Proposta para Projeto em Informática

Beyond-5G Dataset Builder – B5GDABU

5GAINER ([5GAIner](#)) is a commercial-graded 5G platform, housed at the datacenter of the Instituto de Telecomunicações, with basestations in several areas of the campus, the Aveiro seaport and several manufacturing plants in the region. Commercial graded means that the deployment we have is exactly the same of a real network from a mobile operator (i.e., it is not a common open-source laboratorial small scale implementation, as can easily be found). Additionally, the 5GAINER is more than just a single mobile network deployment, it is a multi-technology test environment to support the validation of not only state-of-the-art 5G mechanisms by different kinds of users, but also to provide high quality testing of beyond the state of the art features (i.e., Beyond-5G). Under that scope, 5GAINER is being used in the Horizon Europe IMAGINE-B5G project, which will attract not only enhancements to the infrastructure, but also many different use cases using the platform in different ways.

These use cases will generate data... a lot of data! And this data is very valuable to research by providing raw information that can be post-processed, interpreted and concluded upon, in order to produce new scientifical, technical and technological advances in the sector.

This is where this PI project proposal comes in! You will have the opportunity to support this effort, by helping us design and build the means to have a single solution that is able to register and measure different kinds of performance and utilization metrics. The main requirement is to be able to easily use it independently of the type of use case / pilot being tested. It is important that mechanisms, such as timestamping, characterization of the tests, etc., are also in place, to support scientists that want to use the data.

Nonetheless, the project can mean more than just collecting values. You can also act as a client of your own platform, by building your very own assessment of a dataset created by it. This means, using log management, data visualization and analysis, in order to ascertain conclusions and insights about a selected utilization use case.

Work prospects

- You will interact with the engineering team behind the deployment and maintenance of the 5GAINER infrastructure, along with different project researchers that are using it to enable new use cases;
- You will research the current state of the art in mobile network observability (i.e., measuring what is happening in the network), and the solution landscape for collecting and storing that information;
- You will analyze the 5GAINER system and its deployment environment, to design probes and other elements that are able to collect measurements;
- You will discuss with researchers realizing ongoing work on dataset storage within the datacenter's infrastructure, coming up with an insightful way to store the information that you've measured;
- You will analyze the collected information to produce visual, interesting conclusions.

Students required: 4

Supervision Team

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