

## Improvement of Positioning Accuracy of Delat Parallel Robot

**Dominique Debalise**, Cedric Baradat, Patrick Maurine, Vigen Arakelian

*LMA2G / INSA, Rennes, France*

In recent years, there have been promising applications of parallel structures in medical robotics and the machine-tool industry, which require high positional accuracy. In other words, more precise reproduction of predetermined end-effector positions, is strictly related to a higher manufacturing accuracy. For this purpose, in the present study, a new method of improving the positioning accuracy of the Delta parallel robot is developed. The suggested approach is based on geometrical calibration, which is carried out by the integration of the elastic deformations structure in the calibration process. At first, the robot structure is considered a rigid-body system. The end-effector location is calculated by the forward kinematic model. Then, the geometrical model of the robot is studied, taking into account the deviation due to the elasticity of links. Such a solution allows one to obtain a more exact geometrical model, and consequently, to improve the positioning accuracy of the Delta robot.

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