

New software forecasts noise levels in the street

Eurekaalert!

This application yields a prediction of urban noise levels using a dataset (street type, road conditions, average speed of the vehicles passing by, road works, etc), with a reliability of 95%.

University of Granada researchers have designed a new software solution to determine noise levels in a street in the future. This new system predicts noise frequency and the type of noise that the inhabitants of a neighborhood will have to endure. This information is of great interest to people interested in buying a new house.

This system is more accurate than the traditional mathematical models employed. This application yields a prediction of urban noise levels using a dataset (street type, road conditions, average speed of the vehicles passing by, road works, etc), with a reliability of 95%. The researchers are currently trying to reduce the number of variables required to produce an accurate forecast of the noise levels in a given area.

The research group "Approximate Reasoning and Artificial Intelligence" is composed of researchers at the University of Granada Departments of Computer Sciences and Artificial Intelligence, Civil Engineering and Applied Physics. The application of neural networks to the prediction and analysis of urban noise "is a step forward in the field of noise forecasting models". In addition, it will help perform urban noise mapping projects.

State-of-the-Art-Technology

Noise is a global problem and it is considered a pollutant by the World Health Organisation (WHO). Urban planners "need tools for assessing urban noise levels", Natalia Genaro García, one of the authors of this study, explains.

"While many noise forecasting models have been developed in different countries, none of them is accurate enough".

To develop this new system, the researchers analyzed a set of noise data collected in Granada in 2007, although they are collecting further data in other cities "to validate the model". The noise forecasting models employed to date have been based on traditional mathematical methods that predict noise levels using a specific set of data. "This is the first system to apply Soft Computing methods in urban noise assessment", Natalia Genaro remarks, "and there is scarce literature available on this method".

Apart from Natalia Genaro, other researchers participated in this project, namely, Ignacio Requena Ramos (profesor at the University of Granada Department of

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Computing Sciences and Artificial Intelligence); Montserrat Zamorano Toro (professor of Civil Engineering); Ángel Ramos Ridao (Department of Civil Engineering) and Diego Pablo Ruiz Padillo y Antonio Torija Martínez (Department of Applied Physics).

The results of this study have been partially published in *Building and Environment*, *The Journal of the Acoustical Society of America* and *New Trends on Intelligent Systems and Soft Computing*, among others.

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