

first attempts

vocoder

vocoder

important
inventions

speech
recognition

other
technologies

References

Computer Speech technologies

G. Moroz

21 March, 2019

Wolfgang Ritter [von Kempelen 1791: 76]

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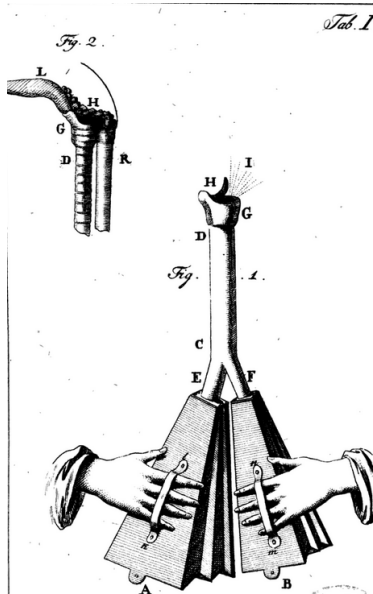
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Wolfgang Ritter [von Kempelen 1791: 107]

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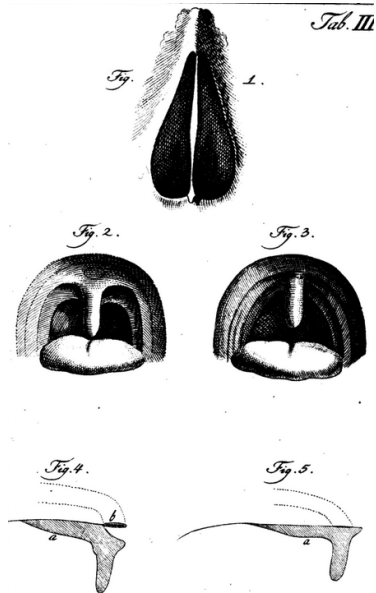
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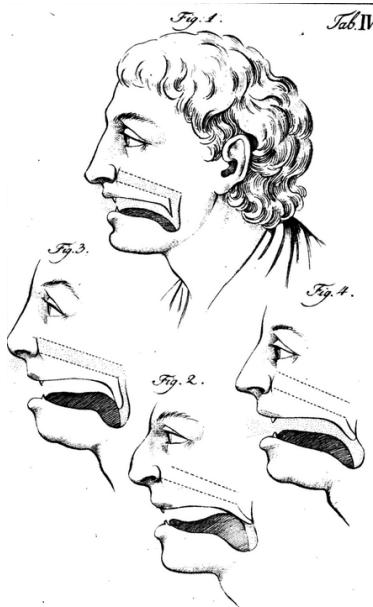
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Wolfgang Ritter [von Kempelen 1791: 110]



Wolfgang Ritter [von Kempelen 1791: 144]



Tab. III

W. R. von Kempelen: chess-playing “automaton”

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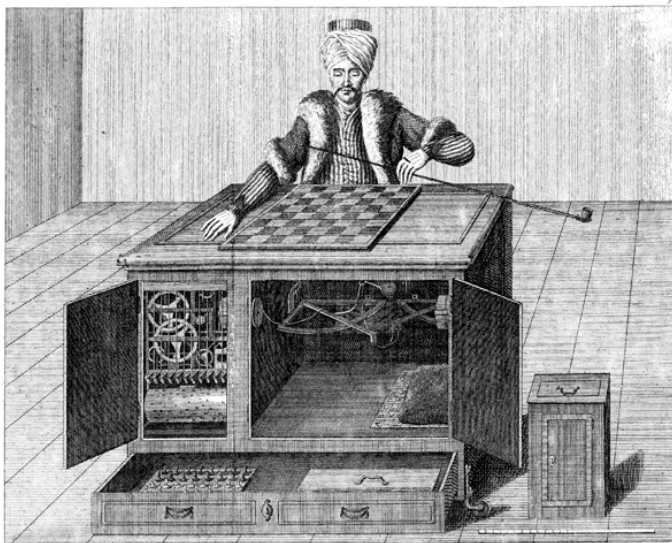
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W. de Kempelen del.

Ch. a Meckel sculp. Basileæ.

P. G. Ratz fecit.

Par Schach-Spieler, wie er vor dem Spiel gezeigt wird von vorn. Le Joueur d'Échecs, tel qu'on le montre avant le jeu par devant.

Development of vowel production theory

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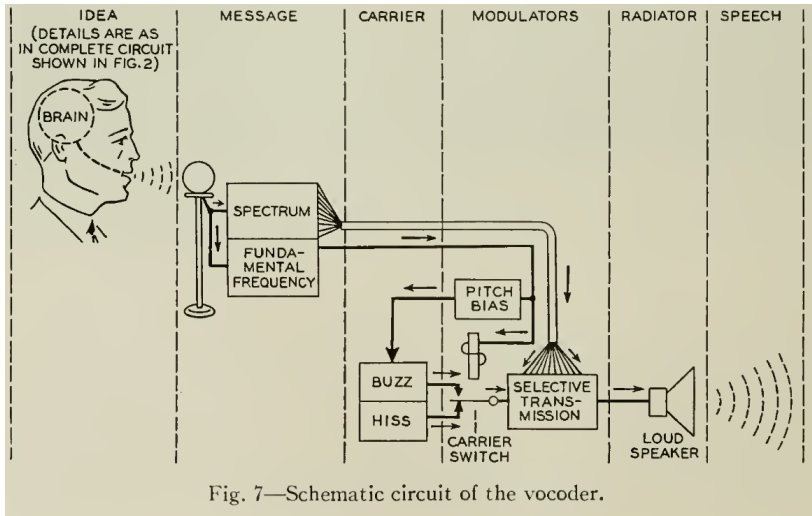
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References

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

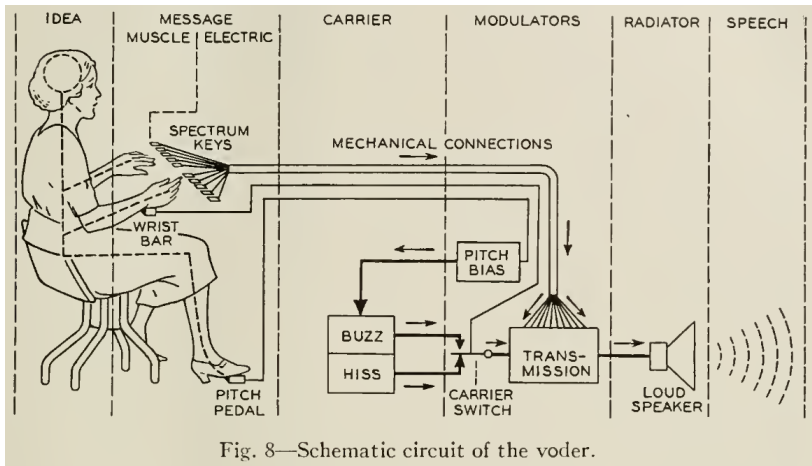
Vocoder

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



Vocoder

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



Important inventions

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

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Wavelet: from Martti Vainio presentation 2017

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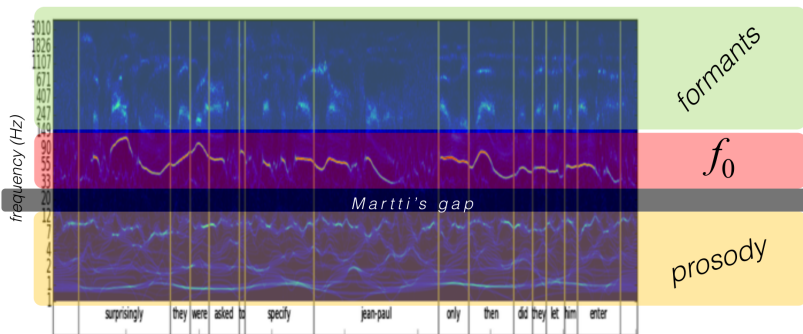
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Wavelet: from Martti Vainio presentation 2017

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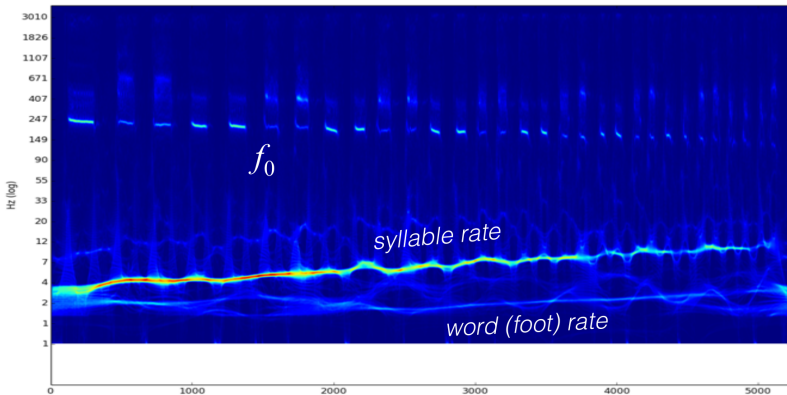
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Everybody dreams about speech recognition...

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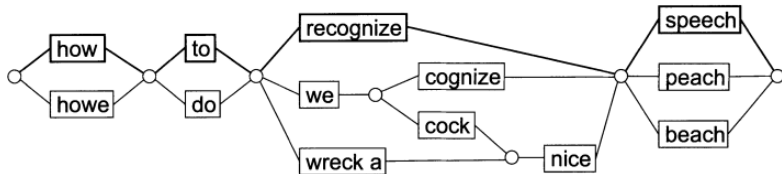
inventions

**speech
recognition**

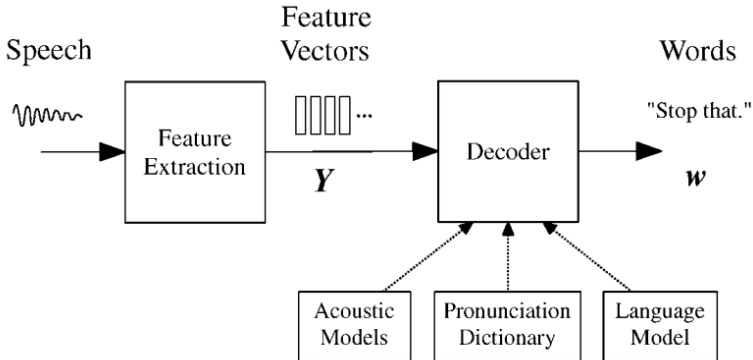
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Everybody dreams about speech recognition...



Speech recognition



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

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

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Thank you!

Please, don't hesitate to write me

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Reference

- Dudley, Homer (1940). The carrier nature of speech. *Bell System Technical Journal* 19(4), 495–515.
- 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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