**INDEPENDENT STUDY CONTRACT**

**SPECIAL TOPICS**

Note: Enrolment is subject to approval by the course convenor

SECTION A (Students and Supervisors)

UniID: u5952700

SURNAME: LU FIRST NAMES: YANXI

TOPIC SUPERVISOR (*may be external*): Dr. Qing Wang

FORMAL SUPERVISOR (*if different, must be an RSSCS academic*): Dr. Qing Wang

COURSE CODE, TITLE AND UNITS: COMP4550, Advanced Computing Research Project, 24 units

**SEMESTER**  S1 ☑ S2 YEAR: 2019

**TOPIC TITLE:** Graph Matching Networks for Discovering Structural Patterns

**LEARNING OBJECTIVES:**

Have a good understanding for the literature of graph neural networks and graph matching problems;

Develop a graph neural network model to retrieve and identify structurally similar graph patterns;

Be able to thoroughly conduct experiments and analyze experimental results;

Can communicate about data and research findings understandably, using adequate indicators, tables, and graphs;

Be able to structure a research report and write convincingly of research outcomes.

**DESCRIPTION:**

This project aims to study the retrieval and identification of structurally similar graph objects from a machine

learning perspective. More specifically, the project will look into the existing works in the areas of graph

neural networks and develop a graph neural network model towards solving some graph matching

problems in an application area.

Thus, the project includes the following task:

• Conduct a literature review on graph neural networks and the related work on applying graph neural

networks on retrieval and matching of graph structured objects, e.g., Graph Matching Networks;

• Identify an application area of graph analytics that involves the graph matching problem, ideally over

large-scale graphs;

• Enhance the existing models of graph neural/matching networks to solve the identified graph matching problem;

• Evaluate the enhanced model over 2-4 datasets;

• Write up a project report.

**ASSESSMENT (evaluated by the Topic Supervisor, unless stated otherwise here)**

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| --- | --- | --- | --- |
| **Assessed project components:** | **% of mark** | **Due date** | **Evaluated by** |
|  |  |  |  |
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**MEETING DATES (IF KNOWN):**

STUDENT DECLARATION: I agree to fulfil the above defined contract:

………………………………………………….. 28/7/2019

Signature Date

**SECTION B (Supervisor):**

I am willing to supervise and support this proposal. I have checked the student's academic record

and believe the student can fulfil this contract. If I have nominated an examiner above, I have

obtained their consent (via signature below or attached email)

………………..………………..……………….. 28/7/2019

Signature Date

**Examiner:**

Name: ………………………………………… Signature ……………………

**REQUIRED DEPARTMENT RESOURCES:**

**SECTION C (Course convenor approval)**

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Signature Date