

Partner search for Horizon Europe

Digital and emerging technologies for competitiveness and fit for the green deal [\(HORIZON-CL4-2022-DIGITAL-EMERGING-02\)](#) open call

Call deadline: 16 November 2022

Call budget: 6.000.000 EUR

Project name: A new bio-inspired upper and lower limbs rehabilitation robotic devices

Partner profile in search: AI specialists who have experience in implementing an AI system in robots and are able to control robots using AI.

Letter to interested parties:

Dear Sir/Madam,

Being the leading technical university in Armenia, as well as possessing modern, innovative technologies and highly qualified specialists, [the National Polytechnic University of Armenia](#) (NPUA) plans to apply for the **Horizon Europe Digital and emerging technologies for competitiveness and fit for the green deal ([HORIZON-CL4-2022-DIGITAL-EMERGING-02](#))** open call. NPUA has initiated the project under the name “**A NEW BIO-INSPIRED UPPER AND LOWER LIMBS REHABILITATION ROBOTIC DEVICES**” for applying for the above-given Horizon Europe call.

We are in search of cooperation partners, and if you are interested in the call, we would like to cooperate with you as a partner in the consortia for the given Horizon Europe call. We are ready to briefly present the goals of the project and see in what ways we can collaborate.

Looking forward to discussing and establishing cooperation.

Objectives of the project:

The overall goal of the Project is the development, fabrication, and investigation of conceptually new types of AI-powered bioinspired assistive robots (exoskeletons), multipurpose soft surgical robots, and robotic prosthetics. To reach this goal, the following objectives will be achieved:

- development of new and improved types of exoskeletons based on bio-inspiration and AI technologies and use of new types of polymer artificial muscles and actuators, new concepts of mechanical structure and control borrowed from biological systems to effectively support human upper and lower limb motor functions.
- development of new and improved types of surgical robots using octopus arms, snake, elephant trunk, human spine, esophagus, and other objects of bio-inspiration as well as AI

technologies, to perform more effective and minimally invasive surgeries, out of which the most optimal surgical procedures without human intervention will be chosen thanks to AI.

- investigation, modeling, and application of appropriate biological control methods for developed new bio-inspired medical robots.

As several important aspects of the project have already been studied by the research team leading to successfully solving a few identified research problems, moreover, follow-up investigations have already been planned, reaching the above-mentioned objectives are realistic and achievable within the budget and timeframe defined in the HORIZON-CL4-2022-DIGITAL-EMERGING-02 call.

Final remarks: If you already have your own project, NPUA is also open to become a partner and provide the best mathematical and mechanical solution to any problem.