

Vowel Identification

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DYNAVOICER PROJECT

FACULDADE DE ENGENHARIA DA UNIVERSIDADE DO PORTO

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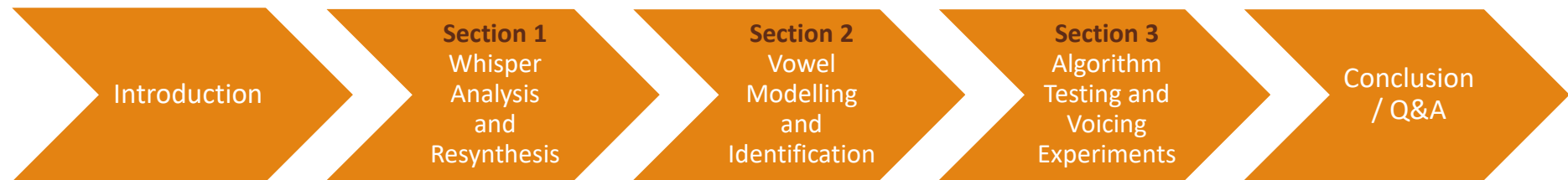
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Presentation Outline



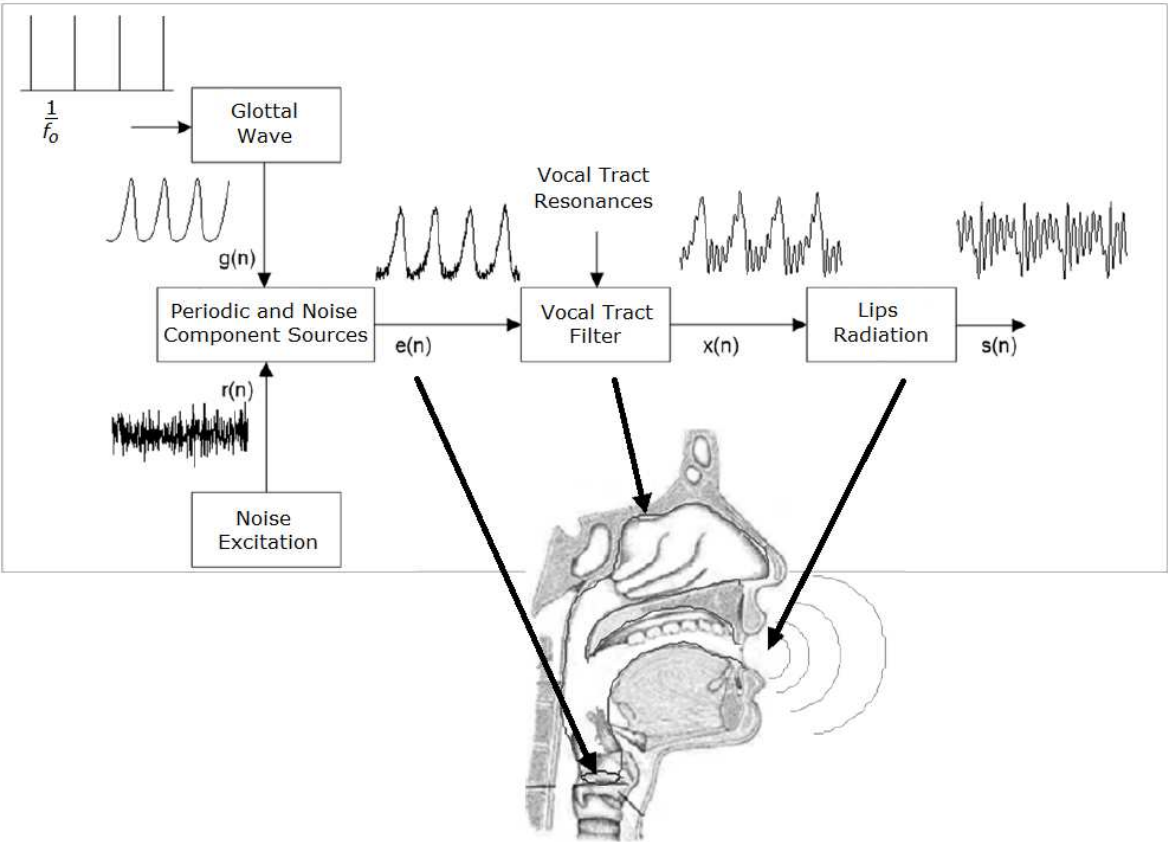
Introduction

Source-Filter Model

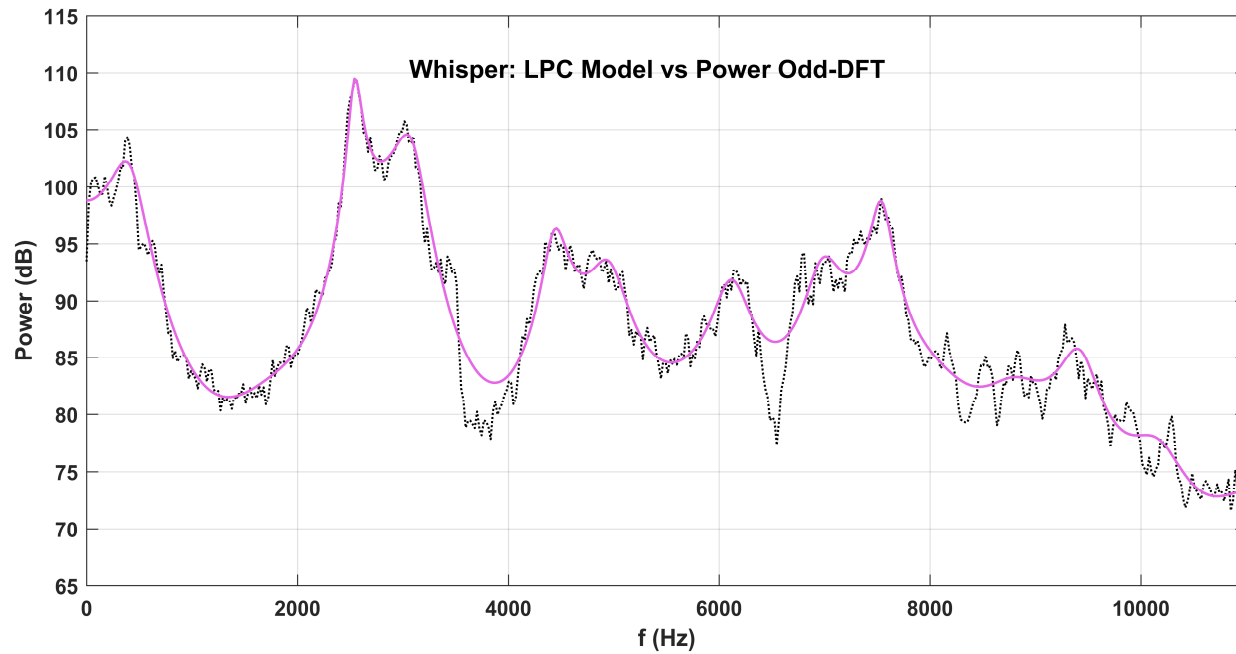
Whispered & Normal Speech

The Vocal Tract

Project Tasks

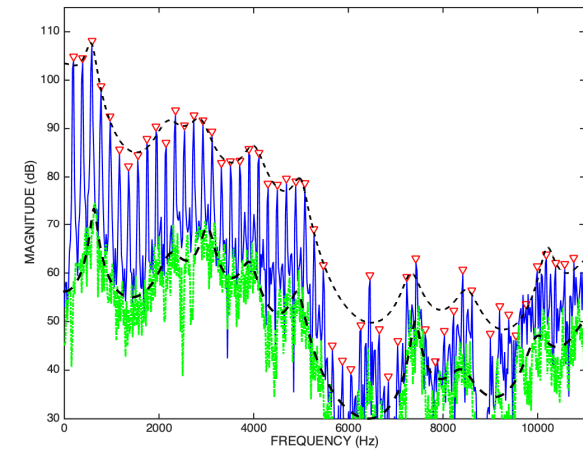


1 - Whisper Analysis and Resynthesis



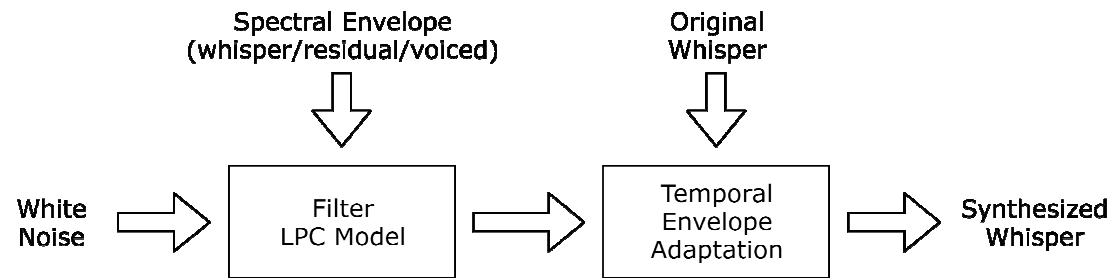
$F_s = 22.050$ Hz

LPC order = 44rd



voiced signal example:
harmonic structure,
normal and residual
envelopes













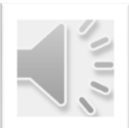



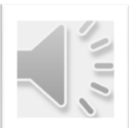



1 - Whisper Analysis and Resynthesis



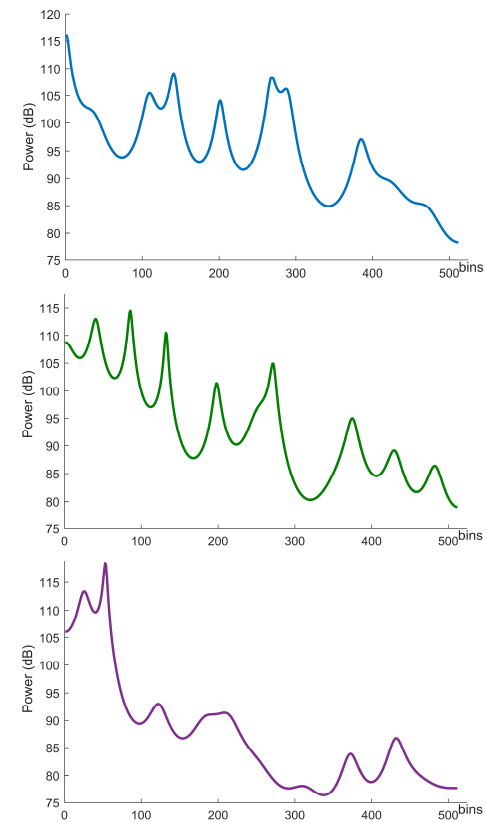
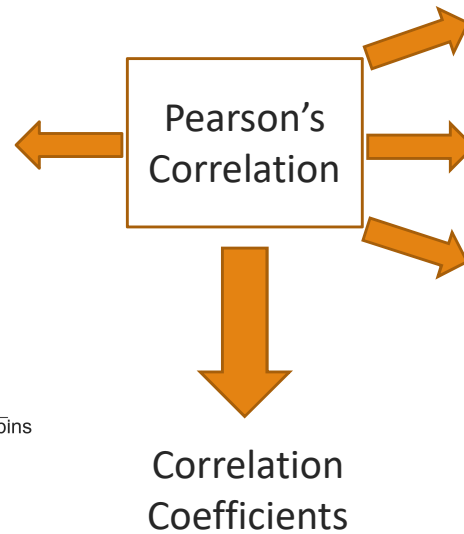
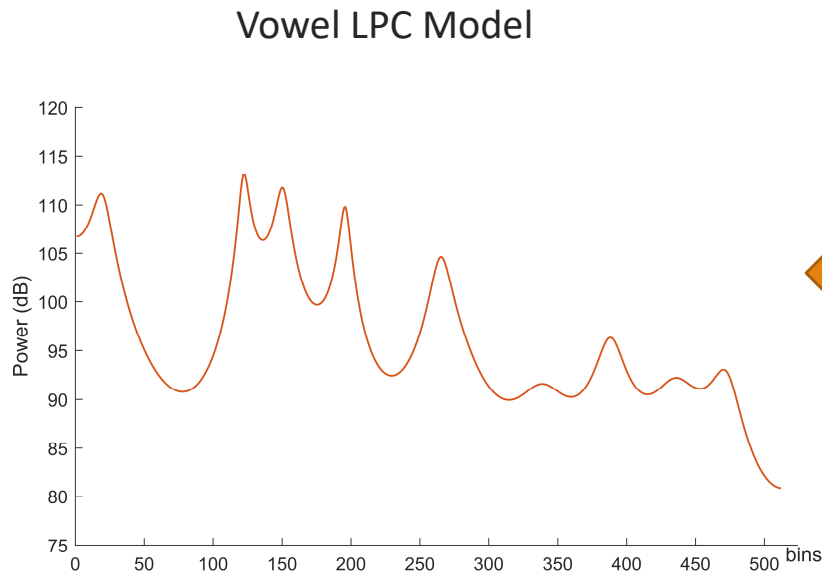
A simple resynthesis scheme:

- ❖ Power Odd-DFT based LPC model
- ❖ Frame based temporal envelope adaptation

1 - Whisper Analysis and Resynthesis

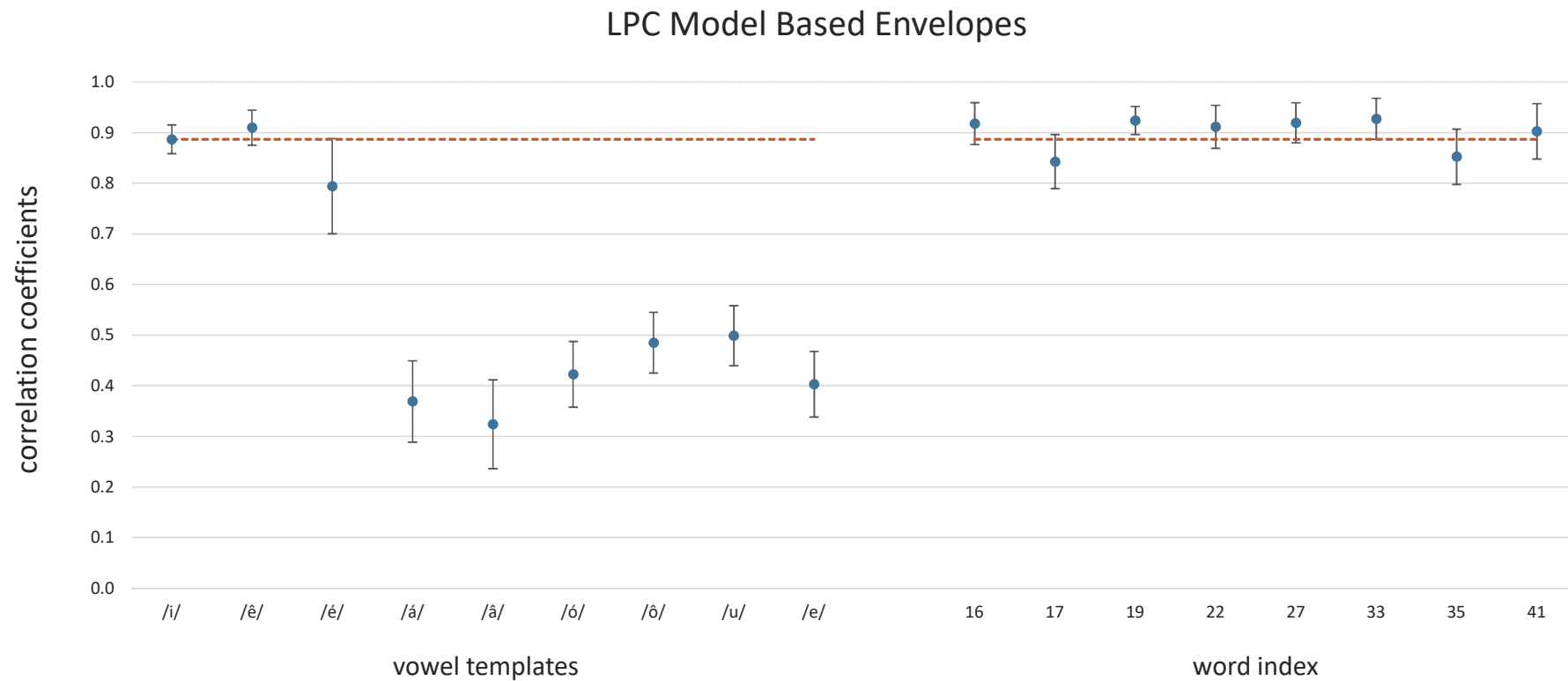
/a/				
/e/				
/i/	 original whisper	 whisper resynth	 residual envelope	 voiced envelope
/o/				
/u/				

2 - Vowel Modelling and Identification

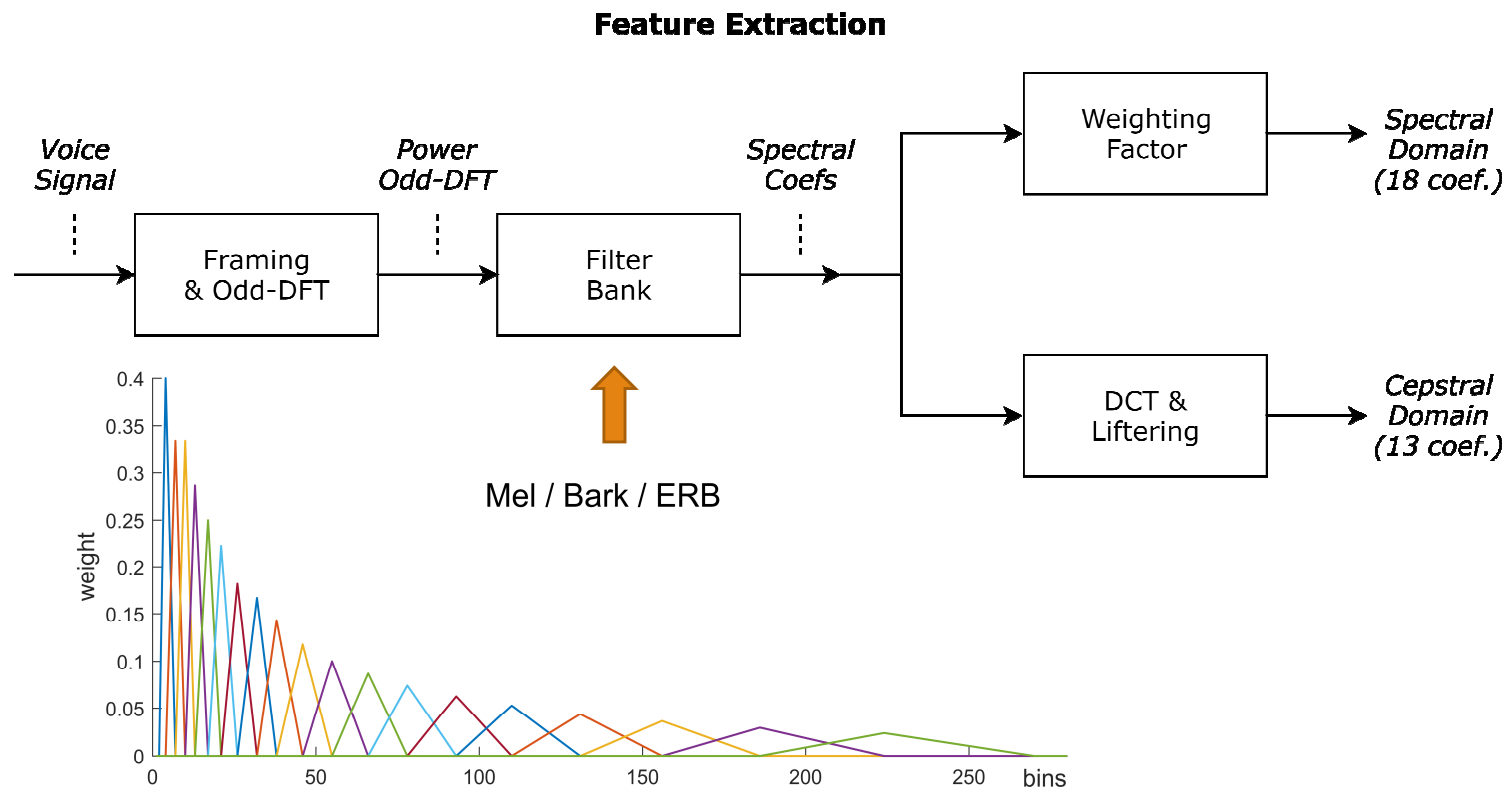


Vowel Templates

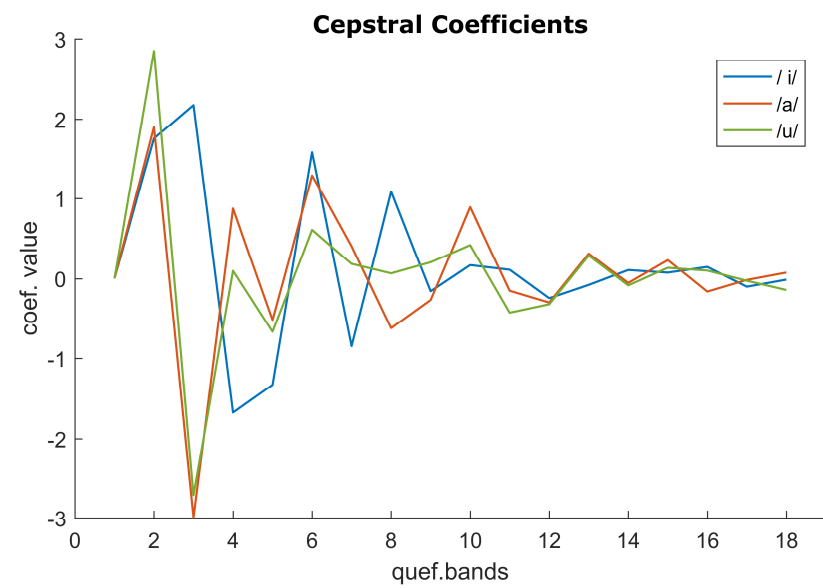
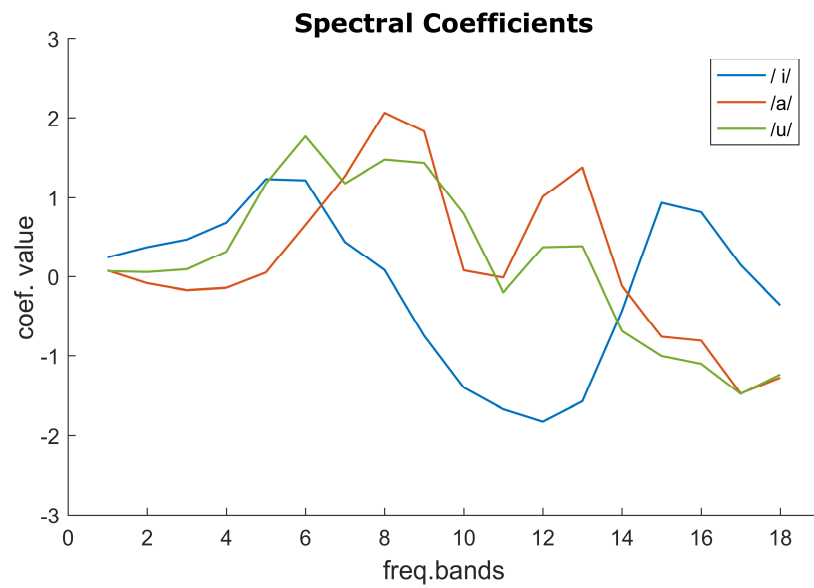
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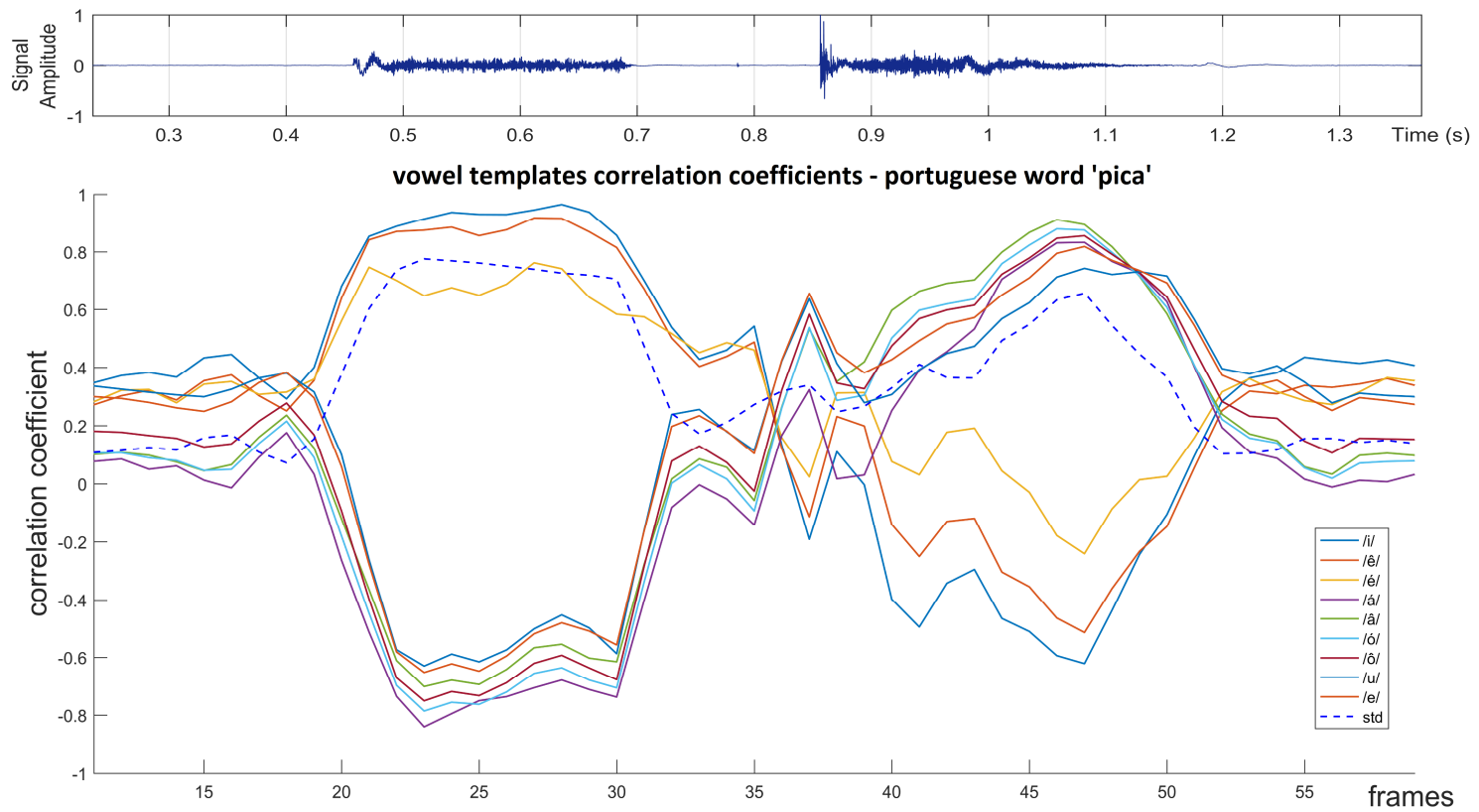
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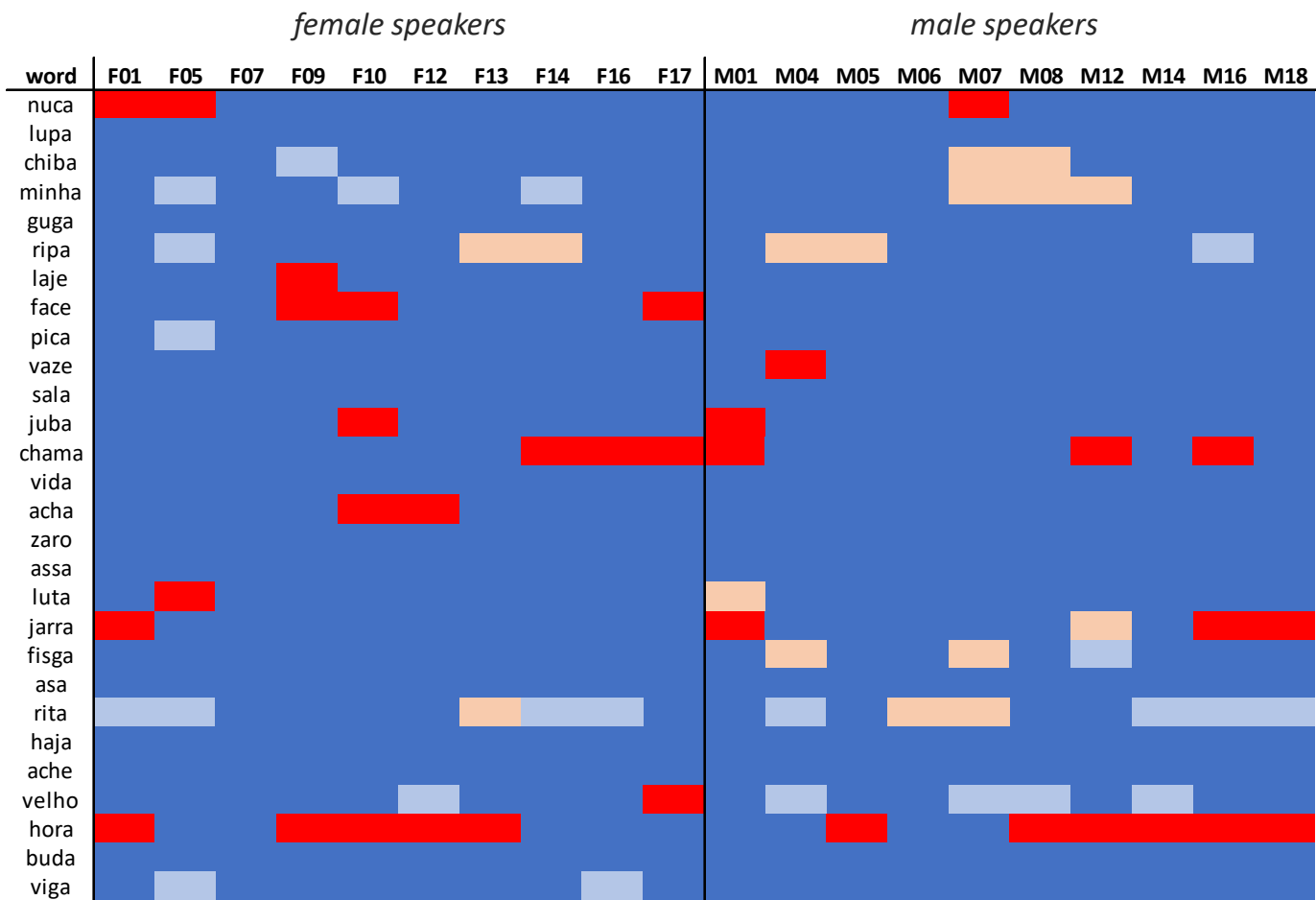


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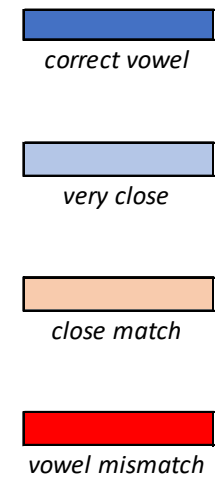


3 - Algorithm Testing and Voicing Experiments










3 - Algorithm Testing and Voicing Experiments



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H <u>A</u> JA			
V <u>E</u> LHO			
P <u>I</u> CA		ORIGINAL WHISPER	 VOICED VOWEL
H <u>O</u> RA			
L <u>U</u> TA			

Conclusion

Final Remarks

Future Work

Q&A