



# B-CRATOS

## Design and Integration of the Biomechatronic Prosthetic Upper Limb

[www.b-cratos.eu](http://www.b-cratos.eu)



# The challenge of prosthetics

The human arm is characterized by its **closed loop system**, meaning the harmonious operation between various sensing and actuation brain/neurons and muscle groups.

Current prosthetics usually function by reading voltages of electrodes on skin and use muscle flexion as control input.

They have **low sensitivity**, are **uncomfortable** and have **limited degrees of freedom**.



# Integrating a human-like prosthetic limb

The B-CRATOS technology will contribute to restoring mobility following paralysis or amputation, granting untethered control of an artificial limb that moves, touches, and feels like a human hand.

A challenge? To change the prosthetic industry to provide **affordable functional and beautiful prosthetic devices** people won't discard.

B-CRATOS proposes a completely implantable solution.

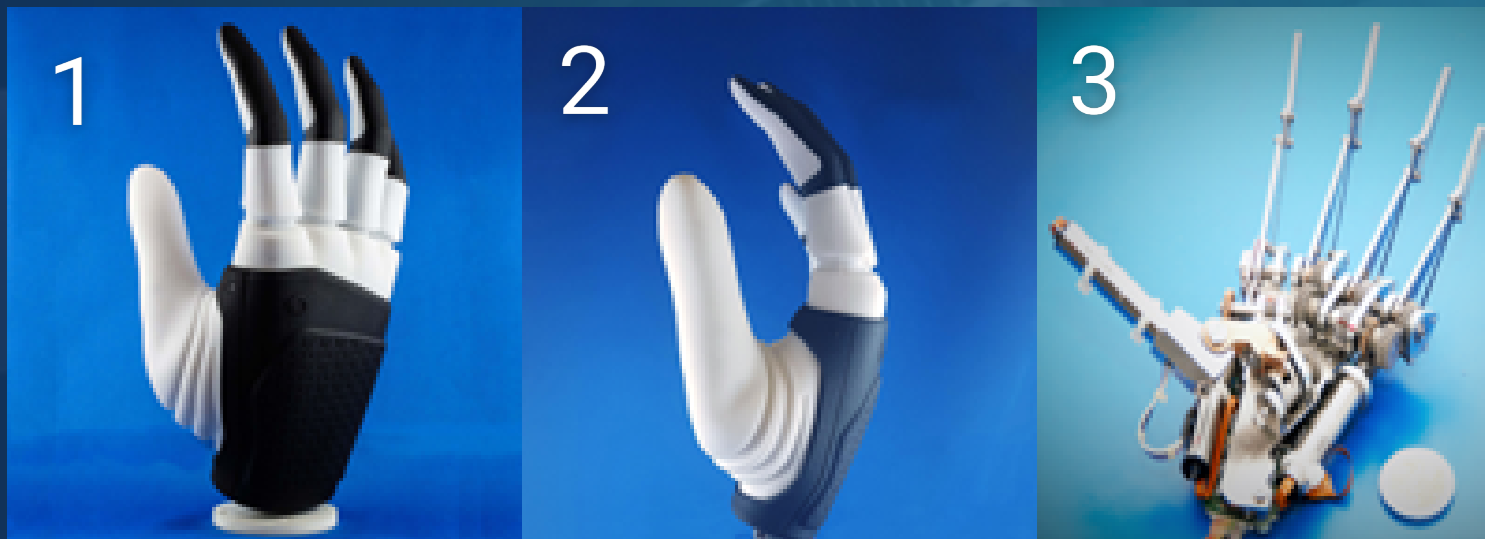


A multi-institution team of researchers and engineers at **Scuola Superiore Sant'Anna** and **Uppsala University** are collaborating to integrate a bionic arm with a high-resolution electronic skin ("eSkin").

This bionic hand will be linked to edge computing devices developed by the collaborators at the **LINKS Foundation**, leveraging machine learning/AI techniques for **real-time decoding of neural signals into movement actuation signals** and touch feedback into meaningful **brain stimulation commands**.



B-CRATOS will use the 5-axis **Mia** robotic arm (1, 2) from Prensilia s.r.l., an **SME spin-off** (3) of Scuola Superiore Sant'Anna, which evolved (lighter, stronger, improved speed and force) from the **IH2 Azzurra**, which is used in research institutes worldwide.





To know more and follow our progresses, you can check our public reports!



- Material testing for fabrication of sensors on Mia hand (month 12)

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