

Challenge@PoliTo *By Firms*

Hail-Care

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CALL for IDEAS

Hailstorms are dangerous and costly phenomena which occur in areas with a temperate, tropical and subtropical climate. These events are expected to worsen in response to climate change and global warming: recent observations and modelling lead to the general conclusion that hailstorm frequency will increase in Australia and Europe, while hail severity will increase in most regions.

Any vehicle left outdoors during a hailstorm is susceptible to damage. In 2021, considering only the European countries, 4,345 events were detected and an estimated 970,000 vehicles were damaged. Typical damages are large or small dents in the hood, doors, side panels or trunk of vehicles; these signs are typically not uniform, may not damage the paint and may not cover the entire vehicle.

Paintless dent repair (PDR) is the state-of-the-art repair process that involves the removal of hail dents or other types of damage from metal exterior surface panels without disturbing the vehicle's finish. To date, the repair is carried out with a completely manual method, with specialized tools to apply pressure to the backside of the panel to remove surface imperfections. The times and costs for the restoration, depending on the severity of the damage, can be long and very expensive.

CHALLENGE:

The aim of the challenge is to propose new repairing methodologies to improve the automation of the process and decrease its cost. In particular, teams are challenged to:

- propose automatic techniques to detect and classify the dents located in different positions of the carbody;
- propose new repairing solutions that can be easily used in automated systems i.e. eddy currents, pneumatic systems and so on;
- define kpi that classify the result of the repairing and propose procedures to evaluate the quality of the repair.



The Challenges are worth 8 curricular or extra-curricular credits.

Check the curriculum of your degree programme to verify if you have the possibility to choose a Challenge in substitution of your free choice credits.

Overcoming the Challenge allows the release of the Open Badge.

SIGN UP NOW! Places are limited!

For any questions, write to clik@polito.it



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