Application Form / Workshop Description

Session Title:
Intelligent Robots for Manipulation of Flexible Objects

Organiser(s):

- Knud Aulkær Andersen, Mech. Eng. B.Sc., Project Manager at Danish Technological Institute (DTI), Centre for Robot Technology, Forskerparken 10, 5230 Odense M, Denmark. Email: kaa@dti.dk, phone: +45 72 20 21 54
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Motivation and objective:
The focus of the workshop is on the challenges met during detection and handling of flexible objects, including estimation of the nonlinear object model, pose estimation of the object(s), as well as how to handle and predict deformations in a robotic system.
The aim is to clarify the possibilities in future robotics platforms for handling flexible objects, which will open for future possible tasks to be solved by robots in the industry. The long term goal, sought by enabling handling flexible objects, is to generate more workplaces and better work environment in the industry – keeping workplaces in Europe.

Approach:
The workshop will be a series of presentations (3 – 5), with focus on different aspects of the entire process of handling flexible object, concluded with a Round Table discussion. The various presentations are dependent on the final accept by the invited speakers.

Agenda of the workshop:
10 Min - Overview of Intelligent Robots for Manipulation of flexible objects
By Knud Aulkær Andersen
30 Min - Vision system for extraction real-time 3D object information
By Prof. Dr.-Ing. Reinhard Koch and Andreas Jordt
30 Min - Simulation of internal forces in deformable objects
By Prof. Morten Willatzen & Andreas Rune Fugl – Not confirmed
30 Min - Robotic grasping and handling of deformable objects
By Prof. Norbert Krüger, Prof. Henrik Gordon Petersen & Leon Bodenhagen
30 Min - Round Table Discussion 30 min

Invited speaker(s):

- Knud Aulkær Andersen, Project Manager
  Danish Technological Institute
  Centre for Robot Technology

- Prof. Dr.-Ing. Reinhard Koch & Andreas Jordt
  Christian-Albrechts-Universität zu Kiel
  Institut für Informatik

- Prof. Norbert Krüger, Prof. Henrik Gordon Petersen & Leon Bodenhagen
  University of Southern Denmark
  Maersk Moller Institute
  Prof. Henrik Gordon Petersen is currently not confirmed

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http://www.robotics-forum.eu

- Prof. Morten Willatzen & Andreas Rune Fugl
  University of Southern Denmark
  Mads Clausen Institute
  Not confirmed

How can participants contribute to, and prepare for, the workshop?
Visiting the website mentioned in "Further information" will provide the attendants with an introduction to the technology and the approach presented by the speakers.
The attendants are encouraged to bring forward possibly application cases of the technology at the workshop for the Round Table discussion.
Additionally we encourage that the demonstrator "Intelligent Robots for Handling of Flexible Objects" *at display is visited before the workshop*

Further information:
Visiting the website www.interreg-robot.eu which contains articles, videos and other scientific work within the area of the workshop, will help clarify the problems investigated by speakers and gives a more detailed overview to flexible object handling.

A demonstrator from an actual project which bundles various parts of the above technology will be on display at the Forum. The technologies such as vision, modelling and grasping together with handling of flexible objects can be investigated in a real application. The demonstrator intends to show state-of-the-art for such technologies, and will in the future be transferred to system integrators working on high-level robotic platforms.

Planned follow-up:
The outcome of the workshop can be strengthened by collecting information about the industrial need for handling of flexible objects and in which business areas this could be applied. This information will be made available to attendants of the workshop.

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