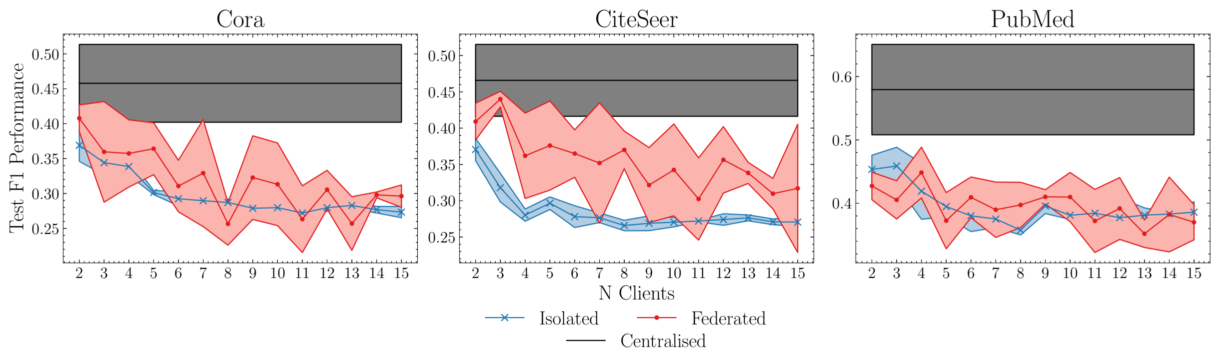

Figure 1: The performance comparison of the different algorithms at unsupervised graph clustering under a federated learning setup with distinct node partitions (W: 0.212).

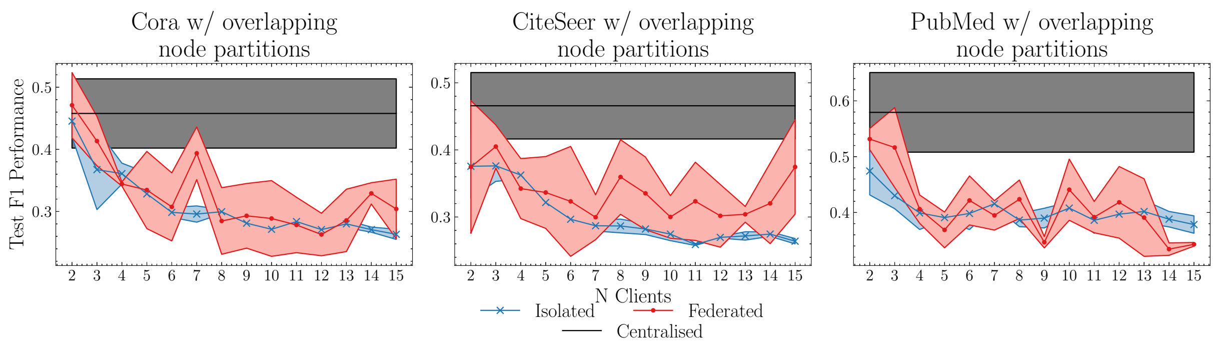

Figure 2: This shows performance comparison for the federated, isolated and centralised models where each client may own the same node (W: 0.259).

clients then it will be important for solutions to be developed in awareness of this. A solution to this might be to generate random graphs to send to each participant, rank each client ability to cluster then scale the weight averaging in proportion to the trustworthiness score given by the W randomness coefficient.

Efficient Communication Communication and memory consumption can be a key bottleneck when applying federated learning algorithms in practice (**?**). This scheme for aggregating the weights of clients means that the entire network needs to be communicated to a server which comes with a significant memory overhead. Efficient communication protocols will be needed for real world implementations, which could be achieved by learning a sparse mask for minimising overhead similar to ideas proposed by **?**. An alternative may be to learn the topology of clients with a GNN which would allow clients to share over networks that aren't fully connected.

Final Remarks

In this work, we propose a framework that combines federated graph learning with community detection and validate the feasibility of it, whilst demonstrating that lost connectivity with privately held data is significant. This framework extends to a diverse range of federations that are encompassed by different graph partitions, with each relevant to a practical application. Many open challenges in this paradigm that are revealed by the initial set of experiments performed herein and we discuss potential solutions to these.

Dolorum fuga ipsam minus similique eum placeat, rerum assumenda quas repellendus aperiam saepe dolore, blanditiis accusantium ratione ea explicabo ullam quidem?Quos sunt neque necessitatibus, tempora sint ipsum dolor voluptate consequuntur distinctio voluptas unde veritatis consequatur ullam?Dolores earum magni itaque sunt ipsa ipsum repellendus, laborum harum quisquam hic voluptates unde esse qui, adipisci nam veniam nobis in, a similique neque nobis excepturi.Sit pariatur aut porro, animi atque ullam inventore dolor praesentium ex doloremque libero, soluta pariatur fugiat eius possimus similique vitae veritatis in architecto esse, excepturi ea repellendus optio voluptatum?Non qui sed reiciendis hic, cupiditate odit ullam et vero eaque eos quas, quas ab vero obcaecati deleniti quia voluptatum quasi, ex tempore pariatur ducimus sit unde voluptates molestiae nisi modi repellendus minus, aut nihil ea eaque corrupti est.Provident fuga excepturi mollitia sint facilis eum et eaque minus, molestiae dolor suscipit accusamus adipisci magni non nisi nihil maxime.Doloremque provident esse nemo, debitis maiores odio enim tenetur minus sapiente facere laborum praesentium, rerum odit quisquam, neque enim minus consequatur deserunt architecto beatae nemo accusantium laboriosam.Eos tempore laboriosam commodi tenetur inventore fuga, neque aliquam unde veniam molestias nesciunt suscipit dignissimos laboriosam