# Proposal: Unsupervised Machine Translation with Word2Vec

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#### **ABSTRACT**

Add an abstract or comment this part out

# **Keywords**

Word2Vec, Machine Translation

# 1. INTRODUCTION

Since the introduction of word2vec [2, 4], blah blah

#### 1.1 Problem Statement

The project will investigate how to...

### 1.2 Prior Work

Mention (at least) [1, 3, 5]

Describe both the broader spectrum of word2vec/NLP and machine translation. Position our research (i.e. we skip grammar), and be sure to limit our project to per-word translation (not full grammatically correct sentences).

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# 2. RESEARCH GOAL

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#### 2.1 Research Purpose

Abstract description of goals

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#### 2.2 Goals

Pretty much what our deliverables are...

#### 2.3 Tasks

What do we have to do to achieve this?

- Build (at least) two working setups for automated translation
- Make a verification mechanism
- Verify which setup works better

# 3. PLANNING

A global overview of the milestones we defined in our research is as follows;

Half September - October: Literary Study)

During this phase, a list of relevant papers (e.g. [1, 3, 5]) is collected, short-listed to a readable size and read. Each paper will get a brief (informal) summarization to capture the essence of the paper insofar as it is relevant to this research. These summaries help process the information and provide quick access during the practical research.

Not all papers relevant to the research will be read during this phase, so next phases will include a fair share of reading.

 $October:\ Preparing\ experiments$ 

Description

November: Running experiments

Description

Before 12 December: Incorporating results in paper

During this phase, we will incorporate the results obtained in the experiments into our final paper.

# 4. ALLOCATION OF RESPONSIBILITIES

Marc pledges to provide sufficient beer. Bram will take care of coffee and possibly some Club-Maté.

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# 5. REFERENCES

- [1] O. Levy, Y. Goldberg, and I. Ramat-Gan. Linguistic regularities in sparse and explicit word representations. *CoNLL-2014*, page 171, 2014.
- [2] T. Mikolov, K. Chen, G. Corrado, and J. Dean. Efficient estimation of word representations in vector space. arXiv preprint arXiv:1301.3781, 2013.
- [3] T. Mikolov, Q. V. Le, and I. Sutskever. Exploiting similarities among languages for machine translation. arXiv preprint arXiv:1309.4168, 2013.
- [4] T. Mikolov, I. Sutskever, K. Chen, G. S. Corrado, and J. Dean. Distributed representations of words and phrases and their compositionality. In *Advances in neural information processing systems*, pages 3111–3119, 2013.
- [5] L. Wolf, Y. Hanani, K. Bar, and N. Dershowitz. Joint word2vec networks for bilingual semantic representations. *International Journal of Computational Linguistics and Applications*, 5(1):27–44, 2014.