BRNO UNIVERSITY OF TECHNOLOGY
FACULTY OF INFORMATION TECHNOLOGY

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Automatic Transcription of Air-Traffic Communication to Text

Bachelor's thesis
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Purpose

Fine tune a speech recognition model tailored for Czech-English air-traffic communication potentially usable by air traffic controllers (ATCos).

Design a shortened transcription protocol for ATCos' quicker orientation in transcriptions.

Train the model on both full and shortened transcriptions and analyze their performance.

Datasets

Czech and English air-traffic communication recordings of Kunovice airspace (LKKU).

Transcribed with help of **SpokenData.com**.

~ 5 hours

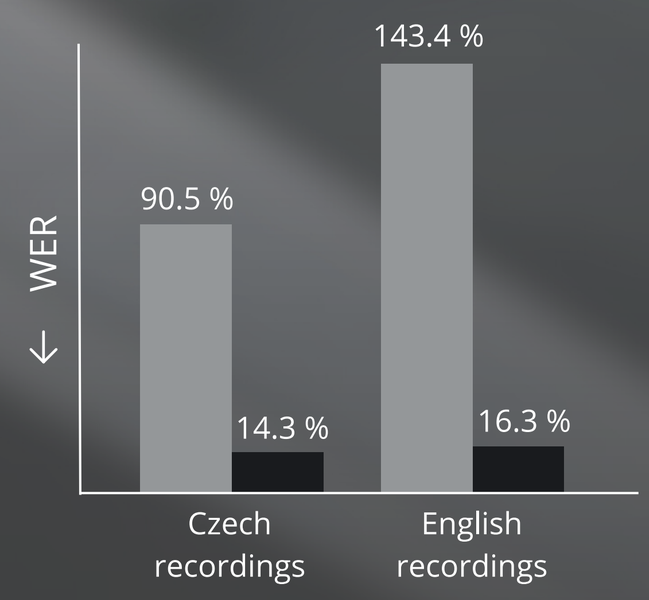
of recordings used for training on full and shortened transcriptions.

Model

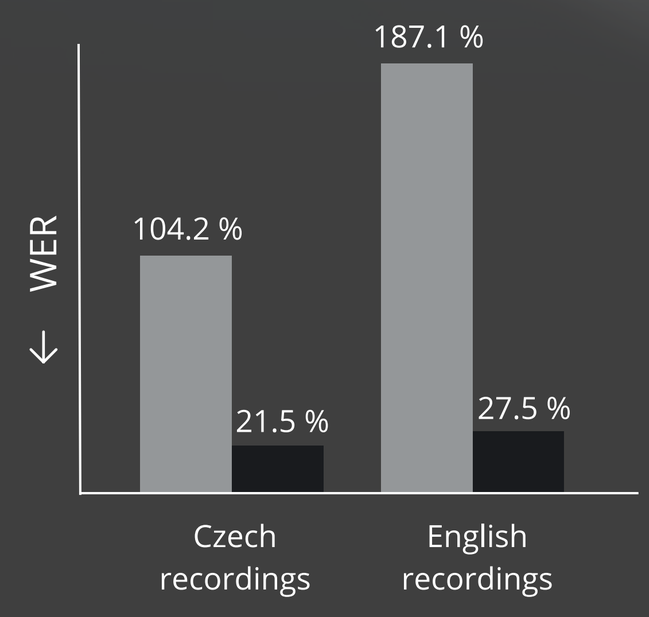
OpenAI Whisper Medium
Pre-trained on 192 hours of Czech language audio

Results

Model for full transcriptions



Model for shortened transcriptions



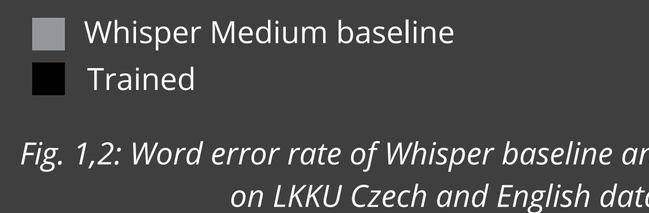


Fig. 1,2: Word error rate of Whisper baseline and trained model on LKKU Czech and English data

Output examples

Full transcription

Oscar Kilo Alpha Bravo Charlie dráha nula dva střední přistání povoleno vítr nula jedna nula stupňů pět uzlů

Shortened transcription

OKABC dráha 02C přistání povoleno vítr 010 stupňů 5 uzlů