UPC - BARCELONA TECH
MSc Computational Mechanics
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Seminar Critque Review

Communication Skills

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A seminar was presented on the topic "Audio signal processing for Dynamic Nosie Mapping in Smart cities" by Francesc Alias on 22nd November 2017. The seminar started off by explaining concept of sound itself. Then different levels of sounds on decibel scale were explained, and to relate to them a relevant day to day life situation was accompanying it, and thus the comfort or discomfort level relating to that level of sound. It is apparent that one sound may not be that loud, or may not lead to sound pollution. But a lot of these small sounds lead to noise. Studies show the adverse effects of noise pollution on humans, and hence it is important to manage noise pollution, especially in cities. But to first tackle noise pollution it is important to know where and why this noise is arising.

The Presenter then introduces the concept of Dyna-map. On the dyna-map one can see the levels of noise over the city. Also, while mapping the noise, it is also recorded what is causing the noise. This is done by sound recognition. Initially a lot of data (different sounds) is collected. Then audio experts listen to each and every sound and label the the sound with names, such as car engine, birds, dog barking, people talking etc. Hence these particular sounds waves now have labels, and when similar pattern is observed, the algorithm just tells us what this sound is. Later on, based on the type of sound some actions can be taken to reduce the noise pollution. For example, a cities authorities cannot keep surveillance on each and every road and intersection for traffic jam. But from noise map, the authorities can switch to the camera feeds of that part of city and quickly realize there is a traffic jam, and accordingly divert traffic to avoid further traffic jam. The presenter further explained the advantages of noise mapping, thus making the objective of the work done as well as the work being done currently to make noise maps of smart cities.

Currently mics are installed fairly in some neighbourhoods of Madrid and Rome successfully. And the noise mapping is performing well. But, to implement noise mapping all over the city is a daunting and expensive task. Installation apart, maintenance is a huge amount of work later on, along with handling huge amounts of data. Due to these problems, the presenter makes it clear that though a good solution, the cost and work involved to actually implement it has made the authorities question whether to install it in the whole city or not.

The presenter provided ample amount of examples to support his statements and further make it easier for the audience to clearly understand the concepts behind the work. Also, he engaged the audience with some interactive questions. But on many occasions, it is seen that the font size on the slides was not big enough to be able to read, thus throwing audience off course. Also, the data represented on the slides was not well organized. Thus making it difficult on audience to keep track. Apart from ill-organized data on the slides, there was too much data on the slides. Even the flowchart for the noise recognition was represented poorly. Although it was simple enough to understand, but it was difficult to understand as it did not follow general rules of flow chart drawing.

Finally it was clear that noise map will help with the issues caused by noise pollution, but it is still years apart from being an integrated part of a smart city due to various problems in real life implementation. Once implemented, it can be safely said that these smart cities will also be a little more quieter.