Cover Letter: Software Development & Data Intelligence

Subject: - Caio Henrique Ferreira Monteiro

Dear Hiring Manager,

I am writing to express my interest in joining your technical team. As a Software Development graduate with a solid foundation in **Java, Kotlin, Python, and R**, I offer a versatile profile that bridges the gap between robust software engineering and strategic data intelligence.

A defining milestone of my professional preparation was my recently published research: **"Object-Oriented Code Risk Classification: A Machine Learning Approach"**. In this project, I developed a predictive system to identify high-risk areas and potential defects in software projects.

Key highlights of this work include:

- **Advanced Data Modeling:** I utilized the **Random Forest** algorithm in **R** to analyze complexity and design metrics from 15 large-scale Java projects on GitHub.
- **Problem Solving:** I implemented class imbalance techniques to refine the model, achieving an **accuracy of 72.84%** and identifying critical risk factors such as Structural Size (NOS) and Dynamic Coupling (RFC).
- **Practical Impact:** This project demonstrated my ability to use Data Science not just as a theoretical tool, but as a way to improve software quality and preventive refactoring.

In addition to my research, I have practical experience in **Mobile Development (Kotlin/Android Studio)** and **Cloud Infrastructure (Microsoft Azure)**. I am a proactive professional, accustomed to **Agile methodologies (Scrum/Kanban)** and committed to **Clean Code** principles.

As an **EU resident** currently based in Brazil, I have full availability for international relocation and am legally eligible for immediate employment within the European Union.

I am confident that my ability to combine software development with machine learning insights will be a significant asset to your company. I have attached my resume and would welcome the opportunity to discuss my background further in an interview.

Thank you for your time and consideration.

Sincerely,

Caio Henrique Ferreira Monteiro [caiohenriquechfm292@gmail.com]