

ACOUSTICS2008/3106

Study of brass performer gestures

René Causse^a and Vincent Freour^b

^aIRCAM, 1 Place Igor Stravinsky, 75004 Paris, France

^bIRCAM -CNRS (UMR 9912 STMS), 1, Place Igor Stravinsky, 75004 Paris, France

Brass instrument playing requires the musician to control his respiratory gesture and the elastic properties of his lips. This raises the question of musician gesture optimisation and strategy in order to complete a musical exercise. It also makes gesture characterization very hard to conduct in a non-invasive way. On the other hand, it is possible to measure some control parameters (linked to the respiratory and lip- adjustment gesture) like lip force applied on the mouthpiece and mouth air pressure. These parameters measurements and also the specific mouthpiece receiver developed to measure lip force with a minimum interference to the player are presented. Respiratory flows during live playing are also evaluated thanks to the calibration of respiratory belts used on the thoracic and abdominal regions of musicians. Details of the method for carrying out this type of measurement and preliminary results are reported. During this measurement sound recording and analysis are also conducted thanks to a set of audio descriptors. Links between control parameters measurements and sound characterisation are examined. Parallel development of a automated artificial mouth, used for experimental validations, is also outlined. [work, within the CONSONNES project, is lead with the support of the French Research National Agency ANR].