

# Chapter 1

## Search Engines and Search Strings

### 1.1 ACM Digital Library

**Notes:** Only possible to search in full text.

**Queries:**

- (Train OR plane OR bus OR delivery) AND (“path optimization” OR “scheduling optimization” OR “route optimization” OR planning OR multimodal) AND (“bee colony optimization” OR “particle swarm optimization” OR “swarm intelligence” OR “ant colony optimization” OR bco OR pso OR aco) AND (transit OR transportation OR traffic OR vehicle) AND (“artificial intelligence” OR ai OR “machine learning”) AND “multi agent” AND routing

Date of search: 10.11.2014

Results: 19

- (Train OR plane OR bus OR delivery) AND (“path optimization” OR “scheduling optimization” OR “route optimization” OR planning OR multimodal) AND (“bee colony optimization” OR “particle swarm optimization” OR “swarm intelligence” OR “ant colony optimization” OR bco OR pso OR aco) AND (transit OR transportation OR traffic OR vehicle) AND (“artificial intelligence” OR ai OR “machine learning”) AND “multi agent” AND routing AND (“graph database” OR neo4j)

Date of search: 10.11.2014

Results: 0

### 1.2 ScienceDirect

**Notes:** Searched for articles within Computer Science.

**Queries:**

- (Train OR plane OR bus OR delivery) AND (“path optimization” OR “scheduling optimization” OR “route optimization” OR planning OR multimodal) AND (“bee colony optimization” OR “particle swarm optimization” OR “swarm intelligence” OR “ant colony optimization” OR bco OR pso OR aco) AND (transit OR transportation OR traffic OR vehicle) AND (“artificial intelligence” OR ai OR “machine learning”) AND “multi agent” AND routing

Date of search: 10.11.2014

Results: 60

- (Train OR plane OR bus OR delivery) AND (“path optimization” OR “scheduling optimization” OR “route optimization” OR planning OR multimodal) AND (“bee colony optimization” OR “particle swarm optimization” OR “swarm intelligence” OR “ant colony optimization” OR bco OR pso OR aco) AND (transit OR transportation OR traffic OR vehicle) AND (“artificial intelligence” OR ai OR “machine learning”) AND “multi agent” AND routing AND (“graph database” OR neo4j)

Date of search: 10.11.2014

Results: 0

### 1.3 CiteSeer

**Notes: Searched in full-text, because you could only choose to search within abstract or title, and not both.**

**Queries:**

- text:((Train OR plane OR bus OR delivery) AND (“path optimization” OR “scheduling optimization” OR “route optimization” OR planning OR multimodal) AND (“bee colony optimization” OR “particle swarm optimization” OR “swarm intelligence” OR “ant colony optimization” OR bco OR pso OR aco) AND (transit OR transportation OR traffic OR vehicle) AND (“artificial intelligence” OR ai OR “machine learning”) AND “multi agent” AND routing)

Date of search: 10.11.2014

Results: 27

- text:((Train OR plane OR bus OR delivery) AND (“path optimization” OR “scheduling optimization” OR “route optimization” OR planning OR multimodal) AND (“bee colony optimization” OR “particle swarm optimization” OR “swarm intelligence” OR “ant colony optimization” OR bco OR pso OR aco) AND (transit OR transportation OR traffic OR vehicle) AND (“artificial intelligence” OR ai OR “machine learning”) AND “multi agent” AND routing) AND (“graph database” OR neo4j)

Date of search: 10.11.2014

Results: 0

## 1.4 SpringerLink

**Notes:** Searched for articles within Computer Science and Engineering.

**Queries:**

- (Train OR plane OR bus OR delivery) AND (“path optimization” OR “scheduling optimization” OR “route optimization” OR planning OR multimodal) AND (“bee colony optimization” OR “particle swarm optimization” OR “swarm intelligence” OR “ant colony optimization” OR bco OR pso OR aco) AND (transit OR transportation OR traffic OR vehicle) AND (“artificial intelligence” OR ai OR “machine learning”) AND “multi agent” AND routing

Date of search: 10.11.2014

Results: 28

- (Train OR plane OR bus OR delivery) AND (“path optimization” OR “scheduling optimization” OR “route optimization” OR planning OR multimodal) AND (“bee colony optimization” OR “particle swarm optimization” OR “swarm intelligence” OR “ant colony optimization” OR bco OR pso OR aco) AND (transit OR transportation OR traffic OR vehicle) AND (“artificial intelligence” OR ai OR “machine learning”) AND “multi agent” AND routing AND (“graph database” OR neo4j)

Date of search: 10.11.2014

Results: 0

## 1.5 IEEE Xplore

**Notes:** The search is done in full text, including metadata. The search string had to be changed to fulfill IEEE’s criteria that the string only should contain 15 search terms.

**Queries:**

- String 1:
  - (“public transportation” AND (“path optimization” OR “route optimization” OR planning OR multimodal) AND (transit OR traffic) AND (“artificial intelligence” OR ai OR “machine learning”) AND routing AND (“bee colony optimization” OR “particle swarm optimization” OR “swarm intelligence” OR “ant colony optimization”))
  - Results: 45
  - Date of search: 10.11.2014
- String 2:
  - (“public transportation” AND (“path optimization” OR “route optimization” OR planning OR multimodal) AND (transit OR traffic) AND (“artificial intelligence” OR ai OR “machine learning”) AND routing AND (“bee colony

optimization" OR "particle swarm optimization" OR "swarm intelligence"  
OR "ant colony optimization") AND neo4j)

- Results: 0
- Date of search: 10.11.2014

- String 3:

- ("public transportation" AND ("path optimization" OR "route optimization"  
OR planning OR multimodal) AND (transit OR traffic) AND ("artificial in-  
telligence" OR ai OR "machine learning") AND routing AND ("bee colony  
optimization" OR "particle swarm optimization" OR "swarm intelligence"  
OR "ant colony optimization") AND "graph database")
- Results: 0
- Date of search: 10.11.2014

## 1.6 ISI Web of Knowledge

**Notes:** In Web of Knowledge you cannot perform at full text search, and must choose to search in "Topic", "Title", "Author", "Author Identifiers", "Editor", "Group Author", "Publication Name", "DOI" or "Year Published". We decided to use "Topic", "Title" and "Publication Name" because it seemed the most relevant to our search terms. The search was done in "All databases", but only in the "COMPUTER SCIENCE" research area. The original search string (see table [TODO: insert reference to table]) had to be modified, because it gave no results in Web Of Knowledge. A few terms were therefor excluded, and a few AND's were switched with OR's.

**Querys:**

- String 1:

- ("public transportation" OR traffic OR transportation OR transit OR "schedul-  
ing optimization" OR "path optimization" OR "route optimization" OR plan-  
ning OR multimodal OR routing) AND ("bee colony optimization" OR "par-  
ticle swarm optimization" OR "swarm intelligence" OR "ant colony opti-  
mization" OR pso OR aco OR bco) AND ("artificial intelligence" OR ai OR  
"machine learning")
- Results: 47 (Topic) + 0 (Title) + 0 (Publication Name)
- Date of search: 11.11.2014

- String 2:

- ("public transportation" OR traffic OR transportation OR transit OR "schedul-  
ing optimization" OR "path optimization" OR "route optimization" OR plan-  
ning OR multimodal OR routing) AND ("bee colony optimization" OR "par-  
ticle swarm optimization" OR "swarm intelligence" OR "ant colony opti-

mization" OR pso OR aco OR bco) AND ("artificial intelligence" OR ai OR "machine learning") AND neo4j

- Results: 0 (Topic) + 0 (Title) + 0 (Publication Name)
- Date of search: 11.11.2014

- String 3:

- ("public transportation" OR traffic OR transportation OR transit OR "scheduling optimization" OR "path optimization" OR "route optimization" OR planning OR multimodal OR routing) AND ("bee colony optimization" OR "particle swarm optimization" OR "swarm intelligence" OR "ant colony optimization" OR pso OR aco OR bco) AND ("artificial intelligence" OR ai OR "machine learning") AND "graph database"
- Results: 0 (Topic) + 0 (Title) + 0 (Publication Name)
- Date of search: 11.11.2014

# Chapter 2

## Protocol

	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8
<b>Term1</b>	Train	Path optimization	Bee colony optimization	Transit	Artificial intelligence	Multi agent	Routing	Neo4j
<b>Term2</b>	Plane	Scheduling optimization	Particle swarm optimization	Transportation	AI			Graph database
<b>Term3</b>	Bus	Route optimization	Swarm intelligence	Traffic	Machine Learning			
<b>Term4</b>	Delivery	Planning	Ant colony optimization	Vehicle				
<b>Term5</b>		Multimodal	BCO					
<b>Term6</b>			PSO					
<b>Term7</b>			ACO					

Table 2.1: Matrix of search terms

### 2.1 Search Terms

- Group 1: Train, plane, bus, delivery
- Group 2: Path optimization, Scheduling Optimization, Route Optimization, Planning

- Group 3: Bee colony optimization, Particle swarm optimization, Swarm intelligence, Ant colony optimization, BCO, PSO, ACO
- Group 4: Transit, Transportation, Traffic, Vehicle
- Group 5: Artificial Intelligence, ai
- Group 6: Multi-agent
- Group 7: Routing
- Group 8: Neo4j, Graph database