Advanced Autonomous Vehicle Design for Severe Environments

13th-18th July 2014
Coventry, UK

Jointly organized by the University of Alabama at Birmingham, Coventry University and KTH Royal Institute of Technology, this Advanced Study Institute (ASI) provides an avenue to meet with world class professionals, learn and discuss leading-edge research and engineering accomplishments and future trends in:

- Manned/unmanned ground vehicle dynamics including dynamics of agile, operationally fused and mechatronic/cyber systems
- Mobility and energy efficiency
- Vehicle design

ASI Topics

The following topics from the manned/unmanned ground vehicle area will be discussed:

- Historical aspects, pivotal accomplishments, and analysis of future trends in road/off-road manned and unmanned vehicle dynamics including efficient and sustainable power flow management between interdependent vehicle systems, operational fusion of dynamics of vehicle interdependent and independent systems;
- Terramechanics, soil dynamic characteristics, uncertainties and stochastic characteristics of vehicle-environment interaction for agile vehicle dynamics modeling;
- New methods and techniques in on-line control and learning for vehicle autonomy;
- Innovative on-line, real-time modeling methodologies, open architecture software, and visualization in virtual environment of vehicles with multi-body, multi-physics, and multi-input-output systems with interconnected dynamics;
- Fundamentals of agility and severe environments;
- Mechatronics and cyber-physics issues of agile vehicle dynamics to design for control, energy harvesting and cyber-security;
- Case studies of agile and inverse vehicle dynamics and vehicle systems design including suspension and driveline.

This event is organised by:

[Logos of UAB, Coventry University, KTH]
Attendees will have an opportunity to listen and have technical discussions with the world’s leading researchers and engineers:

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<tr>
<th>Name</th>
<th>Affiliation</th>
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<tr>
<td>Prof. Michael Blundell</td>
<td>Coventry University</td>
<td>UK</td>
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<td>Michael Dickison</td>
<td>Coventry University</td>
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<tr>
<td>Dr. Gregory Hudas</td>
<td>US Army Tank Automotive Research Engineering Center</td>
<td>U.S.A.</td>
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<tr>
<td>Dr. Farbod Khoshnoud*</td>
<td>Brunel University</td>
<td>UK</td>
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<td>Dr. Jianbo Lu</td>
<td>Ford Motor Company</td>
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<td>Prof. Corina Sandu</td>
<td>Virginia Tech</td>
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<td>Prof. Sergey Shukhman</td>
<td>Ariel University</td>
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<td>Prof. Bharat Soni</td>
<td>Tennessee Technological University</td>
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<td>Prof. Annika Stensson Trigell</td>
<td>KTH Royal Institute of Technology</td>
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<td>Dr. Kyriakos Vamvoudakis</td>
<td>University of California, Santa Barbara</td>
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<tr>
<td>Prof. Vladimir Vantsevich</td>
<td>University of Alabama at Birmingham</td>
<td>U.S.A.</td>
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* Co-author: Prof. Clarence de Silva, The University of British Columbia (Canada).

**Invitation**

**Industry:** Young engineers and engineering managers (recently received PhD degrees) working in vehicle dynamics modeling and control, vehicle energy efficiency and mobility area, sensor and actuator integration and vehicle mechatronic systems design, tire-road/terrain interaction.

**Academia:** Young faculty members and research professors, postdocs, and PhD students who are about to obtain a PhD.

**Research Institutions:** Young employees of governmental research agencies and private institutions (recently received PhD degrees) who are involved in the engineering of manned and unmanned vehicle applications for road and terrain environments.

Faculty members, researchers and engineers with PhD or MSc degrees who are not falling in the above-listed categories might be admitted in limited numbers at no cost to NATO and ASI organizers.

**IMPORTANT:**

1. If you fall in one of the above-listed categories, your participation expenses might be fully or partially covered. Please check the category of your country on page 4 of the NATO ASI Guidelines at [http://www.nato.int/cps/en/natolive/87260.htm](http://www.nato.int/cps/en/natolive/87260.htm). Note that the number of available free seats is limited.

2. If you are not eligible for the full/partial coverage, you still can participate in the event by covering your travel, hotel and other personal expenses. There is NO registration fee.

3. You should complete the registration form (attached) and send to Ms. Heather Creel, ASI Secretary at [hcreel@uab.edu](mailto:hcreel@uab.edu).

4. If you have logistics questions contact Ms. Creel before you send your form.

5. Neither NATO nor the ASI organizers take any health or accident insurance for the participation in the ASI.

**www.coventry.ac.uk/asi**

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