



Marek Sierotowicz

Date of birth: _____ | **Place of birth:** _____ | **Nationality:** Italian | **Phone number:** _____
(Mobile) | **Email address:** _____ | **Email address:** _____
_____ | **Website:** <https://www.airob.tf.fau.de/person/marek-sierotowicz/> | _____
Address: _____

WORK EXPERIENCE

01/08/2024 – CURRENT Erlangen, Germany

POSTDOCTORAL RESEARCHER FRIEDRICH-ALEXANDER UNIVERSITÄT ERLANGEN-NÜRNBERG

Supervision of research at the chair of Assistive Intelligent Robotics (AIROB), with a focus in

- biosignal-based prediction of force outputs
- teleimpedance
- integration of FES systems and exosuit for assistive and rehabilitative robotics applications

01/08/2021 – 31/07/2024 Erlangen, Germany

DOCTORAL RESEARCHER AND TEACHING ASSISTANT FRIEDRICH-ALEXANDER UNIVERSITÄT ERLANGEN-NÜRNBERG

- experimental research in the fields of
 - rehabilitative and assistive robotics
 - functional electrical stimulation-based robot-inspired control of human limbs
 - monitoring of human kinematics
- preparation and implementation of various courses and seminars as a teaching assistant. Among these
 - Upper limb prosthetics (semester lecture, managed exercise units)
 - Rehabilitation and assistive robotics (semester lecture, managed exercise units)
 - Various seminars
 - Hands-on practical course (over a week, once a semester)

14/08/2018 – 31/07/2021 Weßling, Germany

RESEARCH ENGINEER ROBOTICS AND MECHATRONICS INSTITUTE OF THE GERMAN AEROSPACE CENTER

- Designed and conducted various experiments focusing on **human-in-the-loop space robotics**, rehabilitation, and assistive robotics
- Characterized a compliant lightweight exoskeleton (**AnDy EU project**)
- Devised haptics and operation strategies for scenarios with communication delays up to a few seconds (**Kontur-3** project, in coop. with **ROSCOSMOS**)
- Developed a force feedback device based on electrical muscular stimulation, **patent** currently under review at the German Patents Office
- Designed and assessed an IMU-based upper body motion tracking system

15/11/2017 – 29/07/2018 Munich, Germany

FIRMWARE DEVELOPER MAGAZINO GMBH

- Developed and tested firmware, from general architecture to board-specific implementation
- Implemented software for board/central computer communication

01/08/2017 – 05/10/2017 Manipal, India

RESEARCH INTERN MANIPAL INSTITUTE OF TECHNOLOGY, DEPARTMENT OF MECHATRONICS

- Developed inverse kinematics algorithms for highly redundant manipulators
- Devised a computer vision navigation system for educational use

EDUCATION AND TRAINING

01/08/2021 – 17/07/2024 Erlangen, Germany

PHD CANDIDATE Friedrich-Alexander University Erlangen-Nürnberg, Chair for Assistive Intelligent Robotics (AIROB)

Level in EQF EQF level 8

31/12/2019 – CURRENT Weßling, Germany

SPL GLIDER PILOT TRAINING Flugsportgruppe im DLR Oberpfaffenhofen e.V.

16/10/2017 – 14/05/2019 Munich, Germany

MASTER PROGRAM IN ROBOTICS, COGNITION AND INTELLIGENCE Technical University of Munich, Department of Informatics

Final grade Final grade: 1,7

30/09/2013 – 13/12/2016 Vienna, Austria

BSC IN ELECTRONIC ENGINEERING AND INFORMATION TECHNOLOGY Vienna University of Technology, Department of Electrical Engineering

Final grade Final grade: 1,5 - Earned with distinction

09/01/2017 – CURRENT Vienna, Austria

MASTER PROGRAM EMBEDDED SYSTEMS Vienna University of Technology, Department of Electrical Engineering

HYPERS301X: HYPERSONICS – FROM SHOCK WAVES TO SCRAMJETS University of Queensland

Address Online course | **Final grade** Final grade: 98%

LANGUAGE SKILLS

Mother tongue(s): **ITALIAN**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	C2	C2	C2	C2	C2
GERMAN	C1	C1	C1	C1	C1
RUSSIAN	B1	B1	A2	A2	A2
CHINESE	A1	A1	A1	A1	A1

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

SKILLS

Microsoft Office | Microsoft Word | Microsoft Excel | Social Media | Google Docs | Outlook | Strategic Planning | Skype | Google Drive | Teamwork | Microsoft Powerpoint | Zoom | Power Point | Organizational and planning skills | Internet user | 3D modeling & sculpting in Blender

Interpersonal skills

Motivated | Good listener and communicator | Written and Verbal skills | Team-work oriented | Decision-making | Presenting | Creativity | Reliability | Critical thinking | Flexibility | Analytical skills

VOLUNTEERING

31/03/2012 – 30/09/2013

Volunteer in the Italian Red Cross

Served as first-aid operator at public events and sporting centers.

CREATIVE WORKS

Illustrator credit

Credited for illustrations appearing in the following publications

- Józef Tischner, *Frammenti pre-, post- e socratici. Una Buffa Fiaba Montanara*, (translation from: *Historia filozofii po góralsku*, ZNAK, Kraków 2018 3, traduzione: Tadeusz Sierotowicz, submitted for publication)
- Castellini, Claudio Chapter 20 - *Design principles of a light, wearable upper limb interface for prosthetics and teleoperation. Wearable Robotics Systems and Applications 2020*
- Tadeusz Sierotowicz, „Paczka wiary, nóż nauki i kurz zwątpienia”, *Ethos i Logos*, 47(2018), pp. 73-100
- Tadeusz Sierotowicz, „Uwagi o rozumieniu Boga u Galileusza. W stronę fenomenologii człowieka sceny”, in: *Filo-Sofija* 30 (2015)3, 95-110 (cfr.: filo-sofija.pl/index.php/czasopismo/issue/view/35)

- Sierotowicz, Tadeusz *O położeniu plam słonecznych*, Tarnów. BIBLOS 2013
- Sierotowicz, Tadeusz *Od metodycznej polemiki do polemiki metodologicznej. Impresje z lektury 'Wagi probierczej' Galileusza wraz z antologią*, Tarnów. BIBLOS 2008

PUBLICATIONS

2021

Learning to teleoperate an upper-limb assistive humanoid robot for bimanual daily-living tasks

Submitted for review at *Journal of Neural Engineering*

2021

Model-Augmented Haptic Telemanipulation: Concept, Retrospective Overview and Current Use-Cases

Frontiers in Robotics and AI

2020

Investigating the influence of haptic feedback in rover navigation with communication delay

In Proceedings of Eurohaptics 2020

2020

Learning teleoperation of an assistive humanoid platform by intact and upper-limb disabled users

In proceedings of ICNR2020

2020

Human-In-The-Loop Assessment of an Ultralight, Low-Cost Body Posture Tracking Device

MDPI sensors

2021

[Unobtrusive, natural support control of an adaptive industrial exoskeleton using force myography](#)

SIEROTOWICZ, Marek, et al. Unobtrusive, natural support control of an adaptive industrial exoskeleton using force myography. *Frontiers in Robotics and AI*, 2022, 9. Jg., S. 919370.

2022

[EMG-driven machine learning control of a soft glove for grasping assistance and rehabilitation](#)

SIEROTOWICZ, Marek, et al. EMG-driven machine learning control of a soft glove for grasping assistance and rehabilitation. *IEEE Robotics and Automation Letters*, 2022, 7. Jg., Nr. 2, S. 1566-1573

2024

[A direct spinal cord-computer interface enables the control of the paralysed hand in spinal cord injury](#)

OLIVEIRA, Daniela Souza, et al. A direct spinal cord-computer interface enables the control of the paralysed hand in spinal cord injury. *Brain*, 2024, 147. Jg., Nr. 10, S. 3583-3595.

[Omnidirectional endpoint force control through functional electrical stimulation](#)

SIEROTOWICZ, Marek; CASTELLINI, Claudio. Omnidirectional endpoint force control through functional electrical stimulation. *Biomedical Physics & Engineering Express*, 2023, 9. Jg., Nr. 6, S. 065008.

2022

[Deflection-domain passivity control of variable stiffnesses based on potential energy reference](#)

PANZIRSCH, Michael, et al. Deflection-domain passivity control of variable stiffnesses based on potential energy reference. *IEEE Robotics and Automation Letters*, 2022, 7. Jg., Nr. 2, S. 4440-4447.

2024

[Extension of the deflection-domain passivity approach for variable stiffnesses to so \(3\)](#)

PANZIRSCH, Michael, et al. Extension of the deflection-domain passivity approach for variable stiffnesses to so (3). *IEEE Robotics and Automation Letters*, 2024, 9. Jg., Nr. 3, S. 2925-2932.

2023

Robot-Inspired Human Impedance Control Through Functional Electrical Stimulation

SIEROTOWICZ, Marek; CASTELLINI, Claudio. Robot-inspired human impedance control through functional electrical stimulation. In: 2023 International Conference on Rehabilitation Robotics (ICORR). IEEE, 2023. S. 1-6.

2024

Empirical Time Complexity Analysis of Tractrix-Based Inverse Kinematics Algorithms

M. Sierotowicz, A. A. and R. Chattaraj, "Empirical Time Complexity Analysis of Tractrix-Based Inverse Kinematics Algorithms," 2024 10th IEEE RAS/EMBS BioRob, Heidelberg, Germany, 2024, pp. 1721-1726

2025

Estimation of contact forces at catheter & guide wire insertion port using bio-signals of a clinician

M. Sierotowicz et al., "Estimation of contact forces at catheter & guide wire insertion port using bio-signals of a clinician", 2025 47th IEEE EMBC, Copenhagen, Denmark, accepted for publication

Authors: Marek Sierotowicz, Gongbo Yan, Steffen Peikert, Franziska Mathis-Ullrich, Matteo Pantano, Claudio Castellini, and Sabine Thuerauf | **Journal Name:** EMBC | **Publisher:** IEEE

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CONFERENCES AND SEMINARS

05/09/2020 – 08/09/2020 Leiden, Netherlands

Eurohaptics 2020

Eurohaptics is a major international conference on haptics and touch enabled computer applications, and the primary European meeting for researchers in this field.

28/11/2023 – 28/11/2023 Erlangen

AIBE conference 2023

Served as main organizer of the AIBE conference held in Erlangen on November 28th, 2023.

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HOBBIES AND INTERESTS

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ORCID

Please refer to the following link for a complete list of publications and contributions

<https://orcid.org/0000-0001-8040-6438>

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PROJECTS

31/05/2019 – 14/09/2020

Kontur 3

30/11/2020 – CURRENT

AnDy

01/06/2023 – 31/05/2026

HIT-Reha

DFG project fund with the goal of producing a general-purpose rehabilitative and assistive platform combining functional electrical stimulation and exosuits.

● **PATENTS**

2019
Process to feed exogen forces back to a user by means of electrical muscular stimulation, control unit to control a force feedback device, force feedback device and use of a control unit for force feedback

Sierotowicz, Marek; Lutze, Jean-Pascal; Submitted at the German Patent Office; all rights acquired by the German Aerospace Center

● **HONOURS AND AWARDS**

2013 ProExcellentia regional award – Stiftung Südtiroler Sparkasse and Unternehmerverbandes Südtirol

Study Grant for abroad students - 2016, 2017 and 2018 – SouthTyrolean regional admistration

27/09/2023
Finalist for best poster award – Rehabweek 2023

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