This thesis contains the following published works where I am a contributing author. I will state my contribution in the following papers:

Chapters ??, ?? and ?? are based on a survey paper for group deviation detection;

• Edward Toth and Sanjay Chawla, "Group Deviation Detection: A Survey," ACM Computing Surveys (Forthcoming), 2018

Chapter ?? is part of a conference paper where deep generative models are applied for detecting group anomalies in;

• Raghavendra Chalapathy, Edward Toth, and Sanjay Chawla, "Group Anomaly Detection using Deep Generative Models," *Proceedings of the International ECML/PKDD Conference*, 2018