Telecom Big Data Analytics

Background
Nowadays, telecom companies use widely big data aiming at improving the customer experience. Towards this direction, demographic statistics, network deployments and call detail records are key factors that need to be carefully integrated in order to make accurate predictions. Since some of these factors are sensitive information for the operators, researchers usually need to rely on synthetic models, which do not always capture accurately large-scale mobile networks.

Tasks
We have access to datasets from a telecom operator that cover various cities over a period of two months. Initially, the student will familiarize with the telecom and social media datasets and perform a preliminary statistical analysis. Then, he will use tools from network science in order to identify hotspots and study the dynamics of the areas (which areas communicate more often with each other). Finally, he will use machine learning algorithms for traffic forecasting and city dynamics evolution.

Additional Information
During this thesis, you will be contributing to our ongoing wireless big data analytics research program which focuses on interdisciplinary research of interest to both academia and industry. We expect that the student will be interested in developing his/her skills in network science and machine learning during the thesis.

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