

Deep Learning applied to the handoff of cellular systems: a survey

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Abstract

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Mobility is a key aspect in current cellular networks, allowing users to access the provided services almost anywhere. When a user transitions from a base station's coverage area to another cell being serviced by another station, a handoff process takes place, where resources are released in the first base station, and allocated in the second for the purpose of servicing the user. Predicting the future location of a cell phone user allows the handoff process to be optimized. This optimization allows for a better utilization of the available resources, regarding both the transmitted power and the frequency allocation, resulting in less amount of wasted power in unwanted directions and the possibility of reusing frequencies in a single base station. To achieve this goal, Deep Learning techniques are proposed, which have proven to be efficient tools for predicting and detecting patterns. The purpose of this paper is to give an overview of the state of the art in Deep Learning techniques for making spatio-temporal predictions, which could be used to optimize the handoff process in cellular systems.

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