Articulation kinematics and modeling: larynx, vocal tract and face

1. Modeling of the vocal cords
2. Kinematics of articulators
3. Modeling of the face and facial animation

Jorge Carlos Lucero
(*Universidade de Brasília*)

The vocal chords in the larynx are an aeroelastic oscillator, which act as a source of sound in voice production. Under proper conditions, air flows through the glottis and induces its oscillation. The glottis, in turn, modulates air flow, which passes through it and is affected by the oral and nasal cavities, resulting in the pressure wave we perceive as speech. So, speech results from the interaction of vocalization and articulation. Articulators modify the geometry of the vocal tract, and, as a result, the quality of a vocal sound. These lectures will present recent progress in studying the biomechanics of this system. Specifically, we discuss aspects of the mathematical modeling of the vocal chords, analysis of articulatory movements, and the generation of facial animations of speech by computer.