

Title: An acoustically-driven model of the vocal tract for speech production

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Short Abstract:

This presentation will describe the development of a multi-tier vocal tract model in which the effects of articulatory movements that produce speech are generated by specifying independent acoustic events along a time axis. These events consist of directional changes in the resonance frequencies of an acoustically-neutral tract configuration and are transformed, via acoustic sensitivity functions, into time-varying modulations of the vocal tract shape. Each resonance deflection patterns (RDPs) is associated with a temporal event function that controls the time course of the derived vocal tract modulation. Because the duration of the events may be considerably overlapped in time, coarticulatory effects are automatically generated. The model will be used to demonstrate construction of syllables, words, and phrases with various speaking rates and talker characteristics.