

UNIVERSITY OF SOUTH FLORIDA

Defense of a Doctoral Dissertation

Phenomena of Social Dynamics in Online Games

by

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For the Ph.D. degree in Computer Science and Engineering

Online communities exhibit dynamic social phenomena that, if understood, can both influence the design of technical platforms and inform theories about general social dynamics. With increasing popularity, online games provide a rich recording of social dynamics that can contribute to understanding human behavior. This dissertation studies two phenomena of social dynamics at large-scale using data traces from online games. The first phenomenon is team formation and the second is players mobility between gaming servers. This dissertation first presents a framework for collecting data from online gaming through crawling. We examined several hypotheses about team formation using a large, longitudinal dataset from Battlefield 4, a popular team-based game. Then, we formulated the team formation behaviors into a sign prediction problem. We classified interactions in online team-based games into different classes. Finally, we presented a data-driven study focused on characterizing and predicting the mobility of players between gaming servers in two popular online games, Team Fortress 2, and Counter Strike: Global Offensive. We built predictive models for the growth and the pace of player mobility between gaming servers.

Examining Committee

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Publications

- 1) **Alhazmi, Essa**, et al. "An Empirical Study on Team Formation in Online Games." *Proceedings of the 2017 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining 2017*. ACM, 2017.
- 2) **Alhazmi, Essa**, et al. "Temporal Mobility Networks in Online Gaming." *Frontiers in Big Data* (2019)
- 3) **Alhazmi, Essa**, et al. "Sign Prediction in Online Games." (Under Submission)

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