Sergio Paulo Caetano

Date of CV: Jun 27, 2026

Contact Information

Email: sa20ra202124015@ajou.ac.kr
Phone: +82 01043730810
LinkedIn: Sérgio Caetano
Location: Suwon, South Korea

Objective Statement

Ph.D. student in Artificial Intelligence with expertise in machine learning, deep learning, computer vision, and natural language processing. Passionate about software engineering for AI and AI for software engineering, particularly in developing robust and responsible AI systems. Eager to leverage extensive research experience and technical skills to contribute to cutting-edge projects in these fields.

Education

Ph.D. in Artificial Intelligence

Ajou University, South Korea | *Expected Completion*: 2027

Master's in Industrial Engineering

Ajou University, South Korea | *Graduated*: 2023

- **Thesis**: Design Knowledge Discovery and Extractor Analytical Pipeline System for COVID-19 Research Based on Hadoop-Spark Big Data Frameworks.

Bachelor's in Marine Geology

Eduardo Mondlane University, Mozambique | *Graduated*: 2017

- **Thesis**: Morphodynamics and Sedimentary Faces of Bons Sinai's Estuary in the Gazela River.

Research Interests

- Software Engineering for AI and AI for Software Engineering
    - Software Engineering, Fair AI Testing, and Debugging
    - Requirements Engineering, Requirements elicitation, Model, and Analysis
    - Requirements Engineering for Explainable AI (RE4AI)
    - Responsible Artificial Intelligence, Explainable AI (XAI)
    - Robust AI Systems
- Machine Learning
    - Multi-view Learning and Representation Learning
    - Multi-Omics Data Integration, Knowledge Embedding, and Network-based Analysis
- Parallel and Distributed Computing
    - Distributed Systems
    - Algorithm Design
    - Cloud Computing, Big Data (Processing and Analysis)
    - High Performance Computing (HPC Job Scheduling) and Autotuning
    - Distributed Deep Learning, Federated Learning
- Computer Vision and Natural Language Processing
    - Fine-Grained Self-Supervised
    - Multi-Label Classification
    - Harmonics-based Feature Processing

Publications

1. **Surrogate Model of Autotuning Techniques for Optimizing HPC Task Execution**
   Conference: KCC 2024, Korea Information Science Society
2. **Dynamic Programming-Based Multilevel Graph Partitioning for Large-Scale Graph Data**
   Conference: Winter Conference of the Korean Telecommunications Society, 2024
3. **Analysis of the In-Memory Checkpointing Approach in Apache Flink**
   Conference: Summer Conference of the Korean Telecommunications Society, 2023

Work Experience

Teaching Assistant

Department of Software and Computer Engineering, Ajou University, South Korea
2023.03 – 2024.12

- Assisting in teaching **Artificial Intelligence**
- Assisted in teaching **Computer Networks**
- Led lab sessions and grading for **Object-Oriented Programming in Java**

Teaching Assistant

Department of Marine Geology, Eduardo Mondlane University, Mozambique.
2016.02 – 2017.12

- Delivered lectures on **Mathematics** (Differential Equations, Integral Calculus) and **Statistics and Probability**

Researcher

Knowledge Intensive Software Engineering Lab, Ajou University, South Korea
2025.03 – Present

- Conducting research on **Software Engineering** and **Requirements Engineering for Artificial Intelligence** (SE4AI and RE4AI)
- Developing novel approaches to **Explainable AI** and **Fair AI Software Systems Testing and Debugging**

Parallel and Distributed Processing Lab, Ajou University, South Korea
2023.03 – 2024.02

- Conducted research on machine learning applications in **high-performance computing**
- Developed novel approaches to **graph partitioning** and **job scheduling in distributed systems**

Big Data Analysis Lab, Ajou University, South Korea
2021.03 – 2023.02

- Focused on **cloud computing** and **big data analytics**
- Contributed to multiple **knowledge discovery projects** using Hadoop-Spark frameworks

Internship
Centro de Formação Professional da Electrotecnia, Mozambique
2019.01 – 2019.10

- Conducted industrial maintenance mechanics training

Gondwana Empredimentos and Consistorias, Mozambique
2016.01 – 2016.04

- Led geological field mapping and analysis

Technical Skills

- **Programming Languages**: C, C++, Python, SQL, Java, JavaScript, R, MATLAB, Scala
- **Applications**: MS Office, Tableau, Data Plots, MySQL Workbench
- **Technologies**: Hadoop, Spark, MapReduce, Arena
- **Machine Learning**: Scikit-learn, PyTorch, TensorFlow, Keras
- **Parallel/Distributed Systems**: CUDA, MPI, Multithread Programming
- **Operating Systems**: Ubuntu, Kali Linux, Windows, MacOS

Languages

- English
- Korean
- Portuguese
- Spanish

Awards and Scholarships

- **BK Graduate Student Research Scholarship**, Ajou University | 2023 – Present
- **Exemplary Academic Performance Award**, K-TOPIK Program, Konyang University | 2020
- **Korean Governmental Scholarship Program (GKS)**, South Korea | 2019 – 2023
- **Eduardo Mondlane University Full Scholarship**, Mozambique | 2014 – 2017

Workshops and Conferences

- **Dynamic Programming-Based Multilevel Graph Partitioning for Large-Scale Graph Data** | Winter Conference of the Korean Telecommunications Society | 2024
- **Analysis of the In-Memory Checkpointing Approach in Apache Flink** | Summer Conference of the Korean Telecommunications Society | 2023
- **Morphodynamic and Sedimentary Faces of the Bons Sinais Estuary** | UEM-ESCMC Scientific Sessions | 2017

Memberships

- Korean Researcher Information (KRI)

Strengths

- Possesses a high capacity and resilience to work in a team under pressure to achieve set goals.
- Willingness to work anywhere in the country or abroad.
- I have never received any warnings or disciplinary actions.
- I am intrinsically motivated and always eager to acquire new skills.
- I can work with researchers from various disciplines.
