

SCALING GEOMETRIC MONITORING OVER DISTRIBUTED STREAMS

by

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Scaling Geometric Monitoring over Distributed Streams

by

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Abstract

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Public Abstract

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Acknowledgments

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Part I

**INTRODUCTION AND
PRELIMINARIES**

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1.2 Motivation

1.3 Related Work

1.4 Contributions

1.5 Thesis Structure

Chapter 2

Theoretical Background

The present chapter contains the necessary background knowledge used throughout the length of this thesis. Section 2.1 describes the *Geometric Monitoring* method in detail, as presented in [?]. Section 2.2 introduces *Multiobjective Optimization* and presents the algorithms used in our implementation. Section 2.3 outlines *Graph Maximum Weight Matching* used for node pairing and, finally, section 2.4 demonstrates the *Savitzky-Golay filtering* used for velocity approximation.

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2.1.1 Distributed Streams

2.1.2 Computational Model

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Chapter 6

Conclusions and Future Work

6.1 Conclusions

6.2 Future Work

References

Appendix

Chapter A

Geometric Monitoring Python Implementation

A.1 Python

A.2 Numpy and Scipy

A.3 Openopt

A.4 NetworkX

A.5 Putting It All Together