

Bachelorarbeit

User-aided Pattern Search and Analysis on Business Graphs

Nutzergestuetzte Graphanalyse und Mustersuche auf Unternehmensgraphen

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Abstract

Costructing a graph made up of thousands of businesses may be hard, but actually making sense of it is a lot harder. With huge amounts of data being integrated into the data lake every day, automatic methods for finding interesting spots in the graph are needed. This paper discusses different approaches that can be taken to extract useful knowledge from such a graph.

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1 Introduction

- 1.1 Glossary
- 1.2 Motivation
- 1.3 Understanding risk analysis on graphs
- 1.4 Used techniques and related works
- 2 Data structures for business entities
- 2.1 Graph encoding for column family storage
- 2.2 The *subject* data structure
- 2.3 A versioning scheme that stands the test of time
- 3 Architecture
- 3.1 Job and Data Management
- 3.1.1 Modularizing Spark jobs
- 3.1.2 Coordinating Spark jobs from NodeJS
- 3.1.3 Managing Cassandra tables from NodeJS
- 3.1.4 Data flow using column family storage
- 3.2 Using Apache Spark and Cassandra for Graph Analysis
- 3.2.1 Writing efficient Spark code for Graphs
- 3.2.2 Optimizing Cassandra data structures for Graph Processing
- 4 Pattern Search
- 4.1 Discerning patterns from randomness
- 4.2 Operating on graph diffs

References