Organized Session 13

**Mobile Robotics in Smart Vineyards**

Liangliang YANG 1\*, Yufei LIU 2

1 Faculty of Engineering, Kitami Institute of Technology, Japan
2 College of Biosystems Engineering and Food Science, Zhejiang University, China

\* Corresponding organizer. Email: yang@mail.kitami-it.ac.jp

Concept of Organized Session

Research on smart vineyards using the latest information and communication technology has been greatly paid attention. Vineyards tend to have a similar width between rows, similar varieties, and similar canopy management among the world, compared with other fruit. Thus, mobile robots can be applied easily in vineyards as the workforce. Vineyards need a lot of laborforce to spray, cut vines, and mow in the summer season, conduct fruit sampling and harvest in the autumn, and prune in the winter. These works require not only the workforce but also intelligence.

Mobile robots are expected to work various tasks such as spraying or mowing by changing implements. Robot arms or artificial intelligence enable the mobile robots to do delicate and intelligent work such as harvest or pruning. A high-resolution camera or LiDAR is also expected for scouting vineyard conditions. This session focuses on autonomous driving, intelligence work, and collecting data for mobile robots in smart vineyards, which are practical research to support the workforce in vineyards.

**Keywords:** Autonomous driving, Artificial intelligence, Robot arm.