Lost in Translation: Translating Generation Z Internet Slang using Machine Learning

A Special Problem Proposal
Presented to
the Faculty of the Division of Physical Sciences and Mathematics
College of Arts and Sciences
University of the Philippines Visayas
Miag-ao, Iloilo

In Partial Fulfillment
of the Requirements for the Degree of
Bachelor of Science in Computer Science by

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Abstract

Internet slang is an informal variation of language that is prominent to the younger generation. The usage of this language brought generational divide between them and the older generations. This study aims to develop a translation tool leveraging Large Language Models (LLMs) to bridge this issue. A dataset of Generation Alpha slang sentences and their formal equivalents will be used to fine-tune an existing LLM. The model will be trained to translate slang sentences into formal English, and will be compared against the baseline model using various evaluation metrics. The study highlights the significance of addressing communication gaps and provides insights into how technology can enhance understanding and reduce miscommunications across generations. This research contributes to the broader discourse on language adaptation and generational communication in the digital age.

Keywords: Internet Slang, Generation Alpha, Generational Divide, LoRA, LLM

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Chapter 1

Introduction

1.1 Overview

Language is how humans communicate and express themselves (?, ?). It evolves, adapting to the changing needs of users (?, ?). New words are borrowed or invented (?, ?), and most linguistic changes are initiated by young adults and adolescents (Thump, 2016 as cited in (?, ?)). This demographic tends to focus on belonging to self-organized groups of peers and friends, forming what can be described as the "we" generation. Through their interactions, language changes differently, making them remarkably distinct from previous generations.

Slang is a great example of the dynamic nature of language. Slang is an informal language used by people in the same social group (?, ?). It serves multiple social purposes: identifying group members, communicating informally, and opposing established authority (?, ?). Slang is highly contextual and pervasive, even in non-standard English. Its figurative nature and how it twists the definitions of the words used make it difficult 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' (?, ?). Internet slang is a collection of everyday language forms used by various online groups (?, ?). Ujang et al. (2018, as cited in (?, ?)) state that internet slang is not easily understood by people outside the social group or people who are not fluent in the language where the slang is used. This phenomenon is particularly prominent among the younger generation (?, ?), where they use it to communicate and interact with friends.

Generation Z, individuals born between 1996 and 2009, are regarded as "digital natives" because technology is an integral part of their upbringing (?, ?). Even the language of this generation is greatly affected by technology, where newly coined terms and phrases, called Gen Z slang, are tied to the media culture they've grown up with (?, ?). However, this evolution of language often creates communication barriers with older generations (?, ?1231212312

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By fostering mutual understanding, this tool aims to promote more effective and harmonious interactions across age groups, ultimately enhancing relationships and reducing miscommunication. 0

The main contributions of this study are as follows:0

enhance linguistic understanding between generations through using fine-tuning a LLM to translate Gen Z slang to formal language, leveraging the strengths of advanced NLP techniques0

bridge communication gaps between generations using the proposed model to foster better relationships0

create a scalable framework that can be adapted to translate slang in other languages0

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By leveraging the ability of LLM to generate a more nuanced and properly constructed answer, a better tool can be made to translate the slangs into proper sentences. It has already been proven by the likes of GPT being modified and tailored for use in several automated chatbots to provide customer service. However, no such tool exists for slang translation of Generation Alpha, which arguably has the most diverse slangs compared to other generations. The creation of this tool will allow translating of such texts into formal sentences and help with bridging the generational divide between them and older people, especially teachers. 0

1.3 Research Objectives0

1.3.1 General Objectives0

This study aims to fine-tune the zephyr-7b Large Language Model (LLM) for use in the translation of Generation Z internet slang used by Filipinos in social media. 0

1.3.2 Specific Objectives

- To create a dataset of sentences containing Generation Z slang used in differing contexts and its formal translation

- To create a Low Rank Adaptation (LoRA) implementation for fine-tuning an existing model

- To fine-tune an existing LLM to translate sentences containing Generation Z slang into formal sentences

- To evaluate the performance of the trained model and compare it to the based model using several performance metrics

1.4 Scope and Limitations of the Research

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

1.5 Significance of the Research

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

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141   Chapter 20

142   Introduction0

143   2.1   Overview0

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239 Chapter 30

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chapter˙4.tex0

337 Chapter 40

338 Introduction0

339 4.1 Overview0

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appendix˙A.tex0

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A.3 Research Objectives0

A.3.1 General Objectives0

This study aims to fine-tune the zephyr-7b Large Language Model (LLM) for use in the translation of Generation Z internet slang used by Filipinos in social media. 0

A.3.2 Specific Objectives0

610 To create a dataset of sentences containing Generation Z slang used in dif-
611 fering contexts and its formal translation0

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613 an existing model0

614 To fine-tune an existing LLM to translate sentences containing Generation
615 Z slang into formal sentences0

616 To evaluate the performance of the trained model and compare it to the
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618 ## A.4 Scope and Limitations of the Research0

619 This study will focus on the usage of internet slang by Filipino Generation Z,
620 with an emphasis on English language since it is widely use on different digital
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622 ## A.5 Significance of the Research0

623 The study contributes to understanding the evolving linguistic landscape shaped
624 by internet slang, especially as used by Generation Z. Insights gained from this
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631   B.1   Overview0

632 Language is how humans communicate and express themselves (?, ?). It evolves,
633 adapting to the changing needs of users (?, ?). New words are borrowed or invented
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B.2 Problem Statement0

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B.3.1 General Objectives0

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B.3.2 Specific Objectives

- To create a dataset of sentences containing Generation Z slang used in differing contexts and its formal translation

- To create a Low Rank Adaptation (LoRA) implementation for fine-tuning an existing model

- To fine-tune an existing LLM to translate sentences containing Generation Z slang into formal sentences

- To evaluate the performance of the trained model and compare it to the based model using several performance metrics

B.4 Scope and Limitations of the Research

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

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726   Introduction0

727   C.1   Overview0

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821 Appendix D0

822 Introduction0

823 D.1 Overview0

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enhance linguistic understanding between generations through using fine-tuning a LLM to translate Gen Z slang to formal language, leveraging the

strengths of advanced NLP techniques0

bridge communication gaps between generations using the proposed model to foster better relationships0

create a scalable framework that can be adapted to translate slang in other languages0

G.2   Problem Statement0

Internet slang fosters informal, relatable communication within the younger generation (?, ?), especially Generation Z, 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 (?, ?). A more specific translation tool developed using language models can be used to bridge this divide. 0

By leveraging the ability of LLM to generate a more nuanced and properly constructed answer, a better tool can be made to translate the slangs into proper sentences. It has already been proven by the likes of GPT being modified and tailored for use in several automated chatbots to provide customer service. However, no such tool exists for slang translation of Generation Alpha, which arguably has the most diverse slangs compared to other generations. The creation of this tool will allow translating of such texts into formal sentences and help with bridging the generational divide between them and older people, especially teachers. 0

G.3   Research Objectives0

G.3.1   General Objectives0

This study aims to fine-tune the zephyr-7b Large Language Model (LLM) for use in the translation of Generation Z internet slang used by Filipinos in social media. 0

1187 To create a dataset of sentences containing Generation Z slang used in dif-
1188 fering contexts and its formal translation0

1189 To create a Low Rank Adaptation (LoRA) implementation for fine-tuning
1190 an existing model0

1191 To fine-tune an existing LLM to translate sentences containing Generation
1192 Z slang into formal sentences0

1193 To evaluate the performance of the trained model and compare it to the
1194 based model using several performance metrics0

1196 This study will focus on the usage of internet slang by Filipino Generation Z,
1197 with an emphasis on English language since it is widely use on different digital
1198 platforms such as social media. 0

1200 The study contributes to understanding the evolving linguistic landscape shaped
1201 by internet slang, especially as used by Generation Z. Insights gained from this
1202 study may aid educators, parents, and communication professionals in bridging
1203 inter-generational communication gaps and fostering better understanding across
1204 age groups.   chapter˙1.aux0

1205 Appendix H0

1206 Introduction0

1207 H.1 Overview0

1208 Language is how humans communicate and express themselves (?, ?). It evolves,
1209 adapting to the changing needs of users (?, ?). New words are borrowed or invented
1210 (?, ?), and most linguistic changes are initiated by young adults and adolescents
1211 (Thump, 2016 as cited in (?, ?)). This demographic tends to focus on belonging
1212 to self-organized groups of peers and friends, forming what can be described as
1213 the "we" generation. Through their interactions, language changes differently,
1214 making them remarkably distinct from previous generations. 0

1215 Slang is a great example of the dynamic nature of language. Slang is an in-
1216 formal language used by people in the same social group (?, ?). It serves multiple
1217 social purposes: identifying group members, communicating informally, and op-
1218 posing established authority (?, ?). Slang is highly contextual and pervasive, even
1219 in non-standard English. Its figurative nature and how it twists the definitions of
1220 the words used make it difficult for outsiders to understand. 0

1221 In recent years, the Internet has become a significant medium for the evolution
1222 and spread of language, giving rise to 'Internet slang' (?, ?). Internet slang is a
1223 collection of everyday language forms used by various online groups (?, ?). Ujang
1224 et al. (2018, as cited in (?, ?)) state that internet slang is not easily understood
1225 by people outside the social group or people who are not fluent in the language
1226 where the slang is used. This phenomenon is particularly prominent among the
1227 younger generation (?, ?), where they use it to communicate and interact with
1228 friends. 0

Generation Z, individuals born between 1996 and 2009, are regarded as "digital natives" because technology is an integral part of their upbringing (?, ?). Even the language of this generation is greatly affected by technology, where newly coined terms and phrases, called Gen Z slang, are tied to the media culture they've grown up with (?, ?). However, this evolution of language often creates communication barriers with older generations 1231212312

(?, ?1231212312

1231212312

; 123212312

, 123212312

). Furthermore, studies show that even within Generation Z, people with limited exposure to social media may struggle to understand the prevalent slang (?, ?). 0

These gaps highlight the need for a tool that can bridge the generational divide, making it easier for individuals to understand the language of Generation Z. Multiple studies have tried translating slang into a formal language using machine learning. Khazeni et al. achieved a 81.91% accuracy in translating Persian slang to formal Persian language using deep learning. Another study by Nocon et al. created a translator to translate Filipino colloquialisms into the Filipino language using Tensorflow's sequence-to-sequence model and Moses' phrase-based statistical machine translation. Furthermore, Ibrahim and Sharief developed a slang translator using models from Hugging Face. 0

building on these studies, this study proposes to create a translation tool specifically to translate Gen Z slang. The tool will utilize Low Rank Adaptation (LoRA) to a selected Large Language Model (LLM). The results will be evaluated using the Recall-Oriented Understudy for Gisting Evaluation (ROUGE). 0

By fostering mutual understanding, this tool aims to promote more effective and harmonious interactions across age groups, ultimately enhancing relationships and reducing miscommunication. 0

The main contributions of this study are as follows:0

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By leveraging the ability of LLM to generate a more nuanced and properly constructed answer, a better tool can be made to translate the slangs into proper sentences. It has already been proven by the likes of GPT being modified and tailored for use in several automated chatbots to provide customer service. However, no such tool exists for slang translation of Generation Alpha, which arguably has the most diverse slangs compared to other generations. The creation of this tool will allow translating of such texts into formal sentences and help with bridging the generational divide between them and older people, especially teachers. 0

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