

学术报告会

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Future driving: the automated, autonomous and cooperative challenges

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Abstract:

Self-driving cars is a hot topic today, far beyond the research community. Google indeed disturbed the competition and it is now seen as a «game changer». However there are still lots of challenges to overcome before these cars can be deployed at a large scale. This presentation aims at giving some scientific insight of the problems of self-driving cars. First of all the vehicles must be automated. In a classical robotic setup this means a perception-planning-control loop. This is done for decades in controlled environment, done for years on some public roads but there is still a lot of work to do. Autonomous means the decision making (planning part of the robotics loop) is smart enough to cope with all situation; this implies machine learning and adaptation and it leads to difficult questions of non-deterministic behaviours (determinism is incompatible with intelligence). Since there will be numerous vehicles, cooperation is a must to ensure safety and efficiency. Mixing all these 3 challenges, automated, autonomous and cooperative yields complex but interesting problems.

Biography:

Arnaud de La Fortelle got a PhD degree from Ecole des Ponts et Chaussées prepared at INRIA on theoretical properties of probability distributions (large deviations). He becomes director of the joint research unit LaRA (the automated road) between INRIA and Mines ParisTech in 2006. He moves to Mines ParisTech in 2006 where he becomes director of the Robotics Lab (CAOR) in 2008. During that period, he investigates communications for cooperative systems and the architecture needed in distributed systems. While keeping some fundamental research in probability theory, his main topic of interest is now cooperative systems (data distribution, control, mathematical certification) and their applications (e.g. Cybercars, collective taxis). He was elected in the Board of Directors of IEEE Intelligent Transportation Systems Society 2010-2012 and was vice-president of the French ANR Sustainable Transports and Mobility evaluation committee 2010-2013.