Editorial Note

Collision avoidance is an important aspect in an autonomous vehicle system since a collision means failure in achieving mission. Researches on this subject are set out in order to find the most effective and efficient collision avoidance system. In his work, Gal proposes a collision avoidance method that is based on an analytic time horizon solution that describes safe velocity set and allows on-line path planning in an autonomous vehicle system navigating in a dynamic environment.

Another important aspect in an unmanned vehicle (or remotely controlled vehicle) system is data transmission. A good capability in transmitting data means any of these two things: shortening the delay between vehicle to and from the ground/command station, and having high data rate capacity so that more data can be delivered in a period of time. These qualities contribute to improving control performance at the command/decision level which in turn improving success rate of the vehicle carrying out a mission. For this reason, Reena et. al uses a co-design approach, between vehicle control system and the communication network, and explores the feasibility of some techniques and algorithms to improve the performance of the networked control system in an unmanned aerial system.

Certain types of mission carried out by unmanned vehicle system even depend heavily on high data rate capacity to ensure all observation data, particularly video image data, to be transmitted to the command station. Video image data is known to be large in size, therefore transmitting such data without exhausting system's capacity is a great challenge. For this, Tang et al studies several video compression techniques that may be able to find their use in a remotely controlled vehicle system, which in turn, in an autonomous vehicle system.

Meanwhile, researches on control systems for UAVs, particularly helicopter and quadrotor UAVs, remains to be interesting. The complexity found in rotorcraft dynamics has been the source of the challenge in designing decent control system for such aircrafts. The works of Datta et al and Sureshkumar et al are a few of those that address this challenge.

I hope that the readers would find the article in this issue worth reading and in good resonance with the research they are undertaking.

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