Lost in Translation: Understanding Generation Alpha Internet Slang

A Special Problem Proposal
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Abstract

From 150 to 200 words of short, direct and complete sentences, the abstract should be informative enough to serve as a substitute for reading the entire SP document itself. It states the rationale and the objectives of the research. In the final Special Problem document (i.e., the document you'll submit for your final defense), the abstract should also contain a description of your research results, findings, and contribution(s).

Suggested keywords based on ACM Computing Classification system can be found at `https://dl.acm.org/ccs/ccs_flat.cfm`

Keywords: Keyword 1, keyword 2, keyword 3, keyword 4, etc.

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Chapter 1

Introduction

1.1 Overview

Language is how humans communicate and express themselves (Crystal & Robins, 2024). It is dynamic because there are endless structural possibilities, changes in word meanings, and new words created (Libretexts, 2021). Slang is a great example of the dynamic nature of language. Slang is an informal language used by people in the same social group (Fernández-Toro, 2016). It serves social purposes: to identify a group's members, communicate informally, and oppose established authority (McArthur, 2003). Slang is highly contextual and pervasive, even in non-standard English. Its figurative nature and how it twists the definitions of the words used in it make it hard for outsiders to understand.

In recent years, the internet has become a significant medium for the evolution and spread of language, giving rise to 'internet slang' (J. Liu, Zhang, & Li, 2023). Internet slang is a collection of everyday language forms used by diverse groups online (Barseghyan, 2014). Ujang et al. (2018, as cited in (binti Sabri, bin Hamdan, Nadarajan, & Shing, 2020)) state that Internet slang is not easily understood by people outside the social group or people who are not fluent in the language where slang is used. This phenomenon is particularly prominent among the younger generation (Maulidiya, Wijaya, Mauren, Adha, & Pandin, 2021), where they use it to communicate and interact with friends.

Today, Generation Alpha is the youngest generation. Generation Alpha refers to people born between 2010 and 2025. They were born into an era of rapid technological advancement, where digital devices and the internet are integral to their daily lives (McCrindle & Fell, 2020). Generation Alpha is also called the

first true digital natives (Jukić & Škojo, 2021). They are expected to be the most "technologically" skilled and most educated generation as they are the native speakers of the language of the Internet (Prensky, 2001). According to the study *Understanding Generation Alpha*, Generation Alpha is socially driven, which may let them grow up to be creative and unconventional, potentially shaping them to be assets in the future (Jha, 2020).

Since Generation Alpha was born with technology, the usage of Internet slang has been prominent in this generation. However, it can create communication barriers between older and younger generations (Venter, 2017 as cited in (Ghazali & Abdullah, 2021)). A study by Vargas and Barbella (Vargas & Marbella, 2023) investigated Generation Alpha's Filipino vocabulary and found that it often creates misunderstandings for students and teachers—who are less familiar with internet slang.

1.2 Problem Statement

Internet slang fosters informal, relatable communication within the younger generation (Ghazali & Abdullah, 2021), especially Generation Alpha, but it presents challenges in understanding for people outside this demographic. The gap in comprehension with older generations widens as internet slang evolves, often leading to miscommunication affecting social relationships that contribute to the generational divide (?, ?). This study investigates the communication barriers internet slang creates, particularly between Generation Alpha and older generations, and explores possible solutions to bridge this gap.

1.3 Research Objectives

1.3.1 General Objectives

This study aims to modify an existing LLM for use in the translation of Generation Alpha internet slang used by Filipino children in social media.

1.4 Specific Objectives

- To create a dataset of sentences containing gen alpha slang and its formal translation
- To create a LoRA implementation for fine-tuning an existing model
- To fine-tune an existing LLM to translate sentences containing gen alpha slang into formal sentences
- To evaluate the performance of the trained model and compare it to the based model using several performance metrics

1.5 Scope and Limitations of the Research

This study will focus on the usage of internet slang by Filipino Generation Alpha, with an emphasis on English language since it is widely use on different digital platforms such as social media.

1.6 Significance of the Research

The study contributes to understanding the evolving linguistic landscape shaped by internet slang, especially as used by Generation Alpha. Insights gained from this study may aid educators, parents, and communication professionals in bridging intergenerational communication gaps and fostering better understanding across age groups.

Chapter 2

Review of Related Literature

2.1 Communication Gap between Generations

Internet slang is a result of language variation and is often regarded as informal (S. Liu, Gui, Zuo, & Dai, 2019). In the study, *The Use of Online Slang for Independent Learning in English Vocabulary* (Ambarsari, Amrullah, & Nawawi, 2020), students used internet slang to express their feelings and emotions and because their friends also use it, However, it suggests that younger generation should use slang to communicate with each instead of older generations because it might cause confusion between them (Jeresano & Carretero, 2022).

This miscommunication is prominent between generations. Suslak (Suslak, 2009) argues that age influences language use, noting that language evolves across generations. Supporting this, a study by Teng and Joo (Teng & Joo, 2023) found that the older a person is, the less likely they are to understand internet language.

2.2 Existing Studies

Khazeni et al. used deep learning to create a model for translating Persian slang text into formal ones (Heydari, Albadvi, & Khazeni, 2024). They were able to create a model to convert texts from social media into sentiments for classification. Nocon et al. (Nocon, Kho, & Arroyo, 2018) created a Filipino colloquialism translator using Tensorflow's sequence-to-sequence model and Moses' phrase-based statistical machine translation. They found that the Moses model was able to create a natural sounding translation, while the Tensorflow model often produced bad

sentences.

A slang translation system developed by Ibrahim and Mustafa (Abdulstar Ibrahim & Shareef Mustafa, 2023) used models obtained from Hugging Face, a repository of pre-trained models, and retrained it using a dataset containing slang and their corresponding definition and example. They determined that these models can be tweaked into learning the relationship between the slang and its meaning.

2.3 LoRa for Fine Tuning

Low Rank Adaptation (LoRA) is an efficient Parameter Efficient Fine Tuning (PEFT) method proposed by Hu et al (Hu et al., 2021). It can significantly decrease the required storage for training while producing comparable results and in some cases, even outperforming other adaptation methods. In addition, it has minimal chance of catastrophic forgetting as the original weights are not being tampered with, unlike other finetuning methods. These factors make it a suitable option for slang translation as a quick yet accurate solution. In a study conducted by Zhao et al. (Zhao et al., 2024), they determined that some LLMs using Low Rank Adaptation (LoRA) for fine tuning can outperform GPT-4, one of the most advanced LLM models currently. A study by Nguyen et al. (Nguyen, Wilson, & Dalins, 2023) used LoRA in fine tuning a pre-trained Llama 2 7B model for text classification of a dataset that contains slang. They were able to create a more accurate model compared to models by existing studies at that time.

2.4 Chapter Summary

This chapter shows how generational differences create communication gaps, especially due to internet slang. Younger people tend to use slang to express emotions and connect with friends, but this can confuse older generations who aren't as familiar with these terms. Research shows that as language changes over time, older people are generally less likely to understand the newest internet language. To bridge this gap, some recent studies have utilized machine learning to translate slang into more standard language. For instance, Khazeni et al. (Heydari et al., 2024) used deep learning to translate Persian slang, while Nocon et al. (Nocon et al., 2018) created a Filipino slang translator using statistical models. Moreover, Ibrahim and Mustafa (Abdulstar Ibrahim & Shareef Mustafa, 2023) fine-tuned pre-trained models to learn slang meanings. One of the promising techniques for this is Low Rank Adaptation (LoRA), which is a fine-tuning method that keeps

the original model stable while using less storage. Studies by Zhao et al. (Zhao et al., 2024) and Nguyen et al. (Nguyen et al., 2023) show that LoRA models are not only efficient but can even outperform advanced models like GPT-4 when it comes to slang translation and text classification.

Chapter 3

Research Methodology

This chapter lists and discusses the specific steps and activities that will be performed to accomplish the project. The discussion covers the activities from pre-proposal to Final SP Writing.

3.1 Research Activities

3.1.1 Creation of the dataset

Ashley Joy Gimeno will be in-charge of creating a dataset of sentences containing Generation Alpha slangs and providing a formal translation of said sentence. This might involve data scraping ,reliance on existing dataset, or any other suitable method of obtaining it. This should last for a week and will serve as the training and testing information for the large language model during fine-tuning.

3.1.2 Identification of potential LLM to be used.

Carl Jorenz Gimeno will be tasked with finding potential models for the project and comparing them based on existing results. Having existing study using LoRA would be appreciated but does not solely determine it being used for this study. This should last for a week and a report on the prospect models will be created, detailing their strengths and weaknesses.

3.1.3 Lookup on available GPU on demand services

Neil Bryan Flauta will be tasked to find any reputable services that sell computing power. This is essential as the group does not have direct access to hardware necessary to fine-tune the selected model.

3.1.4 Study on LoRA implementation for LLM

Carl Jorenz Gimeno will be in-charge of studying on how LoRA is implemented to LLMs. This will require reading various guides, primarily ones created by HuggingFace as they are the creators of the model to be used and has several in-depth guides in fine-tuning models in general. This should last a week and Carl Jorenz Gimeno is expected to have the required knowledge by the end of it.

3.1.5 Preprocessing of data

Ashley Joy Gimeno will be tasked with preprocessing the data. Their task is to ensure that all sentences contain at least one slang and all the formal translation of the sentence is both grammatically correct and semantically correct. As LoRA does not tamper with existing knowledge of the model (Hu et al., 2021), we are free to focus on teaching the model the slang while leveraging its original knowledge to provide proper sentences. In addition, after cleaning up the dataset, it will be split into a training and testing set. This task should last 2-3 weeks or longer based on the number of data points collected. A dataset ready for fine-tuning should be available at the end

3.1.6 Prototype implementation of LoRA

Carl Jorenz Gimeno will be tasked with the implementation of LoRA on the selected model. This includes applying a prototype to a smaller model and testing the results. Carl Jorenz Gimeno may also opt to use qLoRA instead for the smaller memory requirements at the cost of runtime (Raschka, 2023). Carl Jorenz Gimeno must implement it using the selected computing service to prevent future changes to adjust to the platform. This should last 4-5 weeks but could take more based on the difficulty of actual implementation. It will serve as the basis of the proper implementation of LoRA on the selected model to prevent longer testing with a

massive LLM. A working and correct implementation of LoRA should be available at the end.

3.1.7 Implementation of LoRA on selected model

Neil Bryan Flauta will be tasked with the final implementation of LoRA on the selected model, based on the prototype created. This should only last 1-2 weeks because the code is already proven and tested as functional. A fine-tuned model is expected to be complete at the end.

3.1.8 Implementation on LLM Evaluation Metrics

Neil Bryan Flauta will be tasked with studying the evaluation metrics used in LLMs as well as create an implementation of such metrics. It will serve as a basis in which we will compare the fine-tuned model with the base model. This should take 2 weeks and a complete implementation of the metrics should be available at the end.

3.1.9 Testing and Analysis of Results

Ashley Joy Gimeno will be tasked with testing the trained model using the testing set on the dataset. This would include descriptive information regarding the model and comparison with the original model.

3.1.10 Documentation

All members are tasked to provide accurate and detailed logs of their activities. It will serve both as documentation and as a progress tracker to determine how far the project is from being done. It will be done every week at the member's leisure.

3.2 Calendar of Activities

Table 3.1 shows a Gantt chart of the activities. Each bullet represents approximately one week worth of activity.

Table 3.1: Timetable of Activities

Activities (2024-2025)	Nov	Dec	Jan	Feb	Mar	Apr	May
Creation of the dataset	•						
Identification of potential LLM to be used	•						
Lookup on available GPU on demand services	•						
Study on LoRA implementation for LLM	•						
Preprocessing of data	•••						
Prototype implementation of LoRA	•	••••					
Implementation of LoRA on selected model			••				
Implementation on LLM Evaluation Metrics			••				
Testing and Analysis of Results				••••			
Documentation	••	••••	••••	••••	••••		

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