first attempts

vocoder

vocoder

importar inventior

recognition

other technologies

Kelerence

Computer Speech technologies

G. Moroz

21 March, 2019

Wolfgang Ritter [von Kempelen 1791: 76]

first attempts

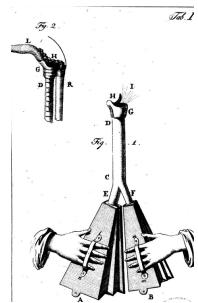
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Wolfgang Ritter [von Kempelen 1791: 107]

first attempts

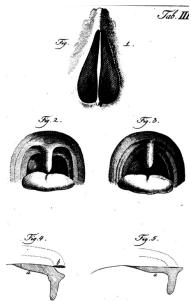
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Wolfgang Ritter [von Kempelen 1791: 110]

first attempts

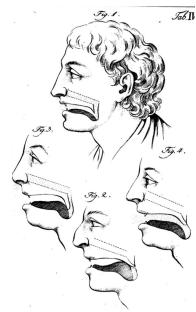
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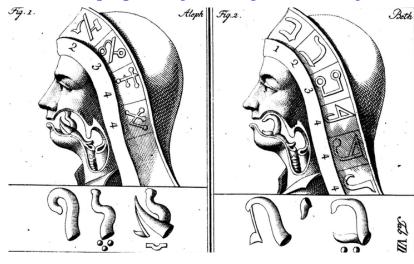
Wolfgang Ritter [von Kempelen 1791: 144]

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W. R. von Kempelen: chess-playing "automaton"

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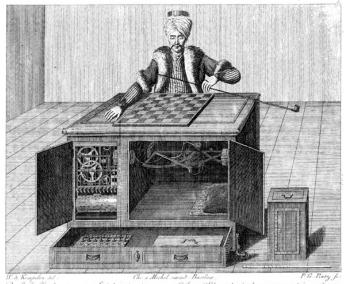
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Reference



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Development of vowel production theory

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- Christian Gottlieb von Kratzenstein
- W. Willis
- Sir Charles Wheatstone
- Hermann von Helmholtz
- L. Hermann
- Alexander Melville Bell and Alexander Graham Bell

Vocoder

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T. C

• In 1928 Bell Labs engineer Homer Dudley invented vocoder. [Dudley 1940: 508].

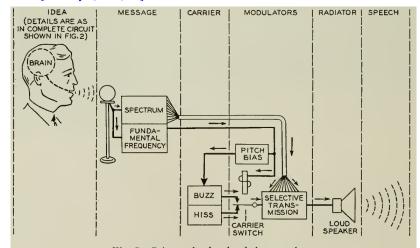


Fig. 7—Schematic circuit of the vocoder.

Vocoder

• In 1928 Bell Labs engineer Homer Dudley invented vocoder. [Dudley 1940: 509].

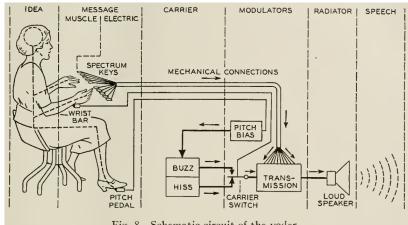


Fig. 8—Schematic circuit of the voder.

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D. C

презентация доступна: tinyurl.com/y4fuuxt5

Important inventions

first attempts

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- Furier transform
- Linear predicting coding (LPC)
- Mel-frequency cepstrum (MFC)
- Wavelets

Wavelet: from Martti Vainio presentation 2017

first attempts

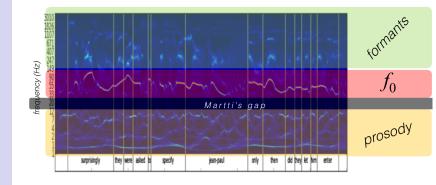
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Wavelet: from Martti Vainio presentation 2017

first attempts

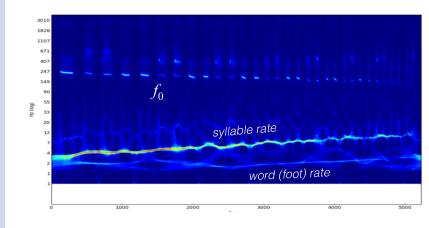
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Everybody dreams about speech recognition...

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Everybody dreams about speech recognition...

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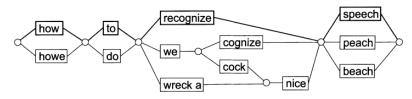
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References



A word hypothesis graph returned by the speech recognition component for the utterance "how to recognize speech". after [Schroeder 2013: 119]

Speech recognition

first attempts

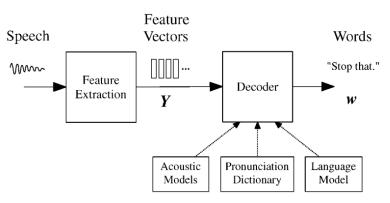
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speech recognition

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Reference



after [Gales, Young 2007: 6]

- Acoustic model: Hidden Markov Models or Deep Neural Network
- Pronunciation dictionary: Decision tree, Markov Chain model,
 N-gram language models
- Language model: *N*-gram models

Other Computer Speech technologies

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vocoder

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- Speech synthesis
- Speaker Identification
- Dialogue systems
- Prosody dependent tasks

Thank you!

Please, don't hesitate to write me agricolamz@gmail.com

Reference

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Gales, Mark, Steve Young (2007). The application of hidden markov models in speech recognition. *Foundations and Trends* in Signal Processing 1*(3), 195–304.

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von Kempelen, Wolfgang (1791). Mechanismus der menschlichen Sprache. Degen.