Robotics and Next-Gen Telecom Intern

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Nokia Bell Labs
Legal entity: Nokia Networks France
Site: Massy, France
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Description: The current generations of cellular networks (4G & 5G) specify a plethora of options and parameters to adapt them to different frequency bands and a wide range of deployment scenarios. However, how to choose these parameters optimally when deploying and operating a commercial network is not specified. This problem is generally referred to as radio resource management (RRM), whose complexity has grown from generation to generation.

Two different techniques, called Reinforcement Learning (RL) and Bayesian Optimization (BO), have been applied to RRM problems. The former is able to deal with long-term planning but generally shows poor convergence properties, i.e., requires an amount of trials-and-errors being unbearable for live networks. The latter is designed to converge quickly but is generally myopic. In this internship the candidate will study techniques that take the best of the two worlds and compare them to more standard RL policies as, e.g., policy gradient where the "policy" is designed by Nokia domain experts.