**Future experiment for PTFI: PageRank Secure Multi Party Computation or Other PETs**

**Based on:** Sangers, A. *et al.* (2019). Secure Multiparty PageRank Algorithm for Collaborative Fraud Detection. In: Goldberg, I., Moore, T. (eds) Financial Cryptography and Data Security. FC 2019. Lecture Notes in Computer Science(), vol 11598. Springer, Cham. https://doi.org/10.1007/978-3-030-32101-7\_35

**Idea:** Use PageRank, an algorithm developed by Larry Page & Sergey Brin for fraud detection.

* Algorithm assigns a numerical weighting to every node. It measures the importance of a node within the graph (The rank)
* The connection between accounts could help with the detection of fraudulent accounts (accounts connected to fraudulent accounts are more likely to be themselves fraudulent accounts.

**Collaboration:** To deal with privacy concerns and improve collaborations.

* Fraudsters are more likely to use different banks to evade detection.
* We can use secure multi-party computation. This is computational expensive, **selecting the right SMC protocol is very important.**
* Is it **possible to use other privacy technology** on the network. For example, Kelvin Li highlighted Graph Research Lab at ANU. They are looking into **differential privacy on graphs**.

Source: [917.pdf (iacr.org)](https://eprint.iacr.org/2018/917.pdf)

Source: [Graph Research Lab @ ANU - Projects (graphlabanu.github.io)](https://graphlabanu.github.io/website/projects/)