Estimación de capacidad en redes LTE mediante aprendizaje supervisado

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Network dimensioning is a critical task for cellular operators to avoid degraded user experience and unnecessary upgrades of network resources with changing mobile traffic patterns. For this purpose, smart network planning tools require accurate cell and user capacity estimates. In these tools, throughput is often used as a capacity metric due to its close relationship with user satisfaction. In this work, a comprehensive analysis is carried out to compare different Supervised Learning (SL) algorithms for estimating cell and user throughput in the Down Link (DL) in busy hours from radio measurements collected on a cell basis in the Operation Support System (OSS). To this end, a dataset with the most relevant performance indicators is collected from a Long Term Evolution (LTE) network. Results show that SL algorithms outperform classical multi-variable linear regression approach, achieving an average relative error lower than 10%from only 5 network indicators. kNN and RF show the best results for cell and uses throughput estimation, respectively, when considering the trade-off between model accuracy and storage capacity.