
OPEN POSITION FOR A PHD-STUDENT

within the FWF project "Singularity Closeness of Stewart-Gough Platforms"

There is an open position for a PhD-student within the project P 30855 "Singularity Closeness of Stewart-Gough Platforms" funded by the Austrian Science Fund FWF. The research will be conducted at the "Center for Geometry and Computational Design" (<https://gcd.tuwien.ac.at>) of the Vienna University of Technology.

The employment starts in summer/spring 2018 and lasts for 4 years. It contains 30 hours per week for a gross monthly salary of approx. 2 000 EUR.¹ Moreover, the PhD-student has a moderate teaching load of max. two hours/week every semester.

The project leader is looking for a talented, self-motivated individual with a master degree in geometry and/or mathematics or a related subject, preferable with a strong background in (numerical) algebraic geometry. The candidate should also be familiar with the software BERTINI and MAPLE, respectively.

Abstract: A parallel manipulator of Stewart-Gough (SG) type consists of a moving platform, which is connected via spherical-prismatic-spherical legs with the base, where only the prismatic joints are active. The number of applications of SG manipulators, ranging from medical surgery to astronomy, has increased enormously during the last decades due to their advantages of high speed, stiffness, accuracy, load/weight ratio, etc. One of the drawbacks of these parallel robots are their singular configurations, where the manipulator is shaky while all leg lengths are fixed. As a consequence the actuator forces can become very large, which may result in a breakdown of the mechanism. Therefore singularities have to be avoided. This reasons the high interest of the kinematic/robotic community in evaluating the singularity closeness of SG platforms, but geometric meaningful distance measures for this task are still missing. The research project closes this gap. For more details, please see: <http://www.geometrie.tuwien.ac.at/fg3/closeness.html>

Candidates are asked to submit their application (curriculum vitae and motivation letter) to nawratil@geometrie.tuwien.ac.at. For further requests, please contact the project leader:

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¹For details see the personnel costs given by the FWF (<http://www.fwf.ac.at/en/research-funding/personnel-costs>).