

Speech Processing for Swiss German

Mark Cieliebak

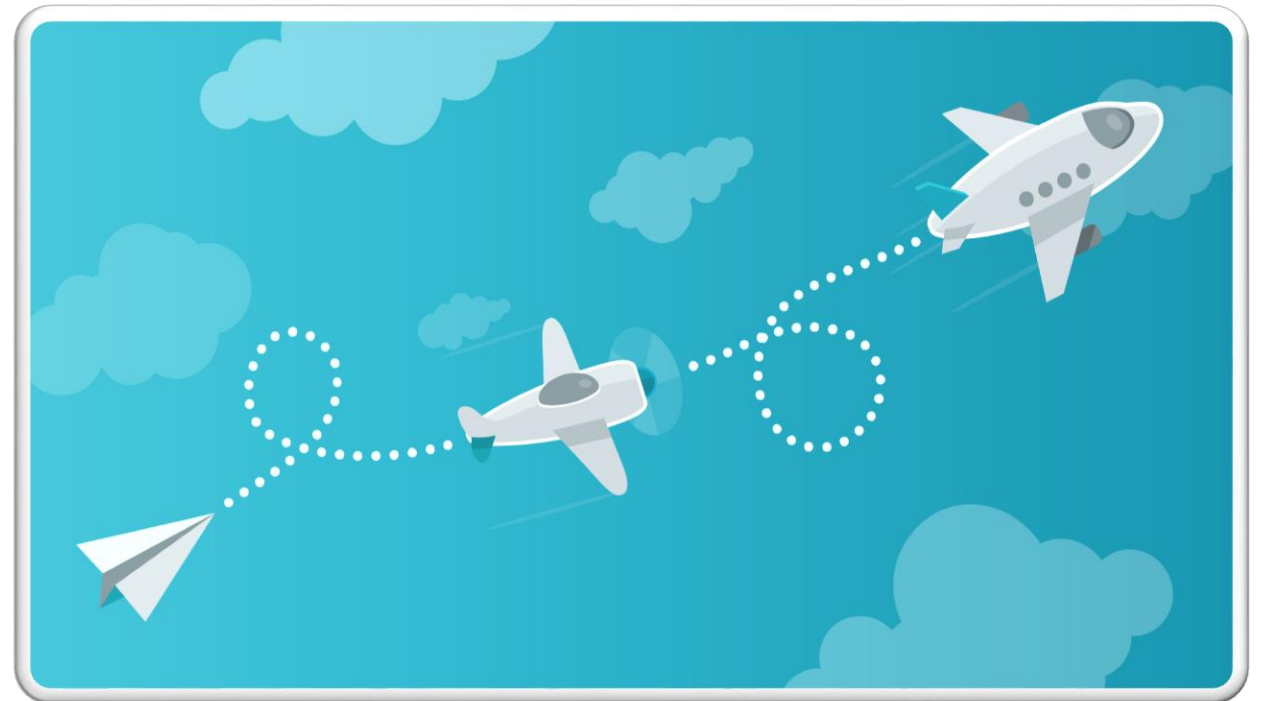


Speech Processing Tasks for Swiss German

- Dialect Recognition
- Speech Synthesis
- Speech-to-Text

Solution Providers

- Adnovum
- Microsoft
- Nuance
- Recapp
- Slowsoft
- SpinningBytes
- Spitch
- Swisscom



Speech Synthesis for Swiss German

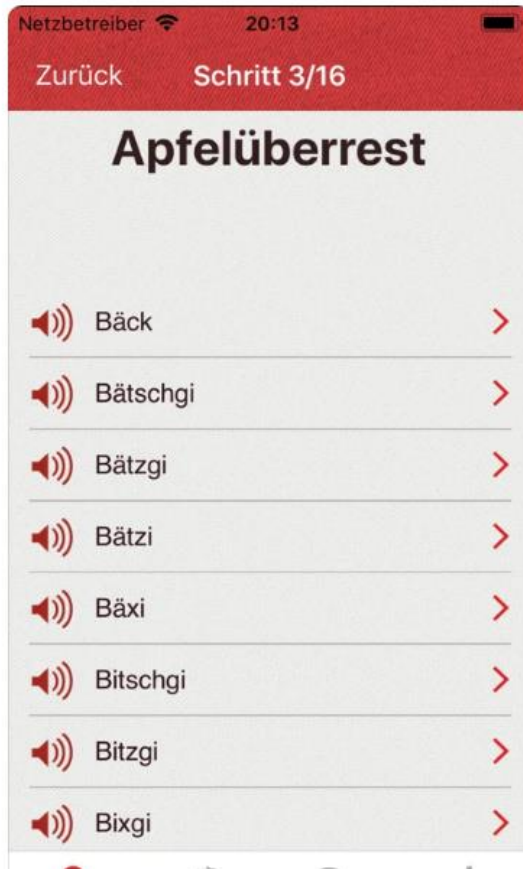


<https://www.youtube.com/watch?v=1I2461vzp6Q&t=3s>

| Dialect | Total Audio (h) | Average utterance (s) | Average #word per utterance |
|---------|-----------------|-----------------------|-----------------------------|
| AG | 2.78 | 3.64 | 11.8 |
| BE | 3.41 | 4.55 | 11.9 |
| BS | 3.15 | 4.18 | 12.7 |
| LU | 2.54 | 3.36 | 12.3 |
| GR | 2.93 | 3.83 | 12.5 |
| SG | 3.71 | 4.85 | 12.1 |
| VS | 3.32 | 4.34 | 11.9 |
| ZH | 4.55 | 4.03 | 12.2 |

Table 2: *The statistics of the collected audio data.*

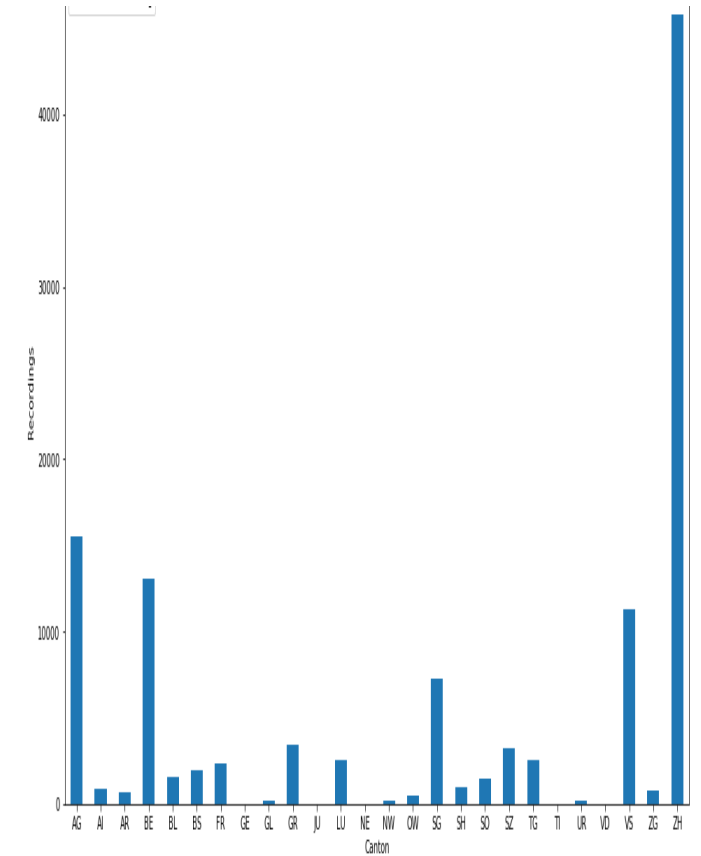
Swiss German Dialects



Dialäkt App

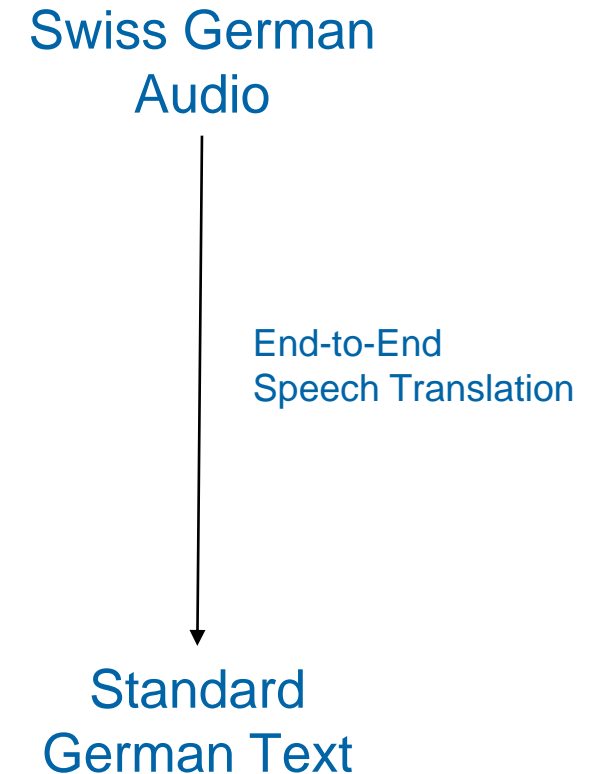
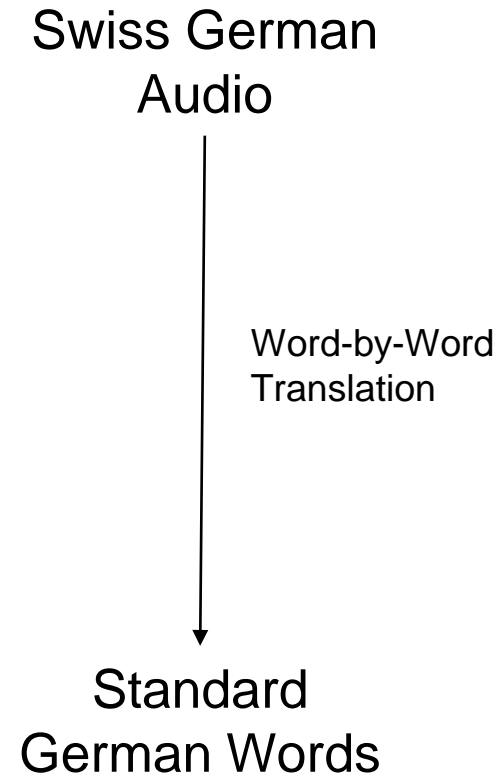
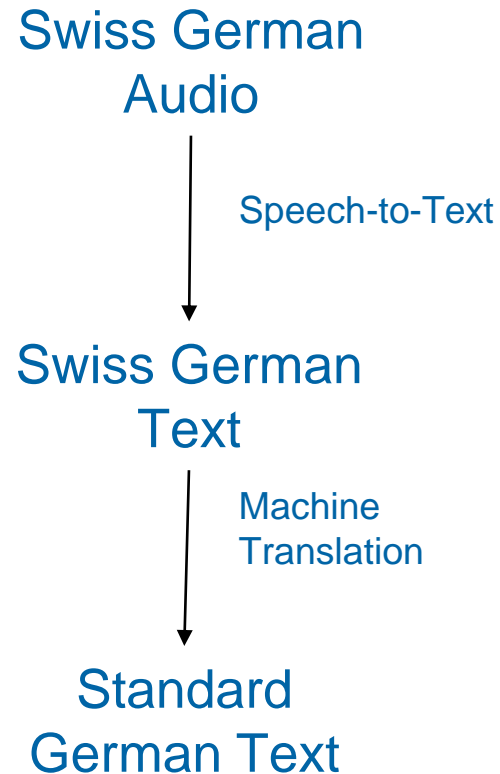
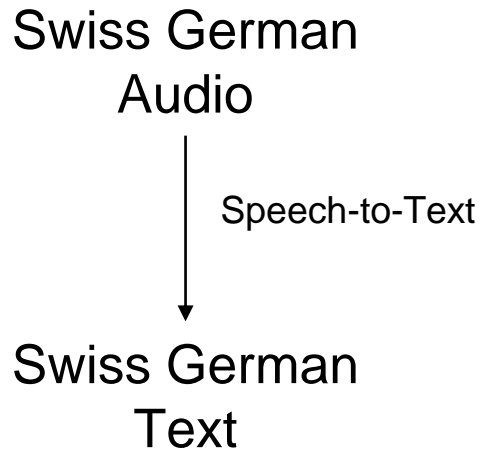


Schweizerisches
Idiotikon

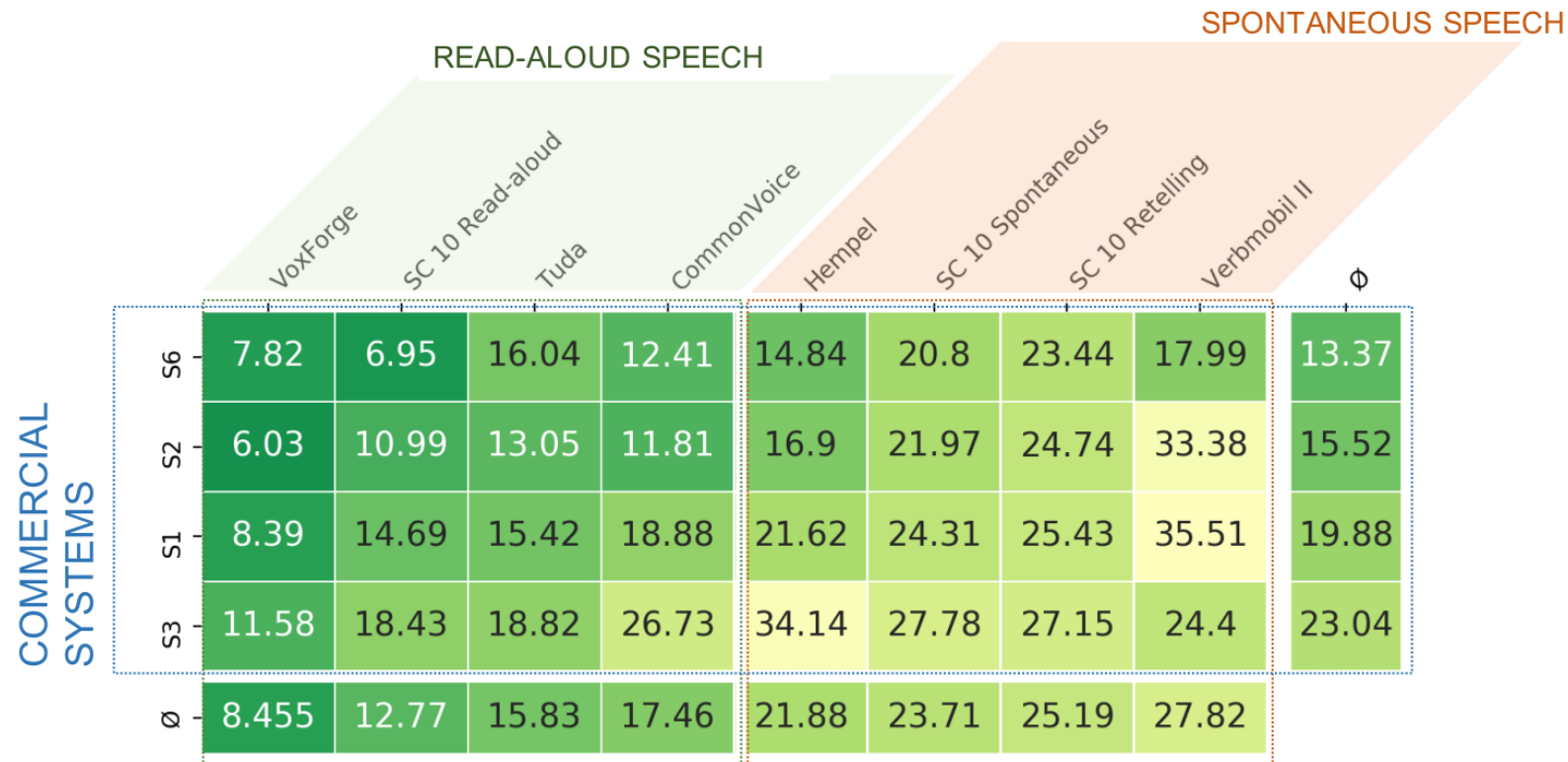


Dialect Recognition

Speech-to-Text Approaches for Swiss German



How good are Speech-to-Text Engines for Standard German (2019)?



Scores in Word Error Rate (WER)

From: Ulasik et al, LREC 2020: CEASR: a corpus for evaluating automatic speech recognition , 2019

Shared Task at SwissText 2021: Swiss German Speech to Standard German Text

| Rank | Team | BLEU |
|------|-----------------|------|
| 1 | Arabskyy et al. | 46.0 |
| 2 | Plüss et al. | 41.0 |
| 3 | Ulasik et al. | 39.4 |
| 4 | DeJa | 17.1 |

**November 2021:
BLEU Score 62%**

- 293 hours labeled data, 1208 hours unlabeled data

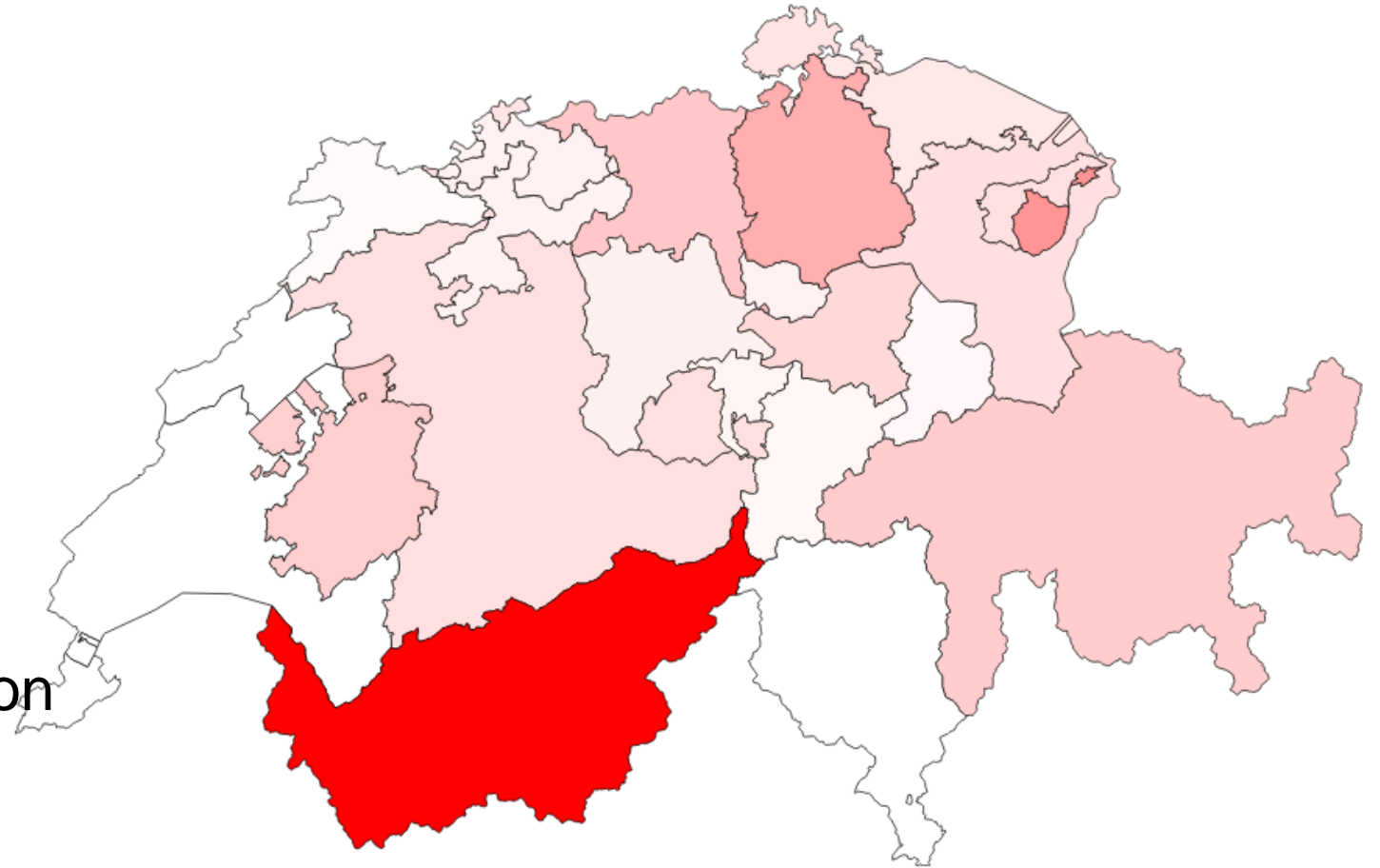
Plüss et. al: "SwissText 2021 Task 3: Swiss German Speech to Standard German Text". SwissText 2021.

Swiss Dialect Collection

Organized by SwissNLP

Goal: Collect 2'000 hours of spoken Swiss German in "all" dialects

SNF Project: Speech Translation for Swiss Dialects (ZHAW+FHNW+UZH)



<https://dialektsammlung.ch/de>

Thank You!!



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