Click-through rate prediction using an ensemble of deep neural networks

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Competition : Criteo Labs display advertising challenge  
Date : 30 september 2014

# Summary

This document describes the 4th prize solution to the Criteo Labs display advertising challenge hosted by Kaggle.com. This solution consisted of two steps. First the data was preprocessed. Rare and unseen test-set categorical values were all encoded as one category. The remaining features were one-hot encoded or hashed so that we ended up with roughly 128K separate sparse features. The second step was to use deep neural networks to train a number of different models with variations coming from different network architectures, bagging and preprocessing parameters. The different models were averaged into one final solution.