

# Application Form / Workshop Description



## Session Title:

3 sessions:

1. Introduction to state charts and reusable, modular task specification through the Orocos eco-system
2. Hands-on: getting started with state charts in the Orocos eco-system
3. Hands-on: getting started with instantaneous motion specification using constraints (iTaSC): reusable and modular task specification

## Organiser(s):

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## Motivation and objective:

The workshop consists of three rather independent parts. It is advised but not required to follow the preceding session(s) when attending session two or three.

1. The first session is a presentation session, it introduces the basic concepts of Orocos application programming, followed by rFSM state charts and the iTaSC framework.
2. The second session is a hands-on session, that aims at making the participants familiar with rFSM state charts, which is a powerful though easy to use tool for robotic coordination and supervision tasks,
3. The third sessions is also a hands-on session, that aims at introducing the concepts of constraint-based motion specification using the iTaSC framework. This framework and its software implementation was developed at the KU Leuven during the past years. It's key advantages are the composability of (partial) constraints and reusability of the constraint specification. The software is an open-source project, which has recently reached its 2.0 version.

## Approach:

1. Presentation session, giving a high-level overview of rFSM and iTaSC by introducing the key concepts.
2. Hands-on session: guided exercise where the participants will have to create an application with interacting state machines, that can be used for example to coordinate the behavior of the iTaSC application of the following session.
3. Hands-on session: guided exercise where the participants will have to create an application consisting of multiple tasks on a robot in simulation.  
Eg. Drawing a figure on a table and avoiding a moving obstacle with a Kuka Youbot.

## Agenda of the workshop:

1. 15min: Orocos framework, 30min: rFSM concepts, 45min: iTaSC concepts
2. 1,5h: hands-on
3. 1,5h: hands-on, following the 9 steps of the iTaSC design workflow (<http://www.orocos.org/wiki/orocos/itasc-wiki/itasc-quick-start#toc6>)

## Contributers and speakers:

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## **How can participants contribute to, and prepare for, the workshop?**

*The participants are invited to bring their own laptop with the software installed. We will provide instructions on how they can prepare to participate. A basic understanding of robotics and software will be needed to be able to complete the tutorial.*

*Instructions can be found on:*

*<http://www.orocos.org/wiki/orocos/european-robotics-forum-2012-workshops>*

*Further information:*

*Publications, in depth explanation, installation instructions, FAQ and tutorials can be found on:*

- 1. [www.orocos.org](http://www.orocos.org)*
- 2. [www.orocos.org/rfsm](http://www.orocos.org/rfsm)*
- 3. [www.orocos.org/itasc](http://www.orocos.org/itasc)*

## **Planned follow-up:**

*The feedback of this session will be used to further improve the framework and the tutorials.*