



WORKSHOP ON SPACE ROBOTICS

18th of January 2018, Málaga

Venue: Salon de Grados A, Escuela de Ingenierías Industriales, Ampliación de Teatinos
(Universidad de Málaga)

Event's language: English – Spanish

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| 10h20 | <p>Welcome</p> <p>Gianfranco Visentin, <i>Head of Robotics and Automation Section, ESA</i> Alfonso García Cerezo, <i>Head of Systems Engineering and Automation Department, UMA</i></p> |
| 10h30 | <p>ESA Activities in Space Robotics. Automation and Robotics in Space are found at different applications ranging from ISS servicing or assisting other satellites in Earth orbit, to probes landing and/or exploring other planets and bodies in the solar system. ESA is running missions, such as ExoMars or ERA, and other industry activities to develop the necessary technology to cover all these applications. Additionally, the Planetary Robotics Lab in ESTEC has several projects to support this technology developments, specially in the area of rover systems technology.</p> <p>Gianfranco Visentin, <i>Head of Robotics and Automation Section, ESA</i> Martin Azkarate, <i>Space Automation and Robotics Engineer, ESA</i></p> |
| 12h10 | <p>ESA-UMA Collaboration: Autonomous Routing in Extreme Surfaces. Dynamic path planning in extreme terrains with reconfigurable rovers arises as an interesting research topic. Although there are some contributions related to path planning for planetary exploration, none of them takes into account that a rover can walk using different kinematic configurations. The presentation is focused on the modification of previously proposed path planning algorithms to take into account this rover ability.</p> <p>Carlos J. Pérez del Pulgar, <i>Lecturer and researcher, UMA</i> Ricardo Sánchez Ibáñez, <i>PhD Student, ESA-UMA</i></p> |
| 12h50 | <p>Planetary rovers: Mobility hazards and solutions. Future lunar/planetary exploration missions will demand mobile robots with the capability of reaching more challenging science targets and driving farther per day than the current Mars rovers. Among other improvements, reliable slippage estimation and compensation strategies will play a key role in enabling a safer and more efficient navigation. This speech analyzes the main challenges related to the development of strategies for estimating and compensating wheel slippage in the context of planetary exploration rovers. More specifically, this presentation summarizes the novel contributions proposed by the team with whom the speaker is collaborating through various R&D projects funded by NASA and led by the Massachusetts Institute of Technology. These contributions might be applied to current and future robotic missions to the Moon and Mars.</p> <p>Ramón González, <i>CEO Robonity, MIT research scholar</i></p> |
| 13h30 | <p>Closing</p> |