RIT Department of Computer Science
MSc Project/Thesis Pre-Proposal:
Proposed Project/Thesis Title

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The sections shown below are adapted from the topic analysis forms provided in "Writing the Doctoral Dissertation" (2nd edition) by Davis and Parker (pages 82-88). Your final document should be 1-2 pages including references. **The final pre-proposal may present the items below in any format, but using prose (not bulleted lists).**

1 Problem Description

Identify what problem you are addressing, both in terms of the research area, and the *specific* problem that you will be working on:

- For a thesis, a hypothesis ('thesis statement') that you will test in your research.
- For a project, identify the work required (e.g. implementation and/or experiment) that needs to be completed. If you are completing a project, make sure to speak with your advisor about the expected deliverables; one deliverable will be a written project report.

2 Importance of Research

Motivate your problem.

- What is the significance of your problem?
- What applications or new opportunities will solving your problem provide?

3 Related Work

Demonstrate the connection between your chosen problem and how it is related to existing work.

- What are the key theoretical models (e.g. process-based, formal language/complexity models, probability-based) and algorithms have been applied toward this problem previously?
- What limitation and/or opportunity do you plan to address in your project/thesis?
- In the related research literature, how is success measured (e.g. metrics and/or coverage of problem aspects)?

4 Methodology

What theory, model, or algorithm do you plan to modify or develop to address your research problem?

- What methods/techniques will you use to address your problem?
  - For theory-based projects and theses, what are the key theorems to be developed and/or proven? What proof techniques will be used?
  - For projects and theses involving experiments, what metrics will you use to measure success? Commonly these include some subset of time, space, and accuracy (recognition rate, precision, recall, etc.).
- How you will you measure success? Almost always, this should include reference to the evaluation methods described in the related work.
- **How will you know when you are done?**

5 Potential Outcomes

- Given your chosen methods, what are the possible outcomes of the work?
- What is the contribution/significance of the result for each outcome?

Note about references

References can be imported from a .bib file (in this case preproposal.bib) using the "cite" command.

Here are a few examples:

Single reference looks like this [1]

Multiple references look like this [2, 3].

The references will be automatically generated and numbered.

References

[1] W. Burgard, M. Moors, D. Fox, R. Simmons, and S. Thrun. Collaborative multi-robot exploration. volume 1, pages 476–481 vol.1, 2000.

[2] Xin Ma, Fang Meng, Yibin Li, Weidong Chen, and Yugeng Xi. Multi-agent-based auctions for multi-robot exploration. volume 2, pages 9262–9266, 0-0 2006.

[3] K.M. Wurm, C. Stachniss, and W. Burgard. Coordinated multi-robot exploration using a segmentation of the environment. In *Coordinated multi-robot exploration using a segmentation of the environment*, pages 1160–1165, Sept. 2008.