Introduction and Background [250]

Voice synthesis is different from other types of synthesis, the voice is a very rich and expressive sound source, so this adds more challenges. Due to the rich variety of the voice, there are numerous ways to synthesise the voice, most models start by looking at the vocal tract as a 17cm tube with the lips and mouth at one end and the glottis at the other.

The vocal tract can be represented using the source-filter model where be glottis is the source, and the larynx and lips are the filters changing the way the sound it produced. Using the Kelly-Lochbaum vocal tract model we can model the vocal tract as a series of standard digital waveguides. This idea was used in collaboration with Max Matthews in the first synthesis of singing voice on an IBM computer. The video below is the result