Master’s Thesis in Machine Learning

About WideOrbit:
Since 1999, WideOrbit is the world’s leading provider of advertising management technology for cable networks, local television stations and radio stations. WideOrbit Sweden (formerly Admeta) is fully owned subsidiary of WideOrbit. We are a leading provider of solutions for digital programmatic sell-side platforms for internet advertising. This means that we provide software to auction internet ad impressions. We optimise each served ad for maximum revenue using sophisticated optimisation technologies. We are currently processing hundreds of thousands web request per second generating terabytes of data daily, showing tens of billions of ad impressions monthly.

Thesis Outline:
An important component of online advertising today is Real Time Bidding (RTB). In RTB advertiser aggregators, known as Demand Side Platforms (DSPs), place bids for the ad impression, while the page is loading in the browser. The bids participate in a 2nd price auction, where the price the winner pays is determined by the second highest bid that participated in the auction. If there is no competition, the winner will pay a floor price set by WideOrbit’s sell-side platform. To maximise revenue we use machine learning algorithms to set the floor price based on historical data.

Recommendation systems based on visitor level data are ubiquitous today, both in online retail and online streaming services. The most direct approach uses explicit user ratings to recommend new items, based on users with similar preferences. In the RTB setting the DSP’s bid on one visitor can be interpreted as a rating, that could be used to predict what they will bid on other visitors.

The goal of this thesis is to improve our floor price optimisation by the incorporating large scale visitor level data. This includes:

- Data analysis to build an understanding of DSPs’ bidding behaviour down to the visitor level
- Using modern big data machine learning frameworks, such as Spark’s Collaborative Filtering algorithms on our Hadoop cluster, to build a recommender system for floor prices

Work will preferably be done using python and/or Scala + Spark, but other tools and languages can be considered.

To Apply:
Contact David Burke: dburke@wideorbit.com