

ACOUSTICS2008/3205
Instrument sound description and modelisation in the context of
computer aided orchestration

Damien Tardieu, Grégoire Carpentier and Geoffroy Peeters
Ircam, 1, pl. Igor Stravinsky, 75004 Paris, France

We present a work related to the description of instrumental sound in the context of computer aided orchestration. We define the orchestration problem as the search of instrument sound combinations that sound close to a given target. In the presented approach, instrument sounds are described by a set of acoustic features that are extracted from large sound sample databases. The features are then modeled by a probabilistic distribution. Finally the models are combined to approximate the description of a combination of instrument sounds. We discuss the requirement induced by the orchestration problem on the choice of the acoustic features and detail the chosen set of features. In a second part we describe the method used to learn the probabilistic model of different instruments and playing techniques and show that it allows to learn the models from few samples and to deduce the models of some playing techniques, pitches or dynamics that are not available in the training set. Finally we evaluate the proposed method on classification tasks and describe its integration in a computer assisted orchestration program.