CS 703 Progress Report

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1 Project selection

The term project is finally settled to be synthesis by examples with a focus on studying the expected size of the maximum clique in a graph following some random distributions. The ultimate goal is to find some probablistic graph models on which the synthesis by examples works practically.

2 Current progress

The current research work involves reviewing existing literatures on graph models [1, 3] and the history of this problem [4, 5, 2].

From the implementation perspective, a program generating Erdős-Rényi graph and computing the maximal cliques have been completed for future testing purposes. The implementation of generation of power law graphs is also undergoing [].

References

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[2] Loris D'Antoni, Rishabh Singh, and Michael Vaughn. Nofaq: Synthesizing command repairs from examples. In *Proceedings of the 2017 11th Joint Meeting on Foundations of Software Engineering*, pages 582–592. ACM, 2017.

[3] David Easley and Jon Kleinberg. *Networks, crowds, and markets: Reasoning about a highly connected world*. Cambridge University Press, 2010.

[4] Sumit Gulwani, William R Harris, and Rishabh Singh. Spreadsheet data manipulation using examples. *Communications of the ACM*, 55(8):97–105, 2012.

[5] Reudismam Rolim, Gustavo Soares, Loris D'Antoni, Oleksandr Polozov, Sumit Gulwani, Rohit Gheyi, Ryo Suzuki, and Björn Hartmann. Learning syntactic program transformations from examples. In *Proceedings of the 39th International Conference on Software Engineering*, pages 404–415. IEEE Press, 2017.