Motion Primitives as a Model for the Experimentally Observed Spinal Fields

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Abstract: Recent experiments on the central nervous system of frogs and rats [1] have suggested a new paradigm for controlling complex nonlinear kinematic chains. This paradigm consists in writing the control variable as a linear combination of a finite number of elementary control actions. This seminar will concern a recently developed technique for synthesizing these elementary control actions [2][3][4]. The proposed primitives have two appealing features. First, they can be easily scaled to drive the system to a desired final state in an arbitrary time. Second, they are invariant under modifications of some geometrical parameters of the kinematic chain to be controlled. Finally, all these results are used for simulating human reaching movements; simulated trajectories are compared with human captured data.