Press release

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Advanced algorithms gave € 20 000 in prize money

The Robotdalen Scientific Award is an annual award that goes to young scientists in the field of robotics. On September 9, Davide Scaramuzza was announced the winner of the Robotdalen Scientific Award 2009. Davide Scaramuzza is a researcher at the Swiss Federal Institute of Technology (ETH) in Switzerland and received the prize sum of € 20 000 for his competition contribution - his doctoral thesis on autonomous navigation of vehicles.

The Swedish Robotics initiative Robotdalen (Robot Valley) established the Robotdalen Scientific Award in 2007 to support young researchers world-wide and to build an international network of prominent researchers for increased international cooperation within the field of robotics. On September 9, 2009, the young researcher Davide Scaramuzza was presented as the third winner of the award. The award was presented by Charlotte Brogren, General Manager of Vinnova (The Swedish Governmental Agency for Innovation Systems).

Autonomous navigation of ground robots and aerial vehicles

Italian Davide Scaramuzza received his PhD at the Swiss Federal institute of Technology (ETH) in Zurich in 2008. He is currently post-doc and lecturer at the ETH Zurich where he is also project leader and scientific manager of a large European project. Davide Scaramuzzas research focuses on computer vision applied to autonomous navigation of both ground robots and micro aerial vehicles. In his PhD thesis, he introduced a new generalized model for wide-angle cameras and a method to accurately estimate the motion of a vehicle (car or helicopter) and build a 3D map of the environment from a single camera alone (without GPS or other sensors). His research found several industrial applications in robotics, automotive, endoscopic imagery, meteorology, and aerial photography.

Advanced algorithms impressed the jury

- Scaramuzzas thesis presents three important engineering contributions, capped with a fundamental scientific advance via his algorithmic approach to the utilization of omnidirectional vision in support of environmentally-referenced navigation of mobile robots, says Peter Wide, head of the jury and professor at Örebro University in Sweden, when he presents the jury's statement. Davide Scaramuzzas engineering contributions include a toolkit for the notoriously difficult problem of calibrating omnidirectional cameras, robust image feature extraction based on semantic-level descriptors of line details, and a rigorous mutual calibration scheme for camera, odometer, and rangefinder sensors. His scientific contribution – resulting in a pending patent – is a 1-point RANSAC algorithm that he shows to be an effective and computationally efficient reduction of the standard 5-point RANSAC algorithm when vehicle motion is non-holonomic.

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