

Computer algebra in the service of robotics

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Abstract: Computer algebra is the art of computerizing mathematics through exact algorithms. In particular, it provides versatile routines that can be used for solving systems of polynomial equations and inequalities over the reals.

In this talk, I will present some recent developments in this area, especially for answering connectivity queries over solution sets to polynomial systems that can be used for kinematic singularity analysis and deciding the cuspidality of manipulators.