

Real-Time, Targeted, Out-Of-Home Advertising with Dynamic Pricing

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This dissertation is set in the context of Advertising. It explores the benefits of modern advertising media and strategies, particularly in the form of targeting and personalisation, as well as the more traditional media, with Out-Of-Home advertising being the main area of focus. The implementation proposed in this dissertation takes in location-based data; such as weather, time, and season. This data is then used to train an Artificial Neural Network Classifier to determine the most relevant advert genre to show at any given time. A dynamic pricing model is applied to run concurrently with this prediction component to adjust the cost of showing an advert based on its relevance at any time; the more relevant the advert genre to the predicted relevant genre, the more expensive it is to run the advert. These price changes are used to reflect the effectiveness of an advert at any time based on the environment at any time around the billboard's location. The goal of this dissertation is to explore the possibility of combining the beneficial aspects of different advertising media into one system, with the addition of a pricing model that adapts to the changes in this system. This goal was achieved in the dissertation with a working implementation of a system that takes in a number of location-based data streams which are used to predict the most relevant advert genre. A successfully applied pricing model uses this predicted genre to alter the costs of displaying adverts stored in the system. Ultimately, this dissertation proves the possibility of a promising system with the desired factors integrated.