

Automatically Detecting Criminal Identity Deception: An Adaptive Detection Algorithm

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Abstract—Identity deception, and specifically identity concealment, is a serious problem encountered in the law enforcement and intelligence communities. In this paper we discuss techniques that can automatically detect identity deception. Most of the existing techniques are experimental and cannot be easily applied to real applications because of problems such as missing values and large data size. We propose an adaptive detection algorithm that adapts well to incomplete identities with missing values and to large datasets containing millions of records. We describe three experiments to show that the algorithm is significantly more efficient than the existing record comparison algorithm with little loss in accuracy. It can identify deception having incomplete identities with high precision. And it demonstrates excellent efficiency and scalability for large databases. A case study conducted in another law enforcement agency shows that our algorithm is useful in detecting both intentional deception and unintentional data errors.

Index Terms—Identity deception, missing value, efficiency, scalability

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