Czech Technical University in Prague
Faculty of Electrical Engineering

Department of Cybernetics

BACHELOR PROJECT ASSIGNMENT

Student: Michal N e o r a l

Study programme: Cybernetics and Robotics

Specialisation: Robotics

Title of Bachelor Project: Extraction of Features from Moving Garment

Guidelines:

1. Study the process of creating dynamic physical models of the fabric.
2. Study the methods of measuring and realization of experiments on the CloPeMa robotic workplace.
3. Design a method of measurement and extraction of image features. The features will be used to estimate the parameters of the dynamic model of garment.
4. Implement the proposed method in Matlab and necessary part of the code in the ROS environment.
5. Prepare a data set that will be used to validate the methods for estimation of the model parameters.
6. Prepare adequate documentation.

Bibliography/Sources:

[1] Šonka, Milan; Hlaváč, Václav, and Boyle, D. Roger: Image Processing, Analysis and Machine Vision. Thomson, Toronto, Canada, 3 edition, April 2007. ISBN 978-0-495-08252-1.
[2] Bender, Jan; Deul, Crispin: Adaptive cloth simulation using corotational finite elements. Computers & Graphics-UK 37 (7),: 820-829, DOI 10.1016/j.cag.2013.04.008, 2013.
[3] Lee, Yongjoon; Ma, Jaehwan; Choi, Sunghee: Automatic pose-independent 3D garment fitting. Computers & Graphics-UK, 37 (7), 911-922, DOI: 10.1016/j.cag.2013.07.005, 2013.
[4] Kang; Liu, Yue; Ogunmakin, Gbolabo; et al.:Panoramic Gaussian Mixture Model and large-scale range background substraction method for PTZ camera-based surveillance systems. Machine Vision and Applications, 24 (3), 477-492,DOI: 10.1007/s00138-012-0426-4, 2013.

Bachelor Project Supervisor: Ing. Pavel Krsek, Ph.D.

Valid until: the end of the summer semester of academic year 2014/2015

L.S.

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Dean

Prague, January 10, 2014