Vito Cacucciolo **August 2026**



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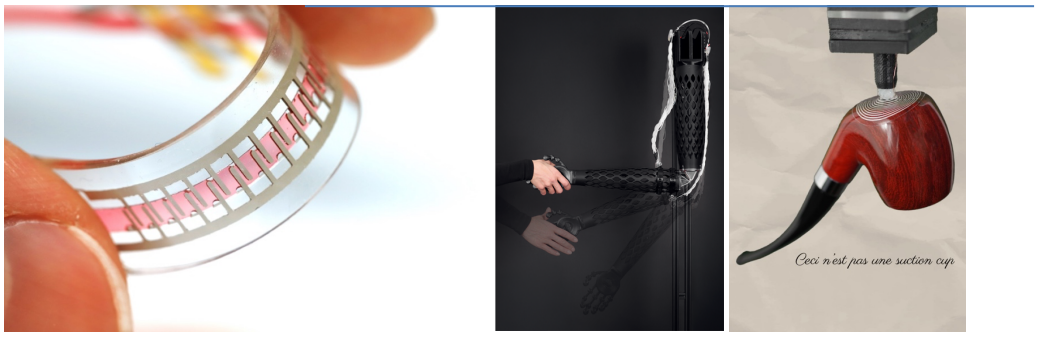
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OVERVIEW

Vito is a professor at **Politecnico di Bari,** director of the **RoboPhysics Laboratory** and main founder of sthe pin-off Omnigrasp, working to push the boundaries of **advanced materials, robotics** and **physical intelligence** both in academia and industry. He received the **ERC StG** for the project *Robofluid* in 2023.
Vito has been the **driving force** behind the development of the **world-first stretchable pumps** for fluidic artificial muscles published in ***Nature*** in **2019** and has contributed to the development of the first **fiber pumps** for untethered textile exoskeletons and haptics using fluidics, published in ***Science*** in 2023. Combining fiber pumps and fiber actuators led to **Electrofluidic Fiber Muscles (EFMs)**, fiber format artificial muscles with power density akin to skeletal muscles, published in ***Science Robotics*** in 2026.
Vito coordinated the creation of **Electroadhesion Suction Cups**, electrical grippers for lifting heavy objects from the top without vacuum pumps, with > 90% energy saving compared to vacuum grippers. The technology is being exploited by Omnigrasp through a **EIC Transition EASIERGrasp** that Vito coordinates.
Vito received his PhD from Scuola Superiore Sant'Anna Pisa (Italy) in 2017 (Prof. Laschi's group). The PhD focused on soft robotics and on the understanding of muscle activation and control in cephalopods (e.g., the Octopus) using mathematical models and bio-inspired AI algorithms. From 2017 to 2021 Vito worked as a scientist at EPFL (Prof. Shea's group), where he worked on miniaturised and integrated artificial muscles for the next generation of robots and wearables
Vito published articles received an **h-index of 22** and over **6000 citations** (source: Google Scholar).
Vito's **long-term goal** is to **understand physical intelligence** and use it to create **adaptive materials, human-centred robots** and **wearables,** to relieve humans of weary hard work and disabilities.



(Left) detail of a stretchable pump *Nature 2019*. (Center) A woven bundle of Electrofluidic Fiber Muscles during a human-robot handshake *Science Robotics* 2026. (Right) Omnigrasp ElectroAdhesion Suction Cups lifting a pipe (Advanced Materials 2025).

CURRENT POSITIONS

15/12/2023 **Associate Professor** (tenured)
ongoing Politecnico di Bari, Bari, Italy.

30/03/2022 **CEO and main founder**
ongoing Omnigrasp Srl. *Creating robots with a soft touch*

01/07/2024 **Director**
ongoing RoboPhysics Laboratory, Politecnico di Bari, Italy

PROFESSIONAL EXPERIENCE

2022 - 2026 **Research Affiliate**
MIT Media Lab, Cambridge (MA), US.

27/06/2024 National Scientific qualification of Full Professor in Mechanical Engineering
Ministero dell'Università e della Ricerca, Italy.

01/11/2021 **Senior Scientist**
30/11/2023 Politecnico di Bari, Bari, Italy.

09/06/2022 National Scientific qualification of Associate Professor in Mechanical Engineering
Ministero dell'Università e della Ricerca, Italy.

01/01/2021 **Visiting Professor**
31/10/2021 Politecnico di Bari, Bari, Italy.
Electroadhesion and contact mechanics

01/11/2020 **BRIDGE Fellow**
31/10/2021 Swiss National Science Foundation and Innosuisse
Bring electroadhesion soft grippers to the market

01/08/2017 **Scientist** at EPFL
31/10/2021 Neuchatel, Switzerland. Soft Transducers Laboratory (LMTS).
Prof. Herbert Shea. *Stretchable pumps, soft robotic grippers*

04/04/2017 **Postdoctoral researcher** at Scuola Superiore Sant'Anna
31/07/2017 Pisa, Italy. The BioRobotics Institute.
Soft robots for pipeline inspection and maintenance.

01/04/2016 **Research Internship** at EPFL
30/10/2016 Lausanne, Switzerland. LMTS and LIS
ElectroHydroDynamic pumping

04/11/2013 – **Research Assistant** at Scuola Superiore Sant'Anna
03/04/2017 Pisa, Italy. The BioRobotics Institute.
Mechatronics for soft robotics.

EDUCATION

03/04/2017 **PhD in BioRobotics, 100/100 with honors** at Scuola Superiore Sant'Anna
Pisa, Italy. The BioRobotics Institute.
PhD supervisors: Prof. Cecilia Laschi, Prof. Matteo Cianchetti

11/06/2013 **Master degree in Mechanical Engineering, 110/110 cum laude**
Politecnico di Bari, Bari (Italy).

23/05/2013 **Master of Science in Mechanical Engineering, GPA 3.96/4.00**

New York University, Tandon School of Engineering, New York, NY (United States).
Specialisation: control and dynamic systems

GRANTS

01/04/2026 **EASIERGrasp**, ElectroAdhesion Suction cups for Industrial Energy efficient Robotic Grasping, EIC Transition. €2.5 M. Role: Coordinator.

01/09/2025 **RehabSoft**, Fit for Medical Robots, PNC (complementary actions to Italian PNRR). € 600 k. Role: PI.

01/01/2024 **ERC StG**, European Research Council. € 1500 k. RoboFluid (Robotic Fluids for artificial muscles, wearable cooling, and active textiles). Role: PI.

01/06/2022 **Horizon EUROPE RIA**, € 900 k. HARTU (Handling with AI-enhanced Robotic Technologies for flexible manufactUring). Role: PI for Omnigrasp.

01/06/2022 **Horizon 2020 RIA**, € 400 k. MERGING (Manipulation Enhancement through Robotic Guidance and Intelligent Novel Grippers). Role: PI

18/02/2021 **Innogrant,** EPFL, CHF 100 k. Topic: soft grippers with electroadhesion. Role: Co-Applicant.

27/08/2020 **Bridge Proof of Concept,** Swiss National Science Foundation and Innosuisse – Swiss Innovation Agency, CHF 130 k. Topic: soft grippers with electroadhesion. Role: PI.

30/09/2019 **JSPS Fellowship for Research in Japan,** Title: Fluidic muscles for untethered soft exoskeletons, JPY 220 k/month. Role: PI. (postponed due to covid-19)

01/06/2019 **SNSF – JSPS, Strategic Japanese-Swiss Science and Technology Program (SJSSTP),** Title: Stretchable ElectroHydroDynamics, CHF 247 k (EPFL side). Role: Co-Applicant.

27/05/2019 **Robert Gnehm Grant for Parent Postdocs,** CHF 20 k. Role: Main Applicant.

30/04/2019 **H2020-NMBP-FOF-2019,** Title: MERGING (Manipulation Enhancement through Robotic Guidance and Intelligent Novel Grippers), € 1,168,750 (EPFL side). Role: Co-Applicant.

INVITED TALKS

18/06/2026 Functionality Through Nonlinearity, KU Leuven, invited talk "Electrofluidic fiber muscles (EFM): nonlinear coupling of fiber pumps and thin fluidic actuators", Leuven Belgium.

04/06/2026 EuroEAP conference 2026 (14th international Conference on Soft Transducers and Electromechanically Active Polymers), EPFL, invited talk "Electrofluidic fiber muscles (EFM): modular, self-contained soft fiber actuators driven by electrohydrodynamics (EHD)", Neuchâtel, Switzerland.

03/06/2026 EuroEAP conference 2026 (14th international Conference on Soft Transducers and Electromechanically Active Polymers), EPFL, invited industry talk "Vacuum-free suction cups for energy-efficient pick-and-place using electroadhesion", Neuchâtel, Switzerland.

07/04/2026 IEEE RoboSoft 2026, invited talks in the workshops "Minds and Bodies: Co-Design for the Future of Soft Manipulation" and "Enabling soft robotics technologies for real-world applications", Kanazawa, Japan.

05/09/2025 RSJ 2025 (Robotics Society of Japan), Invited talk "Electro-active materials for soft robots and wearables", Tokyo, Japan

23/04/2025 IEEE RoboSoft 2025, Invited Talk in the workshop "Soft Robotic Actuation and Sensing Based on Functional Materials", Lausanne, Switzerland

11/10/2024 BIMU, Invited Talk in the workshop organized by I-RIM (Institute of Robotics and Intelligent Machines), Milano, Italy

30/06/2024 EuroHaptics 2024, Invited Talk in the workshop on Soft Haptics, Lille, France

27/06/2024 Invited Seminar in the cycle "PI Stories", University Trento IECS PhD School, Trento, Italy

18/05/2024 IUTAM (The International Union of Theoretical and Applied Mechanics), Symposium on Mechanics of Soft Materials And Soft Robots, Invited lecture. University of Tokyo, Tokyo, Japan.

17/05/2024 IEEE ICRA (International Conference of Robotics and Automation), Keynote talk at Workshop Anthropomorphic and zoomorphic end-effectors: asset or useless bias? Yokohama, Japan.

13/05/2024 IEEE ICRA (International Conference of Robotics and Automation), Invited talk at Workshop Advancing Sustainable Food Systems through Agri-Robotics Innovations. Yokohama, Japan.

13/05/2024 IEEE ICRA (International Conference of Robotics and Automation), Invited talk at Workshop Continuum and Soft robotics for medical applications with rising stars on the stage. Yokohama, Japan.

05/09/2023 SPIE Sensors + Imaging, Amsterdam, NL.

26/06/2023 IEEE Transducers, the 22nd International Conference on Solid-State Sensors, Actuators and Microsystems, Kyoto, JP.

27/09/2022 AIRS workshop on Soft Robotics, Keynote talk. Shenzhen Institute of Artificial Intelligence and Robotics for Society (AIRS, https://airs.cuhk.edu.cn/en).

24/08/2022 EUROMECH Colloquium Mechanics of Soft Active Polymers, European Mechanics Society, Southampton, UK.

09/06/2022 2022 EuroEAP Conference, Chianciano Terme, Italy. "Soft grippers with electroactive contacts". Conference of European society of electroactive polymers.

09/10/2021 I-RIM 3D 2021, workshop *Robotic Materials and Structures*. "Electroactive Soft Robots". Conferenza Italiana di Robotica e Macchine Intelligenti.

24/02/2021 Boston University, Boston, US, Master course in Mechanical Engineering. "Electroactive polymers for soft robotics"

19/11/2020 Soft Robotics Podcast IEEE RAS Soft Robotics Technical Committee https://www.ieee-ras.org/soft-robotics/podcasts

30/10/2020 ETH Zurich, Switzerland. Virtual Seminar Series on Materials for Robotics. "Electroactive artificial muscles for soft robotics"

29/04/2020 2020 SPIE EAPAD Conference, Anaheim, CA, US. (Held online due to COVID-19). "Soft pumps for robots and wearables"

24/07/2019 The Hamlyin Center, Imperial College London, UK. "Stretchable pumps for robotics and wearable circulatory systems"

09/01/2019 Doctoral School of Mechanical Engineering, Politecnico di Bari, Italy. "Soft-Matter technologies for robots and wearables"

12/06/2017 Shibaura Institute of Technology, Tokyo, Japan, Master course in Mechanical Engineering. "Fluidic Actuators for Soft Robotics"

TEACHING

2023 - 2027 Politecnico di Bari (Italy), Mechatronics (6 CFU), Master course in Mechanical Engineering

2024 - 2027 Politecnico di Bari (Italy), Applied Mechanics (6 CFU), Master course in Automation Engineering and Robotics

05/2026 Fondazione CRUI, Partecipazione al corso di formazione "La progettazione di un Corso di Studio e la nuova SUA-CDS"

07/11/2024 The ShangAI Lectures "*Robotic Physics: how to use robots to hack the laws of physics."* http://www.shanghailectures.org

2021 Politecnico di Bari (Italy), Mechanical System Dynamics (3 CFU), Master course in Mechanical Engineering

2017-18 EPFL, Switzerland. Assistant for the class Statics and Dynamics, B.Sc. in MicroEngineering.

2017 University of Pisa (Italy), Scuola Superiore Sant'Anna Pisa, Italy, joint Master course in Bionics Engineering. "Theoretical foundations of Finite Element Analysis"

ORGANIZATION of SCIENTIFIC EVENTS

06/2027 **EuroEAP conference 2027 (15th international Conference on Soft Transducers and Electromechanically Active Polymers), General Chair,** Bari, Italy.

04/2026 **IEEE RoboSoft 2026, Chair of Academia-Industry event,** Tokyo, Japan.

04/2026 **IEEE RoboSoft 2026, Workshop chair,** Kanazawa, Japan.

04/2025 **IEEE RoboSoft 2025, Chair of Industry Panel**, Lausanne, Switzerland.

09/2024 **IEEE CASE 2024, Workshop organizer** "Soft Robots and Wearables for flexible and interactive automation". Bari, Italy.

03/2023 **IEEE ROBOSOFT Workshop organiser** "Soft grippers from the labs to the market" Singapore

05/2022 **MRS Spring 2022 Symposium organizer** "Materials, Power Sources, Sensors, Actuators and Mechanics for Untethered Soft Robots " Honolulu, Hawaii (USA).

31/05/2020 **ICRA 2020 Workshop organizer "**Beyond Soft Robotics: Pioneer Perspectives and Interdisciplinary Collaboration" at *IEEE International Conference of Robotics and Automation***,** Paris (France), 2020. (Held online due to COVID-19). Over 1,000 attendees

24/04/2018 **Workshop organizer "**Fluid-driven Soft Robots: a collaborative workshop" at IEEE International Conference on Soft Robotics (RoboSoft)**,** Livorno, Italy

INDUSTRIAL INNOVATION

25/06/2026 Patent application "Compressore di Gas Elettroidrodinamico (EHD) ad alte prestazioni".

10/11/2025 Provisional patent application "Electrofluidic Artificial Muscle Fibers", MIT and Poliba.

27/02/2025 **International patent WO 2025/040985 A1** Cacucciolo V, Caruso F, "A FLEXIBLE GRIPPING DEVICE WORKING BY ELECTROADHESION".

22/08/2023 **Patent application** Cacucciolo V, "Dispositivo di presa flessibile funzionante con elettroadesione".

04/11/2021 **Swiss Robotics Day** (Zurich, Switerland) by Swiss NCCR Robotics. Demo booth.

31/08/2021 **EP Patent application** Digumarti K, Cacucciolo V, Shea H, "Electroadhesive gripping system and method for gripping an object"

12/04/2021 **Hannover Messe** interactive virtual demo booth, as part of Swiss NCCR Robotics

12/01/2021 **CES 21** all digital event, interactive virtual demo booth, as part of Swiss NCCR Robotics

11/01/2021 **PCT Patent application** Cacucciolo V, Shea H, "Electroadhesion-based shear gripping system and method of using thereof"

27/08/2020 **Bridge Proof of Concept,** 1-year funding for the technology transfer of research results on soft grippers to the market. SNSF and Innosuisse – Swiss Innovation Agency

21/05/2019 **Patent application**. Cacucciolo, V, Shea, H, Maeda, S, Floreano, D, Shintake, J "Stretchable electrohydrodynamic pump".

02-06 2018 Start-up Training: Business Concept, Innosuisse – Swiss innovation Agency

INSTITUTIONAL ROLES

2024 – ongoing Member of "Gruppo del Riesame" of the Course in Mechanical Engineering at Politecnico di Bari.

2024 – ongoing Member of the Academic Board of the Italian National PhD Programs on Autonomous Systems (DAUSY). http://dausy.poliba.it/phd/

2025 – ongoing Member of the Academic Board of the Ph.D. program of national interest in Robotics and Intelligent Machines (DRIM) https://drim.i-rim.it/en/

REVIEWING and EDITORIAL ACTIVITY

2026 – ongoing Member of EML-ECAB (Early Career Advisory Board, *Extreme Mechanics Letters*)

2024 I-RIM Conference 2024, Program Committee

2024 - 2025 Associate Editor for IEEE Conference on Soft Robotics (RoboSoft) 2025

2021 - present Member of Editorial Board of Frontiers in Robotics and AI, Soft Robotics

2013 - present Reviewer for: *Science (AAAS), Science Robotics (AAAS)*, *Nature Communicaitons, Advanced Materials, Advanced Functional Materials* (Wiley), Extreme Mechanics Letters, IEEE *IROS*; IEEE *Robotics and Automation Letters*; IEEE *Trans. on Robot.*; *Smart Materials and Structures*; ASME *JDSMC*; IEEE *RoboSoft*, *Soft Robotics*

AWARDS

10/04/2026 **1st prize Grasping Competition "Harvesting of delicate ripe fruit",** IEEE RoboSoft 2026 (9th IEEE International Conference on Soft Robotics), Kanazawa, Japan

12/06/2025 **2nd prize Society Challenge** 2025 EuroEAP Society. ElectroAdhesion Suction Cups.

03/06/2021 **1st prize Industry Challenge** 2021 EuroEAP Society. Award of € 1000.

01/06/2019 **Cover figure** Soft Robotics Journal (vol 6, issue 3, June 2019): Lifting without squeezing: a delicate yet strong soft gripper

12/11/2014 **1st prize, Master Thesis Award** *MIMOS 2013*, on modelling and simulation: "Biomechanical analysis of a human knee joint". Award of € 1500.

01/09/2012 **Innovation Fellowship,** Office of graduate admission, NYU Tandon School of Engineering. https://engineering.nyu.edu/. Award of $ 7500.

Selected OUTREACH and MEDIA

15/05/2025 Invited presentation at Rotary club Mediterraneo Bari "Robotica con al centro l'individuo"

28/04/2025 Interview at national RAI TV, TG Leonardo of RoboPhysics Laboratory (RPL)

2023-25 BioRobotics lab for high school students. Hands-on orienteering at Politecnico di Bari to encourage STEAM education among high school students.

07/02/2020 Radio Interview on Soft Robotic Insects at radio show **Unknown Territories, University of California Santa Barbara**, Santa Barbara, CA, US.

14/11/2019 TecDay at **lycée Denis-de-Rougement**, Neuchatel (Switzerland). Lecture and hands-on demo on electro-active polymers for high school students.

26/11/2018 Demo booth on Soft Grippers at **Materials Research Society (MRS) Fall Meeting**,
29/11/2018 Boston (US). Around 10,000 attendees.

28/04/2017 Invited lecture for high school students "Verso i robot del futuro: la robotica diventa soft" **Liceo Scientifico da Vinci** (Maglie, LE, Italy), within the project *Scienza Oggi*.

2013-2017 **Robocup jr**, Robotics competitions for STEM students. Match Referee.

STUDENTS SUPERVISION

2025-ongoing Cesare Cariddi, **PhD student in Ph.D. program of national interest in Robotics and Intelligent Machines (DRIM)**, Italy (main supervisor)

2024-ongoing Andrea Castellaneta, **PhD student in National PhD Program on Autonomous Systems**, Politecnico di Bari, Italy (main supervisor)

2024-ongoing Angelo Catalano, **PhD student in National PhD Program on Autonomous Systems**, Politecnico di Bari, Italy (main supervisor)

2023-2024 Gabriele Pupillo, **MSc student in Mechanical Engineering**, Politecnico di Bari, Italy

2023-2024 Antonio Loconte, **MSc student in Mechanical Engineering**, Politecnico di Bari, Italy

2022-2024 Dr. Fabio Caruso, **PhD student in Mechanical Engineering**, Politecnico di Bari, Italy (co-supervisor)

2021-2023 Dr. Massimiliano Mastrangelo, **PhD student in Mechanical Engineering**, Politecnico di Bari, Italy (co-supervisor)

2018-19 Dr. Giulio Grasso, **M.Sc.** in **Mechanical Engineering**, Politecnico di Bari (Bari, Italy). Master Thesis at EPFL-LMTS. Topic: *Artificial Skins for surface analysis with robotic hands*.

2018-19 Dr. Yu Kuwajima, **M.Sc.** in **Mechanical Engineering**, Shibaura Institute of Technology (Tokyo, Japan). Research internship at EPFL-LMTS with the **TOBITATE! Scholarship, JSPS**. Topic: *Stretchable Pumps for Soft Robotics*.

2018 Gianluigi Grandesso, **M.Sc.** in **Mechatronics Engineering**, Università di Trento (Trento, Italy). Research visit at EPFL-LMTS with the SMG grant from EuroEAP society. Topic: *Electroadhesion Robotic Grippers*.

2017 Francesco Iori, **B.Sc.** in **Mechanical engineering**, Davide Bray, **M.Sc.** in **Aerospace engineering**, Scuola Superiore Sant'Anna Pisa (Pisa, Italy). Industrial research project on *Soft Robots for pipe inspection and maintenance*

2017 Davide Bray, **M.Sc.** in **Aerospace engineering**, Scuola Superiore Sant'Anna Pisa (Pisa, Italy). Master thesis on *legged locomotion on uneven terrains with a soft robot*

2015-16 Prof. Hiroki Shigemune (PhD, 2018), **M.Sc.** in **Applied Physics,** Waseda University, Tokyo, Japan. Research Internship at Scuola Superiore Sant'Anna Pisa with the **TOBITATE! Scholarship, JSPS**. Topic: *Bio-inspired control of soft robotic arms*