



European Research Council
Established by the European Commission

Variable Stiffness Upper Limb Prosthesis

Fact Sheet

Project Information

VSoft Pro

Grant agreement ID: 101212751

DOI

[10.3030/101212751](https://doi.org/10.3030/101212751)

EC signature date

19 February 2025

Start date

1 August 2025

End date

31 January 2027

Funded under

European Research Council (ERC)

Total cost

No data

EU contribution

€ 150 000,00

Investment in EU policy priorities

Digital agenda	<input type="radio"/>	Clean air	<input type="radio"/>
Artificial Intelligence	<input checked="" type="radio"/>	Climate action	<input type="radio"/>
Biodiversity	<input type="radio"/>		

Coordinated by

FONDAZIONE ISTITUTO
ITALIANO DI TECNOLOGIA



Objective

Losing a limb can profoundly impact a person's physical, emotional, and social well-being. While current upper limb prostheses restore users' basic motor capabilities, they fall short of replicating the natural appearance and functionality of a human limb. The innate compliance and controllable stiffness of the human musculoskeletal

system allow individuals to adapt seamlessly to various tasks and environments. Intuitively, prostheses with user-controllable stiffness could mimic this behaviour, promoting safe and natural interactions. However, current upper limb prostheses feature rigid actuation, which limits their versatility. Within the VSoft Pro ERC Proof of Concept project, we propose to develop a transhumeral upper limb prosthesis featuring user-controllable stiffness and passive adaptability. The developed prostheses leverage soft robotics principles to closely replicate the morphology and functionality of a human limb, paving the way to a more natural limb restoration experience that could augment users acceptance rate. The project will also focus on the development of intuitive control, empowering users to manage their bionic limb as an extension of their own body. Preliminary investigations aim to assess users needs to tailor the design of prosthetic devices to their preferences. Further goal of this research is to evaluate the advantages of voluntary stiffness control over classical rigid prostheses during functional tasks and activities of daily living, informing the development of future advanced prosthetic solutions. Finally, the Proof of Concept project will be focused on building a clinically viable prototype, and demonstrating its application in relevant scenarios.

Fields of science (EuroSciVoc)

[engineering and technology](#) > [electrical engineering](#), [electronic engineering](#), [information engineering](#) > [electronic engineering](#) > **[robotics](#)**

[medical and health sciences](#) > [medical biotechnology](#) > **[implants](#)**



Programme(s)

[HORIZON.1.1 - European Research Council \(ERC\)](#)

MAIN PROGRAMME

Topic(s)

[ERC-2024-POC - ERC PROOF OF CONCEPT GRANTS](#)

Call for proposal

[ERC-2024-POC](#)

[See other projects for this call](#)

Funding Scheme

[HORIZON-ERC-POC - HORIZON ERC Proof of Concept Grants](#)

Host institution



FONDAZIONE ISTITUTO ITALIANO DI TECNOLOGIA

Net EU contribution

€ 83 000,00

Total cost

No data

Address

VIA MOREGO 30

16163 Genova

 **Italy** 

Region

Nord-Ovest > Liguria > Genova

Activity type

Research Organisations

Links

[Contact the organisation](#)  [Website](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Beneficiaries (2)



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[HORIZON collaboration network](#) 

Total cost

No data



QBROBOTICS SRL

 Italy

Net EU contribution

€ 67 000,00

Address

VIA GIUNTINI 13, LOTTO I,2 PIANO INT M

56023 Navacchio Cascina 

SME 

Yes

Region

Centro (IT) > Toscana > Pisa

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

[Contact the organisation](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

No data

Last update: 19 March 2025

Permalink: <https://cordis.europa.eu/project/id/101212751>

