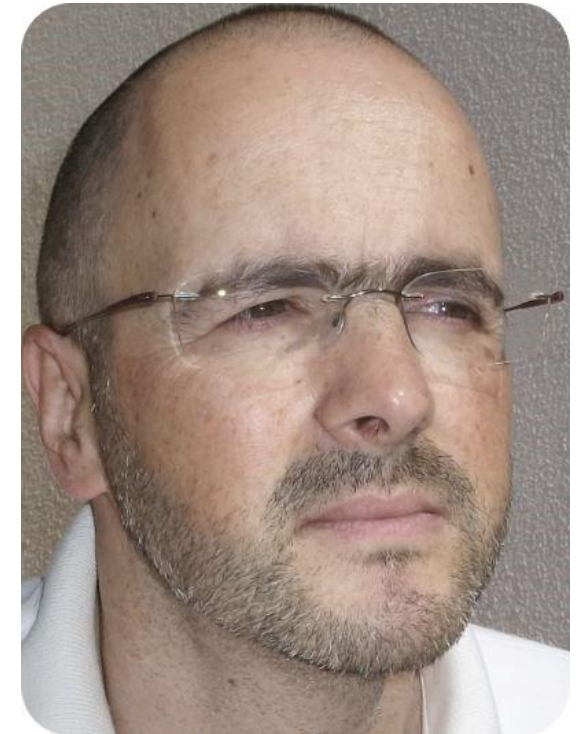


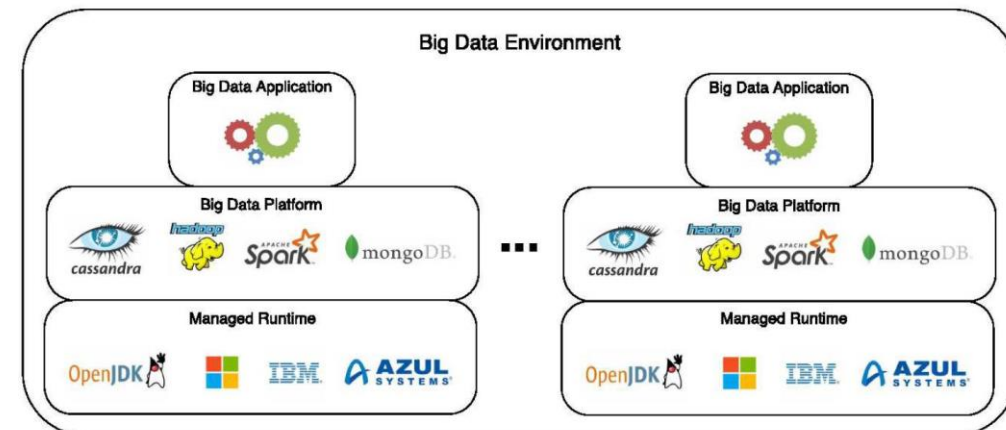
Temas de Tese 2018-2019

- Os temas de tese aqui apresentados serão orientados por mim, Prof. Paulo Ferreira (alguns com co-orientação de outros docentes)
- Existem outros temas de tese nas quais sou co-orientador (e que não são aqui apresentadas)
- Mais informações:
 - Contacto directo (Alameda ou Tagus)
 - Email: paulo.ferreira@inesc-id.pt



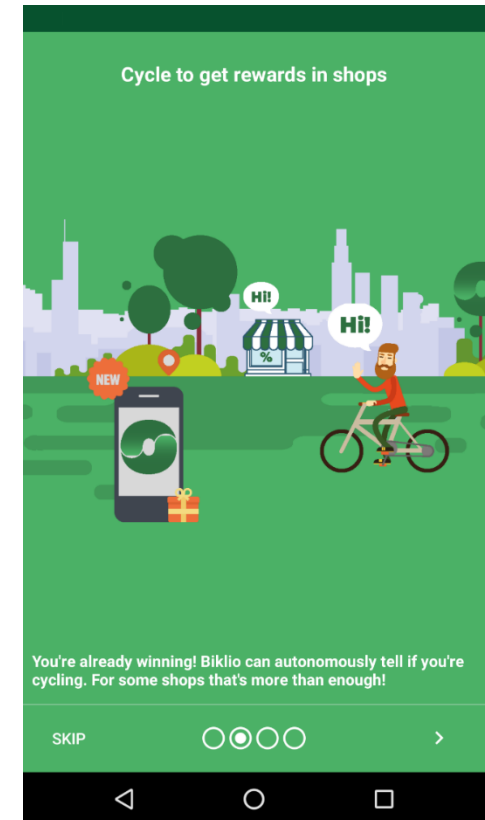
GCperf – A Performance Comparison of Modern Garbage Collectors for Big Data Environments (proposta 1172)

- **Goal:**
 - There is a clear need for efficient data processing from a large number of applications in several areas (e.g. network analytics and visualization, credit card fraud detection, etc.).
 - For this purpose, there are several big-data platforms (BGPATs) that are instrumental for the success of such applications.
 - A very relevant problem is related to the GC in such Java-based platforms.
 - Analyze and evaluate several modern Garbage Collectors (GCs) that have been recently developed for the Java Virtual Machine: NG2C, G1, PS, ZGC, Shenandoah, and C4.
 - The study will focus, among other fundamental aspects, on the different trade-offs offered by each GC, for example, for throughput and latency.
 - The evaluation will be done using a set of well-known, representative, and freely available benchmarks.
- **Requirements:**
 - The candidate must enjoy and have adequate skills to deal with low-level system issues related to the Java Virtual Machine and Linux operating system.
 - Also relevant is a good tracking record (grades, classes done), enthusiasm, and commitment.
- **Local:** The work will be developed at INESC ID
- **Observations:** Possible integration into a research project with scholarship.
- **Degrees:** MEIC-A, MEIC-T, METI



detectBiklio – detect bicycle usage with an Android smartphone app (proposta 1170)

- **Goal:**
 - Biklio is a smartphone app, running in both Android and iOS, designed to promote active modes of transportation, primarily cycling.
 - From the moment you sign in, Biklio transparently monitors your modality. When Biklio is confident enough you've been cycling, you become eligible for cycle to spot benefits. Then, you just have to go to a spot, show Biklio and you'll get a benefit for you green initiative. Additionally, you can also record your cycling routes, which can be used to claim special benefits. The app running in Android and in iOS has some internal differences (e.g., related to location tracking) that impact the energy spent. The difficulty lies with the correct detection of the transport mode. Some solutions based on Machine Learning on the server are not adequate given that they lack the so much needed responsiveness.
 - The goal of this work is to evaluate the most recent Activity Recognition API provided by Android (<https://developers.google.com/location-context/activity-recognition/>) and design, implement, and evaluate the most appropriate solution.
- **Requirements:**
 - The candidate must enjoy and have adequate skills to deal with mobile system issues related to Android
 - Also relevant is a good tracking record (grades, classes done), enthusiasm, and commitment.
- **Local:** The work will be developed at INESC ID.
- **Observations:** Possible integration into a research project with scholarship.
- **Degrees:** MEIC-A, MEIC-T, METI



detectP2P – P2P detection of travel Mode (proposta 1171)

- **Goal:**
 - Develop a smartphone application that, in a P2P environment, will be used to collect mobility data regarding their users and accordingly detect the users mode of transportation
 - The peers have to be discovered and then create a network to share the data that has been collected, the detection itself, and any other information that may be useful for the purpose
- **Requirements:**
 - The candidate must enjoy and have adequate skills to deal with mobile system issues related to Android and iOS.
 - Also relevant is a good tracking record (grades, classes done), enthusiasm, and commitment.
- **Local:** The work will be developed at INESC ID.
- **Observations:** Possible integration into a research project with scholarship.
- **Degrees:** MEIC-A, MEIC-T, METI

