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An Ensemble Learning Based Approach for Impression Fraud Detection in Mobile Advertising

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Abstract

Mobile advertising enjoys 51% share of the whole digital market nowadays. The advertising ecosystem faces a major threat from ad frauds caused by false display requests or clicks, generated by malicious codes, bot-nets, click-firms etc. Around 30% revenue is being wasted due to frauds. Ad frauds in web advertising have been studied extensively, however frauds in mobile advertising have received little attention. Studies have been conducted to detect fraudulent *clicks* in web and mobile advertisement. However, detection of individual fraudulent display in mobile advertising is yet to be explored to the best of our knowledge. We have proposed an ensemble based method to classify each individual ad display, also called an *impression*, as fraudulent or non-fraudulent. Our solution achieves as high as 99.32% accuracy, 96.29% precision and 84.75% recall using real datasets from an European commercial ad server. We have proposed some new features and analyzed their contribution using standard techniques. We have also designed a new mechanism to offer flexibility of tolerance to different ad servers in deciding whether an ad display is fraudulent or not.

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