MSc Theses Proposals by Paulo Ferreira

- Professor at UiO – office in room 10460
  - https://www.mn.uio.no/ifi/english/people/aca/paulofe/index.html

- MSc theses will be done at UiO / PT (10th floor)
- Do you have your own suggestions? Let´s talk !

Learn by doing !

- More information:
  - come to room 10460 and we have a chat
  - send me an email: paulofe@ifi.uio.no
  - Zoom link: https://uio.zoom.us/j/8253296061
  - contact me via Skype, Viber, WhatsApp, etc…

- MSc themes:
  - Fog Computing
  - Java Virtual Machine/Android
  - Ubiquitous/Mobile Systems
  - Distributed Systems

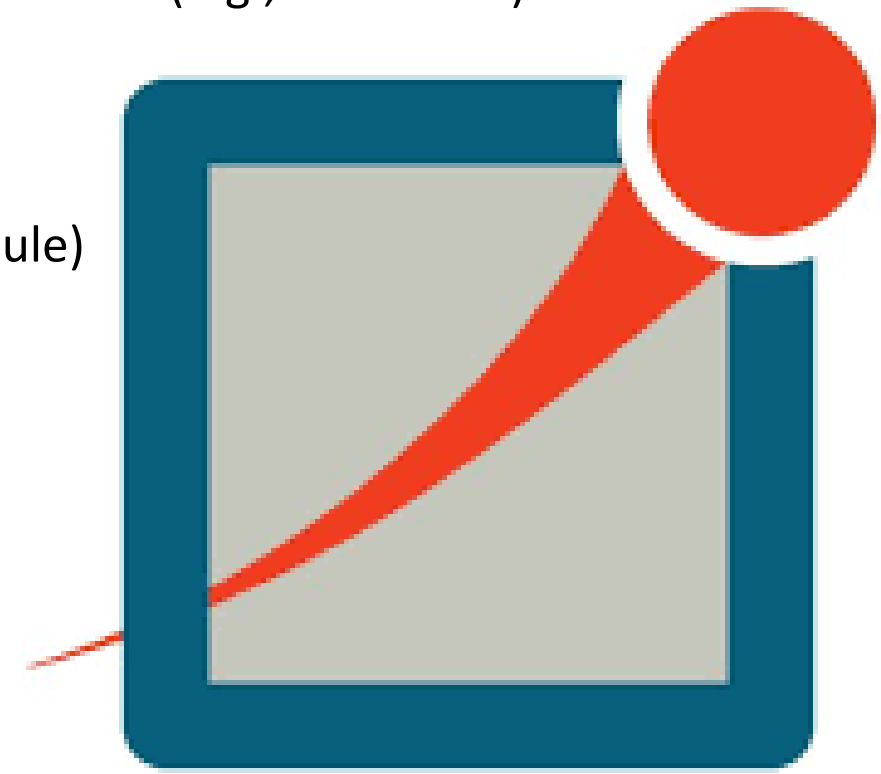
- Requirements:
  - good tracking record (grades, courses), enthusiasm, and commitment.

fogSimul - Fog Computing Simulation

- **Background:**
  - There are several simulators available for cloud, fog, edge, etc.
  - However, they are very poor regarding the support for mobility and GUI
  - Thus, the first step of this project is to look for an available simulator (e.g., OMNET++)

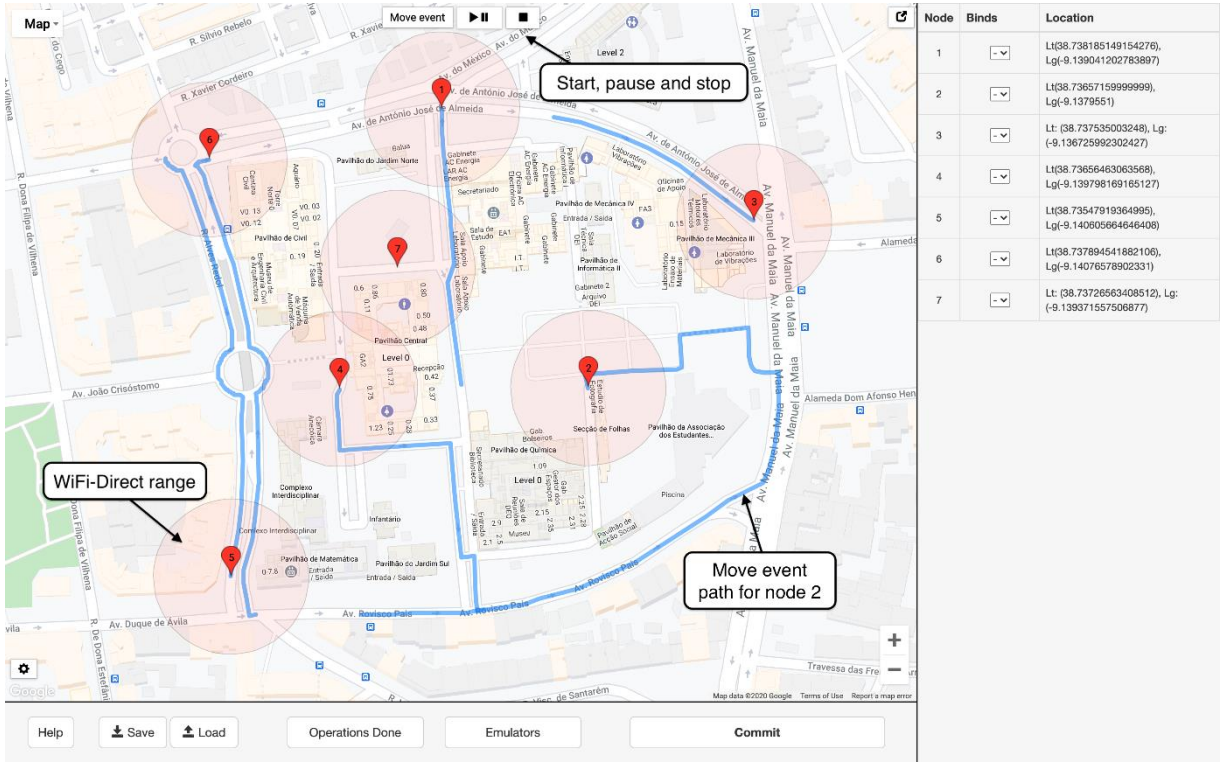
- **Goal:**
  - Develop a package to improve a chosen simulator to support fog computing (e.g., making a new extensible module)

- **Requirements:**
  - Enjoy and have adequate skills to deal with several languages and system issues



edgeTrans – Visual Simulation of Cloud, Cloudlets, and Sensors

- **Background:**
  - An existing simulator for encounter based mobile apps is available (https://rodrigo-bruno.github.io/mentoring/81914-fernando-moreira-dissertacao.pdf)
  - This simulator does not support several options related to fog computing (e.g., cloud data centers, sensors, openstreetmap, etc.)
  - Thus, the simulator must be changed accordingly
- **Goal:**
  - Develop a new version of the EdgeTrans simulator adapted to fog computing
- **Requirements:**
  - Enjoy and have adequate skills to deal with several languages, Android, and mobile system issues



flyDetect – Automatic Detection of a Flying Trip

- **Background:**
  - Some detecting systems simply do not care about flying
  - In fact, most simply ignore this aspect or consider it to be yet another mean of transportation
  - For example, some existing solutions use machine learning algorithms to detect the transport mode being used

- **Goal:**
  - Design, develop for Android smartphones, and evaluate a solution that:
    - detects when a flying trip starts and ends
    - automatically set the “fly mode” in the smartphone accordingly

- **Requirements:** Enjoy and have adequate skills to deal with Java, Android, and mobile system issues

Consistency in ShareLatex - Efficient Consistency for Cooperative Latex

- **Background:**
  - Collaborative writing tools are widely used and available (e.g.Overleaf, ShareLatex - https://www.sharelatex.com/).
  - **A problem** is the speed at which “userA” sees the changes that “userB” has done
  - Thus, there are several consistency protocols that can be used for that purpose

- **Goal:**
  - Design a module based on the consistency protocol called Vector Field Consistency (VFC) (https://link.springer.com/chapter/10.1007/978-3-540-76778-7_5)
  - VFC allows updates to different parts of a document to have different priorities (e.g., depending on the relative interest of the user in the region in which the update is performed)
  - Implement and improve the current version of VFC and integrate with ShareLatex
  - Evaluate the protocol VFC in ShareLatex

- **Requirements:**
  - Enjoy and have adequate skills to deal with JavaScript and Java.

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- Questions?
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web page (these slides): https://www.mn.uio.no/ifi/english/people/aca/paulofe/index.html

Courses at UiO :

- Fog Computing: https://www.uio.no/studier/emner/matnat/ifi/IN5700/index-eng.html (IN5700)
- Programming Ubiquitous Things: https://www.uio.no/studier/emner/matnat/ifi/IN5600/index-eng.html (IN5600)