021

Open-Source Software Contributor at JabRef project (https://github.com/JabRef/jabref), 2020