An Outdoor Robotics Challenge for Land, Sea and Air


Presentation by: Timo Röhling
In a nutshell:

Real-world robotics challenges that will test the intelligence and autonomy of outdoor robots in demanding mock disaster-response scenarios
Why?

- To push the state-of-the-art in *multi-robot collaboration, cooperation and shared situation awareness* to tackle real-world complex tasks in dynamic environments.
- To open an user-led process of *defining standards* for outdoor robotic vehicles through *the multi-robot competition scenarios*.
- To create research, industry and user-recognised benchmarks for robot performance measurement and comparison.
- To foster a community of roboticists through *workshops*.
- To grab the imagination of the public.
How?

Three international competitions:

- Land 2013
- Underwater 2014
- Land & Air 2015
Inspired by the 2011 Fukushima nuclear accident, the 2015 euRathlon challenge will be the world's first competition that requires autonomous flying, land and sea robots to work together to survey the disaster, collect environmental data, and identify critical hazards.
euRathlon 2013

- 23-27 September 2013 Berchtesgaden, Germany
- 13 teams from 7 countries
- Five challenges:
  - Reconnaissance and surveillance in urban structures
  - Mobile manipulation of hazardous materials
  - Search & rescue in smoke filled underground structure
  - Autonomous navigation
  - Reconnaissance and safe disposal of explosive device
- Competition Director: Dr Frank Schneider

Manipulation of hazardous materials

Preparing the robot

Watching the Urban search challenge

Autonomous Navigation
euRathlon 2013

- Video: euRathlon 2013 land competition - Day 1
  http://www.youtube.com/watch?v=fVuyzsz3rVM
euRathlon 2013 workshop

- 24-26 September 2013 Berchtesgaden
- **Keynote speaker** Mr Shinji Kawatsuma, Japan Atomic Energy Authority (JAEA) and chief engineer for the robotics team at Fukushima Daiichi NPP
- 13 expert talks and 5 student posters
- Workshop Lead: Prof Juha Roning

Keynote: Mr Shinji Kawatsuma

Dr -Ing Michael Gustmann, KHG
euRathlon / ARCAS 2014 Workshop and Summer School

- Seville, 15-18 June 2014. In collaboration with ARCAS EU-FP7 project
- Aiming to bring together research/competitor communities
- Common to all modalities: land, sea, air
- 3 Keynote speakers
- Successful workshop for student/researcher competitors, or would-be competitors: ~36 participants from ~10 different countries
- Papers from attendees and tutorial sessions on topics relevant to real-world robotics including intelligence, autonomy, human robot interfaces, standards and benchmarking
euRathlon 2014 sea competition

• La Spezia, Italy, September 29 - October 3, 2014, CMRE (after SAUC-E).

• euRathlon 2014 sea competition can be used as a valid benchmark to design and test solutions for the euRathlon Challenge 2015.

• Five challenges:
  - Long range autonomous underwater navigation
  - Environmental survey of the accident area (mapping)
  - Leak localization and structure inspection
  - Interaction with an underwater structure (manipulation)
  - Combined scenario

• Five Industry needs: Navigation, Control, Sensing and persistent autonomy, Manipulation and Underwater communication.

• Participants can comment about the 2014 scenarios and benchmarking on euRathlon forum http://www.eurathlon.eu/phpbb/
euRathlon 2015 Challenge

- The island of Favignana, Sicily (Italy), early October 2015.
- The first draft of euRathlon 2015 scenarios will be published in June 2014.
- euRathlon 2015 workshop will be held in parallel to the competition.
Thank you!

• Further information:

http://www.eurathlon.eu

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