Master Thesis Study:
5G Coverage in Industrial Scenario

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, 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.

One of the key areas in 5G is the expansion into Industrial IoT use cases. Indoor industrial deployments pose a new deployment scenario for indoor products, and presents new areas to understand the network performance. The task of the thesis is to analyze the feasibility of mmW in an IoT Industrial use case. The task includes modeling radio propagation in a representative industrial environment, evaluating deployments options, radio performance, i.e. coverage, reliability, and capacity. 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. To define the radio propagation environment in factory floor, for targeted frequencies of 26GHz and 39 GHz. (Propagation and Fading margins in these bands)

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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