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Between the frog and the tip - bowing gestures and bow-string interaction in violin playing

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The motion of the bow gives a natural visualization of a string performance. Watching the player's bowing may augment the communicative power of the music, but all relevant bow control parameters are not easy to capture by a spectator. The string player controls volume of sound and tone quality continuously by coordination of three basic bowing parameters (bow velocity, bow-bridge distance, and bow force), which set the main conditions for the bow-string interaction. At a more detailed level of description, the tilting of the bow, which among other things controls the effective width of the bow hair, enters into the model. On a longer time scale, pre-planned coordination schemes ('bowing gestures'), including the basic bowing parameters and the angles between the path of the bow and the strings, builds the performance. Systems for recording bowing parameters will be reviewed and results from old and current studies on bowing gestures presented. The player's choice and coordination of bowing parameters are constrained both in attacks and 'steady-state' according to bow-string interaction models. Recent verifications of these control spaces will be examined. Strategies for starting notes and examples of how players do in practice will be presented and compared with listeners' preferences.