Master Thesis –PAGING ALGORITHMS using machine learning

Background

The telecommunication network finds a cell phone in idle mode in a cellular network using a paging function. The paging function could be triggered over a wide or a small area depending on the network knowledge of the location of the cell phone. Each page require resources over the radio and on the transport network hence the amount of paging messages sent needs to be minimized. With 5G and the next generation radio technology (NR) a new inactive mode in the cell phone similar to idle mode is introduced. This mode enables providing information back to the base station triggering the page where the cell phone was found. This information enables the base station to identify how the cell phones move in the network and estimate the probability that a UE has moved to a specific location or has not moved at all.

Thesis Description

This thesis will focus on developing and evaluating different approaches using machine learning principles to minimize the resources used when the network pages a cell phone in inactive mode. The complexity of the simulation environment can be adjusted depending on the number of students doing this thesis study.

Qualifications

Valuable skills are:

- Good knowledge in signal theory, statistics and machine learning algorithms

- Knowledge in simulations with MATLAB or similar

- Understanding of telecommunications, wireless communications and cellular networks

Extent

1 or 2 students, 30 or 60 hp

Location

Ericsson AB Mjärdevi, Linköping

Preferred Starting Date

Spring 2017

Keywords

Mobile Telecommunications, Paging, Simulations, Matlab, Mathematics; Machine Learning, Java or similar.

Contact Persons

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