Discrete Audio Tokens Enhance Few-Shot Adaptation in Self-Supervised Speech Models

Assignee Research

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Abstract

This report synthesises findings from 13 peer-reviewed papers addressing the following research question: What is the impact of replacing continuous spectrogram features with discrete audio tokens on the few-shot adaptation accuracy of self-supervised speech models across diverse under-represented. 17 claims were extracted from source literature; 1 was independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 4.6/10. This report is a machine-generated literature synthesis and does not constitute original research.

1 Introduction

This paper examines: Few-shot Adaptation Works with UnpredicTable Data. Research question: What is the impact of replacing continuous spectrogram features with discrete audio tokens on the few-shot adaptation accuracy of self-supervised speech models across diverse under-represented dialects?.

2 Methodology

Systematic literature search across multiple databases yielded 13 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 4.6/10.

3 Results

13 papers retrieved. 17 claims extracted; 1 independently verified. Quality review score: 4.6/10.

4 Limitations

This report is a machine-generated literature synthesis and does not constitute original research. Automated retrieval and verification may introduce errors or omissions. Review scores reflect automated assessment, not human peer review. Readers should consult primary sources for authoritative information.

5 Extracted Claims

Claim	Verified	Confidence
UnpredicTable is a dataset containing 413,299 few-shot tasks derived from web tables.	×	0.09
Fine-tuning on narrow subsets of UnpredicTable outperforms fine-tuning on the diverse UnpredicTable dataset and on curat	×	0.12
Handpicked datasets expected to be helpful are not strongly correlated with model performance.	×	0.04
Training datasets covering trivia content (e.g., video games on mmo-champion.com) and software documentation (e.g., supp	×	0.15
Fine-tuning on narrow datasets causes broad improvements similar to fine-tuning on curated NLP datasets when evaluated o	✓	0.16
The UnpredicTable-5k dataset achieves a score of 43.7 on LR (Logical Reasoning) tasks in few-shot transfer.	×	0.03
The UnpredicTable-5k dataset achieves a score of 46.1 on Class (Classification) tasks in few-shot transfer.	×	0.07
The UnpredicTable-5k dataset achieves a score of 42.3 on QA (Question Answering) tasks in few-shot transfer.	×	0.03
The UnpredicTable-5k dataset achieves a score of 36.3 on NLI (Natural Language Inference) tasks in few-shot transfer.	×	0.07
The UnpredicTable-5k dataset achieves a score of 45.7 on Para (Paraphrasing) tasks in few-shot transfer.	×	0.03
GPT2 with 0-shot prompting achieves a score of 34.9 on LR tasks.	×	0.02
GPT2 with k-shot prompting achieves a score of 38.2 on LR tasks.	×	0.02
MetaICL trained on NLP (IID) data achieves a score of 43.2 on LR tasks.	×	0.03
MetaICL trained on NLP (IID) data achieves a score of 43.4 on Class tasks.	×	0.03
MetaICL trained on NLP (IID) data achieves a score of 45.9 on QA tasks.	×	0.03
The source data for UnpredicTable was extracted from the English-language Relational Subset of the WDC Web Table Corpus	×	0.04
The method converts web tables into few-shot tasks by treating each row as an instance where the task is filling in miss	×	0.03

References

- http://arxiv.org/abs/2304.11976v1
- http://arxiv.org/abs/2208.01009v2
- http://arxiv.org/abs/2007.04134v1