Dipartimento Meccanica Matematica Management

MUR
Dipartimento
di Eccellenza
2018-2022
2023-2027

Research project

Nome and Surname: Giulio Reina

Title: Next generation of autonomous farmer robots

Description:

The Robotic Mobility Lab (RML) of the Polytechnic University of Bari (POLIBA) invites ambitious postdoctoral researchers to apply for a Marie Skłodowska-Curie Actions (MSCA) Postdoctoral Fellowship 2025 in agricultural mobile robotics.

Offer description

The proposed MSCA Postdoctoral Fellowship project aims to accelerate the development of novel solutions in the area of navigation and mapping for dynamic locomotion of autonomous agricultural robots [1]. The candidate will work primarily in one of the following areas: computer vision, AI-driven automation, and/or robotics for controlled environment agriculture (CEA). Research interests include but are not limited to:

• Implement AI approaches for crop sensing, growth, and stress monitoring [2].

• Develop integrated hardware and software for AI-driven robotic and automation systems in CEA with software programming ability (C++ and Robot Operating System ROS 1/2) [3]

• Lead activities such as design, test, verification, modification, fabrication, and assembly of robotic and automation systems [4]

The research will be developed @ the Robotic Mobility Lab, Polytechnic University of Bari, Italy in synergies with projects funded by the European Community (Horizon, ERA-NET) and by the Italian Ministry of Research and University.

Poliba members benefit from regular training sessions, workshops, international conference participation, and publication support, providing an excellent foundation for career development.

Available facilities include:

State-of-the-art sensors for robotic perception, various tracked and wheeled mobile robots, and testbeds for performance characterization.

[1] A. Ugenti, R. Galati, G. Mantriota, G. Reina, Analysis of an all-terrain tracked robot with innovative suspension system, Mechanism and Machine Theory, 182, 2023, https://doi.org/10.1016/j.mechmachtheory.2023.105237.

[2] Milella A., Marani R., Petitti A., Reina G., "In-field high throughput grapevine phenotyping with a consumer-grade depth camera", Computers and Electronics in Agriculture, 156, pp. 293-306, 2019.

[3] Vulpi F, Marani R, Petitti A, Reina G, Milella A, "An RGB-D multi-view perspective for autonomous agricultural robots", Computers and Electronics in Agriculture, Vol. 202, November 2022, 107419

[4] Galati R., Pappalettera A., Mantriota, G., Reina G., "Rubber tracks and tyres: a detailed insight into force analysis during obstacle negotiation", Vehicle System Dynamics , *63*(6), 1036–1053. https://doi.org/10.1080/00423114.2024.2366528

Candidates should provide detailed CV

Contacts

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