University of Duisburg-Essen Faculty of Engineering Chair of Mechatronics

# Highly-Dynamic Movements of a Humanoid Robot Using Whole-Body Trajectory Optimization

# Master Thesis Maschinenbau (M.Sc.)

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Offen im Denken



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This study was carried out at the department of FILL

I declare that this thesis was composed by myself, that the work contained herein is my own except where explicitly stated otherwise in the text, and that this work has not been submitted for any other degree or professional qualification except as specified.

Essen, July 25, 2018

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## Abstract

**Keywords:** Humanoids, Dynamic Bipedal Walking, Motion Planning, Multi-Contact Optimal Control, Differential Dynamic Programming, Trajectory Optimization

Kurzfassung
Kurzfassung

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