

# Shortest Path Finding Using Apache Spark and Hadoop Between Restaurants and Airports in Philadelphia

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## ABSTRACT

Shortest path finding is of the mostly encountered challenges experienced in maps. The key idea of the shorted path is to find the best path to travel from one point as a place of reference to a desired point, considering a minimal path or travelling cost. The objective of this research project is finding shorted path from the airports to the four-star rated restaurants in Philadelphia. The methods and software that will be used for computation is Apache Spark as python package due to Data parallelism, fault tolerance and fast computation for big data. Apache file system to be used is Hadoop Distributed File System to store the given data as it allows high-performance accessibility of data.

## KEYWORDS

Apache Spark, Apache Hadoop, Shortest paths, Maps, Big Data, File System, Data parallelism, Fault tolerance.

## 1 INTRODUCTION

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## 2 Data Analysis

### 2.1 Sample Fabrication

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### 2.2 Quasi-Static Measurements: MOKE and MFM

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## 3 Technical Analysis and Algorithm Analysis

### 3.1 Specification of Used Software Tools

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### 3.2 Dijkstra's Shortest Path Algorithm

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## 4 CONCLUSIONS

## A HEADINGS IN APPENDICES

The rules about hierarchical headings discussed above for the body of the article are different in the appendices. In the appendix environment, the command section is used to indicate the start of each Appendix, with alphabetic order designation (i.e., the first is A, the second B, etc.) and a title (if you include one). So, if you need hierarchical structure within an Appendix, start with subsection as the highest level. Here is an outline of the body of this document in Appendix-appropriate form:

### A.1 Introduction

### A.2 Experimental and Computational Details

#### A.2.1 Sample Fabrication

#### A.2.2 Quasi-Static Measurements: MOKE and MFM

#### Component Structures

#### Magnetization.

#### A.2.3 Dynamic Measurements: BLS

#### A.2.4 Ground-State Magnetization Determination and DMM Micromagnetic Simulations

#### Determined.

#### Micromagnetic

### A.3 Results and Discussion

#### A.3.1 Magnetization Curves and MFM Characterization

#### A.3.2 Field Dependent BLS Measurements and DMM Calculations

#### A.3.3 Analysis of the Dynamic Coupling as a Function of the Gap Size

### A.4 Conclusions

### A.5 References

## REFERENCES