



## **The 2018 IEEE Intelligent Vehicles Symposium (IV'18)**

**Changshu, Suzhou, China**

**June 26 - June 30, 2018**

**IV'18 Special Session on**

**Fully actuated drive-by-wire electric vehicles**

### **Scope and goal:**

Electric Vehicles (EV's) are enjoying a surge in interest based, having advantages for energy security, fuel economy and low emissions. Electrification is also an enabler for developing new vehicle intelligence, to improve mobility, comfort, safety, reliability and overall vehicle efficiency. However full commercialization remains a challenge and more work needs to be done to tip the balance in favour of electric vehicles for all aspects of transportation.

One area for further development is to increase the range of sensors and actuators in EV's to further drive the commercialization and marketization. With rapid development of in-wheel motors (IWMs) and electric/electronic technology, an EV with all its actuators using drive-by-wire technology has become an ideal platform to develop the next-generation intelligent vehicle. A full drive-by-wire EV can be a highly over-actuated system whose four-wheel torques and steering angles can be controlled independently. This kind of four-wheel-distributed traction, braking and steering system can enhance the performance of integrated vehicle dynamic and motion control by maximizing the available grip, increasing the manoeuvrability and providing extra flexibility for robust and reliable operation. Furthermore, this kind of full drive-by-wire electric vehicle provides a suitable platform to study wider aspects of energy efficiency, optimal motion control, resilient by-wire control, as well as proving a working platform for developing further intelligent vehicle capabilities such as collision avoidance and self-driving, self-parking etc.

### **Topics of interests:**

- Current and future trends in fully actuated drive-by-wire EV's
- Braking energy recovery technology
- In-wheel motors (IWMs) technology for EV's
- Intelligent motion control for fully actuated drive-by-wire EV's
- Active safety control for EV's
- Redundancy and fault-tolerance control for fully actuated drive-by-wire EV's
- Integrated chassis control for fully actuated drive-by-wire EV
- Intelligent vehicle platooning control for EV's

- Path planning and tracking control
- Driver-vehicle interaction control for over-actuated chassis systems
- Driver assistance and automation systems relevant to EV's
- Advanced transportation control for fully actuated drive-by-wire EV

**Important Dates:**

Papers submission: January 29<sup>th</sup>, 2018

Notification of acceptance/rejection: March 31<sup>st</sup>, 2018

Camera-ready version due: April 8<sup>th</sup>, 2018

Conference days: June 26<sup>th</sup> - July 1<sup>st</sup>, 2018

**Paper Submission:**

Prospective authors are required to submit their manuscripts electrically through the conference Papercept submission system (<https://its.papercept.net>) and with the code “y2wd3” for the special session. Submitted papers shall not exceed six pages as a pdf file in IEEE two column format. See more detailed information at the conference website (<http://www.2018iv.org/>) to prepare your paper.

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