Master Thesis Study:
Performance evaluation of 5G self-backhaul small cell solution for mm-waves

Description
This is an opportunity for a Master of Science student to work with technology leading radio network performance modeling in the mobile industry.

The next-generation wireless technology 5G is developed to enable use cases such as broadband experience everywhere anytime, smart vehicles (transport & infrastructure), media everywhere, critical control of remote devices and interaction human-IoT. 5G systems are to be operated in a wide range of frequency bands and one example is mm-wave bands, e.g. 28-39GHz. The bandwidth of mm-waves is expected to be very large (up to 1GHz per operator) but operating range is limited due to the high frequency nature of these bands. As a result, small cell deployments with self-backhaul, sharing bandwidth between backhaul and access, provide interesting opportunities for mm-waves. The task of the thesis is to analyze the feasibility of such a concept including both radio performance, i.e. coverage and capacity, and a high-level cost analysis. Advanced radio network 3D modeling techniques will be used to model and analyze radio deployment aspects. The results of the thesis should be concluded in a presentation and a report.

The project is intended for one master thesis student, and is expected to be performed in Kista, starting in 2018 Q1 and ending 6 months later.

Qualifications
You should be a Master of Science student in electrical engineering, applied physics or similar. Courses in wireless communication theory and signal processing as well as experiences of communication systems are considered valuable merits but are not required.

The successful candidate must have
- Excellent grades
- Fluent in English, both written and spoken
- Good matlab skills
- Good communications skills
- You are a self-motivated and positive person.

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