

# Assignments Agentschap Telecom

In the Netherlands, Agentschap Telecom (i.e., the Radiocommunications Agency of the Netherlands) is responsible and accountable for monitoring and regulating the radio spectrum. The monitoring is performed by a nation-wide measurement network. This network has 15 fixed and 15 mobile measurement locations set up all over the country that are collecting data about the spectrum 24 hours a day. This measurement network is used to monitor the adequate use of the frequency spectrum in the Netherlands.

The measurement data is used on regular basis for all types of analysis. However, a large part of the data analyses is performed manually. To use this data more effectively and accurately, a systematic analysis approach needs to be developed where data processing is automated. Below are two example assignments that could be performed. Beside these examples, Agentschap Telecom is always open for collaboration and other assignments.



Figure 1: Fixed measurement location in the Netherlands

## 1. Compare the spectrum monitoring information with the license databases.

A comparison can be made between the spectrum levels measured at a measurement station and the expected levels based on information from the license database. In the license database basic information of the transmitter, like location and transmit power, is registered. To get the expected measurement level at a measurement location, propagation models should be used to calculate the pathloss between the location of the transmitter according to license data and measurement location. The difference between the measured signal level and expected signal level should be reported.

## 2. Automatically detect abnormal signals

The goal of this assignment is to detect abnormal signal behaviour. Previous research shows that it is possible to detect abnormal signal behaviour based on long term statistics.<sup>1</sup> This statistical approach can be extended with for example machine learning algorithms to improve the detection accuracy.

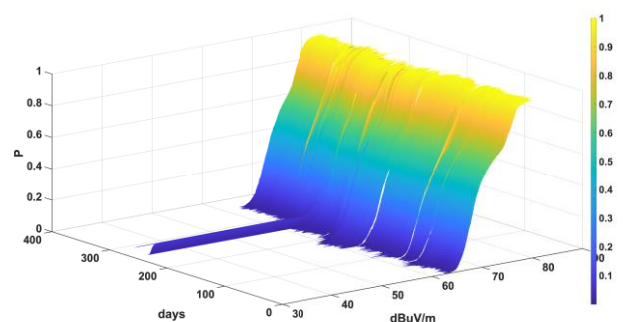


Figure 2: 3D CDF for a channel with an outage

If you are interested in these or any other assignments, need additional information or would like to know more about Agentschap Telecom, please contact:

Wouter Bakker - [wouter.bakker@agentschaptelecom.nl](mailto:wouter.bakker@agentschaptelecom.nl).

<sup>1</sup> <http://purl.utwente.nl/essays/79013>