21st century data visualization for enhancing student learning
Bachelor thesis proposal

Every Fall semester, our group offers a Master-level course on "Advanced Topics in Communication Networks" [1]. The course's highlight is a 6-week-long group project [2] where students are put in the shoes of network operators: they are given a network, which they must configure the best they can. To spice things up, the project is organized as a competition.

During the project, we continuously test each group's network and make results available in a public leaderboard [3]; this is meant to help students understand their current configuration, when and why it fails, how to improve it further... and how they compare to the other groups!

Our leaderboard is implemented using a recent web design framework called Dash [4], which offers a highly efficient Python overlay to design web applications. However, the set of features currently implemented in our leaderboard is very limited. The goal of this project is to extend the functionalities of our leaderboard. We have an already long list of features that we would like to implement, but this project is quite open; you will be more than welcome to bring in your own ideas for useful and/or fun features to add!

Benefits With this project, you will learn about

• Recent web-design tools and technologies;
• Data visualization libraries (Plotly [5]);
• Software development practices.

The outcome of this project will be directly useful for the next edition of our course. That's your chance to improve the learning experience at ETH :-)!

Prerequisites

• You are into in programming and data visualization;
• You are proficient in Python;
• You know some HTML and CSS basics.

Contact

• Romain Jacob, jacobr@ethz.ch
• Edgar Costa, cedgar@ethz.ch
• Prof. Laurent Vanbever, lvanbever@ethz.ch

Being interested in networking is a plus, but not necessary.

References