

## **An Efficient reconciliation algorithm for social networks**

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People today typically use multiple online social networks (Facebook, Twitter, Google+, LinkedIn, etc.). Each online network represents a subset of their "real" ego-networks. An interesting and challenging problem is to reconcile these online networks, that is, to identify all the accounts belonging to the same individual. Besides providing a richer understanding of social dynamics, the problem has a number of practical applications.

At first sight, this problem appears algorithmically challenging. Fortunately, a small fraction of individuals explicitly link their accounts across multiple networks; our work leverages these connections to identify a very large fraction of the network.

Our main contributions are to mathematically formalize the problem for the first time, and to design a simple, local, and efficient parallel algorithm to solve it. We are able to prove strong theoretical guarantees on the algorithm's performance on well-established network models (Random Graphs, Preferential Attachment). We also experimentally confirm the effectiveness of the algorithm on synthetic and real social network data sets.

This is joint work with Nitish Korula.