

Abstract for the contribution of *Antoine Serrurier* to the summerschool “Cognitive and physical models of speech production, perception and perception-production interaction” in September 2004.

Toward A COMPLETE 3D ARTICULATORY MODEL of NASALS

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This presentation addresses the modelling of the nasal tract in 3D. Nasals are produced when the nasal and oral tracts are connected through the nasopharyngeal port, controlled by the velum. Modelling the velum shape constitutes thus a key-point for the synthesis of nasals. The objective of this study is to build a database of 3D vocal and nasal tract shapes, supple (including in particular the velum) and rigid (like nasal passages), in order to develop an articulatory model able to produce nasals. The degrees of freedom of the velum will be extracted from these data. The data should cover the whole set of French phonemes, vowels and consonants, orals and nasals. After having exposed the context and the objectives, the presentation focuses on the data and the modelling process. The database is built on the MRI images acquired on one subject. Preliminary results are finally presented and discussed in order to highlight the expectations of this model, particularly in term of freedom degrees, correlations between organs and fundamentals movements in 3D.