**Duke Kunshan University**

**Division of Natural and Applied Sciences**

**SW Theses - Template**

**Instructions**

* Black text – *Do not delete*. Everything in black stays in the document.
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* Blue text – *Delete*. The blue text is instructional, providing general guidance for what goes into a particular section.

**Overview**

The Title Page, Table of Contents, and Abstract, are the first three pages of the document. The Table of Contents as (i), and the Abstract as (ii). (The title page does not include a page number). You may optionally include a single-page Acknowledgements/Dedication and/or Appendix/ces. If included the acknowledgements or dedication page should be the second page, numbered (iii), with the Table of Contents becoming (iv). The appendix/ces or supplemental content pages should follow the source/works cited. These appendix or supplemental content pages should continue with the Arabic numbering. All page numbers must be bottom centered. See next section for an example outline of the document.

**Title page**

* Title written in ALL CAPS
* The title is centered at the top of the page
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**Table of Contents**

* The table of contents should be left aligned each chapter should be listed with the number of the page it starts on.

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SW PROJECT TITLE THAT EXTENDS OVER ONE LINE GOES IN INVERTED PYRAMID FORM, AS IN THIS EXAMPLE WHICH EXTENDS BEYOND ONE LINE: THE SUBTITLE BRINGS IT TO THREE LINES

by

Yuzhe\_Gu

Signature Work Product, in partial fulfilment of the Duke Kunshan University Undergraduate Degree Program

Month Date, Year {Date submitted}

Signature Work Program

Duke Kunshan University

APPROVALS

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*Mentor: Mustafa Misir, Associate Professor of Data and Computational Science*

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Marcia B. France, Dean of Undergraduate Studies

**ABSTRACT** *(in English)*

*150–200 words. An abstract is a brief statement of the problem or the purpose of the research. It should indicate the theoretical work or experimental plan used, summarize principal findings of the research, and point out major conclusions. Appropriate safety information should be included when applicable. This should be the section you write last to be sure that it accurately reflects the content of the document.*

**ABSTRACT** *(in Chinese)*

150 - 200 字。摘要是对问题或研究目的的简要说明。说明所使用的理论工作或实验计划，总结研究的主要发现，并指出主要结论。适用时应包括适当的安全信息。这应该是您最后编写的部分，以确保它准确反映文档的内容。

150 - 200 Zì. Zhāiyào shi duì wèntí huò yánjiū mùdì de jiǎnyào shuōmíng. Shuōmíng suǒ shǐyòng de lǐlùn gōngzuò huò shíyàn jìhuà, zǒngjié yánjiū de zhǔyào fāxiàn, bìng zhǐchū zhǔyào jiélùn. Shìyòng shí yīng bāokuò shìdàng de ānquán xìnxī. Zhè yīnggāi shì nín zuìhòu biānxiě de bùfèn, yǐ quèbǎo tā zhǔnquè fǎnyìng wéndàng de nèiróng.

ACKNOWLEDGEMENTS

*Individuals and organizations who helped with the research project and provided financing are thanked in a paragraph of the thesis. Do not include individual titles in the acknowledgments. However, it is appropriate to state grant numbers and sponsors. Examples include SELF, SRS, SW Grants, and so forth.*

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*First add captions to your figures. Then right-click on the example text above and select* Update Field *to update this list. Word then searches the document for your captions and automatically adds a list of figures, sorted by page number. The captions must be formatted according to the DNAS SW Style Guide*.

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INTRODUCTION

*This section includes a clear statement of the problem and the reasons for studying it. Provide a detailed yet concise background discussion of the problem and the significance, scope, and limits of the work. Outline what has been done previously by citing truly pertinent literature but do not include a general survey of semi-relevant literature.  State how your work differs from earlier work in the field and demonstrate the continuity from the previous work to your own.*

**Background**

In recent years, dramatic progress has been achieved in Natural Language Processing (NLP) due to the development of neural network approaches. One of the most amazing tasks in NLP, Question-Answering (QA) System, has also experienced a significant development. In a general perspective, QA mainly consists of three categories: Knowledge-Base QA which replies entities to some factoid, compositional and domain-specific questions; Closed-Book QA which answers some factoid and general questions with short or long texts using information in a Language Model; and Open-Domain QA which responds to factoid and general questions with short texts based on information from some large text corpus. A common approach to tackle Open-Domain QA task proposed by Chen et al. (2017) is to decompose it into two subtasks: Information Retrieval and Reading Comprehension. Intuitively, Retrieval is designed to search for most relevant documents to a query question, which narrows down the scope of correct answers. Given a series of documents, Reading Comprehension’s task is to produce correct answers after “reading” those context passages.

Danqi Chen, Adam Fisch, Jason Weston, and Antoine Bordes. 2017. Reading Wikipedia to answer open- domain questions. In Proc. ACL.

Reading Comprehension, on the other hand, is considered to be an individual Natural Language Generation (NLG) task which goes beyond the design of QA systems. Based upon the format of the answer to a question, a common Reading Comprehension system only generates multiple-choice answers, true-false answers, extractive answers which are existed text spans in the retrieved passages, or abstractive answers which are beyond the retrieved context passages.

In my work, the Open-Domain QA system is dedicated to replying to questions whose answers are text spans in context information. In other words, the reading comprehension module is an extractive Natural Language Generator.

MATERIAL AND METHODS

*This section is obviously discipline specific so use the nomenclature that is common for your discipline. However, this section should provide sufficient detail about the materials and the methods used so that other experienced researchers can repeat the experiment and obtain comparable results. Cite the appropriate literature when using a standard method or protocol and give only the details needed. Identify the materials used in the research. For example, computer systems used, mathematical theorems exploited, etc.; give information on the purity of all chemicals and reagents employed in the research; include the chemical/biological names of all compounds and chemical formulas of substances that are new or uncommon. Use standard systematic nomenclature to unambiguously define well-established compounds, processes, equipment, etc.*

RESULTS

*Summarize the data collected in this section, and their statistical treatment. Include only relevant data, but give sufficient detail to justify the conclusions. It is appropriate in this section to use equations, figures, and tables to display your data. Extensive, but relevant, data should be reserved for an appendix where it is identified as supporting information.*

*The table or figure must follow as closely as possible after the paragraph in which it is referenced. Titles/captions should be kept brief.*

Table 1 Parameters for the optimization of the principal component analysis for olive oil adulteration

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| *Replace* | *With* | *Your* | *Table* |
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*(Replace with your figure)*

Figure 1 The notorious BTC (Brandon the Cat)

DISCUSSION

*The discussion section is where you interpret and compare the results. The objective is to point out the features and limitations of the work. Relate your results to current knowledge in the field and to the original purpose for undertaking the project.*

CONCLUSIONS

*This section is written to put the interpretation of the results into the context of the original problem. Do not repeat the discussion points or include irrelevant material. The conclusion should be based on the evidence presented.*

REFERENCES

*Many bibliographic styles are acceptable for publications in the natural sciences. Only for the sake of having one standard across all disciplines, you should use this one:*

*Body: Superscripted Number. {e.g. Nucleotide excision repair (NER) is a versatile, error-free mechanism to identify and remove a wide assortment of chemically unrelated lesions.18 NER can be classified into two sub-pathways based on the way DNA lesions are identified.19 In transcription coupled NER (TC-NER), damaged DNA is identified by the stalling of RNA polymerases when they encounter bulky covalent DNA lesions.20*

*Journal Article: Evans, D. A., Fitch, D. M., Smith, T. E., Cee, V. J. Application of Complex Aldol Reactions to the Total Synthesis of Phorboxazole B. J. Am. Chem. Soc.****2000,****122, 10033-10046.*

*Book: Anastas, P. T., Warner, J. C. Green Chemistry: Theory and Practice; Oxford University Press: Oxford, 1998.*

APPENDICES

APPENDIX A: **APPENDIX TITLE**