

PERSONAL INFORMATION

SOLAIMAN SHOKUR

Senior Scientist, neuroengineering and neurorehabilitation

Ph.D., Robotics, MSc, Computer Science

43 years old | Swiss | 3 Ch. Edouard Tavan, 1206 Genève, Suisse | +41 78 950 24 28

[Google scholar](#) | [ResearchGate](#) | solaiman.shokur@epfl.ch

Fluent in: French, Dari (Afghan), Italian, English, and Portuguese

TRAINING AND EDUCATION

- 11/2019 Training for persons responsible for **directing animal experiments** (Institut für Labortierkunde, module M-2E, Basel, Switzerland).
- 08/2007 – 03/2013 **Ph.D.**, Robotics, Control, and Intelligent Systems (EPFL, Lausanne, Switzerland).
Public Defense: March 15, 2013
Advisors: Prof. Hannes Bleuler (EPFL) and Prof. Miguel A. L. Nicolelis (Duke University, Durham, NC). Obtained with **special distinction**.
Dissertation title: Virtual reality-based brain-machine-interface for sensorimotor and social experiments with primates.
- 09/1999 – 06/2004 **BS, MSc**, (EPFL, Lausanne, Switzerland).
Computer Science.
- 09/2003 – 04/2004 **Exchange student**, National Research Council (CNR, Rome, Italy).
Advisors: Prof. Dario Floreano (EPFL) and Prof. Stefano Nolfi (CNR).
Dissertation title: toward a person-follower robot.

EMPLOYMENT HISTORY & INSTITUTIONAL RESPONSIBILITIES

- 09/2019 – **Senior Scientist**, Translational neuroengineering Laboratory, EPFL (Geneva).
CHRONOS: Development of the first chronically implanted prosthetic hand for transradial amputees (**Co-Principal Investigator**).
NCCR Robotics: Bi-directional control of extra robotic limbs (**Co-PI**).
FoGVR: Safe virtual reality-based setup for the investigation and the treatment of freezing of gait in Parkinson's disease patients (**Co-PI**).
NCCR Grassroot: Third Arm Illusion in a self-touch protocol (**Co-PI**)
Smart Kitchen: Tracking and characterization of naturalistic behavior in the EPFL Smart Kitchen (**Co-PI**).
- 05/2018 – 08/2019 **Clinical Research Coordinator**, *neurorehabilitation lab*, AASDAP (São Paulo, Brazil)
Responsible for the scientific production and the clinical protocol.
I directly supervised the clinical team (1 neurosurgeon, 2 physiotherapists, 1 nurse, and 1 psychologist) and the technical team (3 engineers).

- 08/2015 – 04/2018 **Senior researcher**, AASDAP (São Paulo, Brazil).
- *Development of a new training protocol integrating non-invasive brain-machine interfaces (BMI) with locomotion for people with paraplegia.* .
- *Validation of the clinical protocol with 16 participants with paraplegia.*
- 07/2013 – 08/2015 **Computational Engineer**, Instituto Santos Dumond (Natal, RN, Brazil).
Head of the engineering team in charge of the system integration. The final setup included a brain-controlled exoskeleton.
- 12/2008 – 05/2013 **Doctoral Assistant**, Laboratory of Robotic Systems (EPFL).
Visiting scientist, for 24 months, Nicoletis Lab (Duke University, Durham, NC)
- 07/2007 – 12/2008 **Scientist, Laboratory of Neural Ensemble Physiology** (EPFL)

APPROVED RESEARCH PROJECTS

- 09/2020 Leading House for the Latin American Region, the University of St.Gallen, Seed Money Grant. In collaboration with the Federal University of ABC (Sao Paulo). **21KCHF** (2 years, 3 research groups).
- 06/2021 NCCR Robotics grassroots Project, in collaboration with the University of Bern. **32KCHF** (18 months, two research groups).
- 10/2021 NCCR Robotics Ph.D./Postdoc Exchange Program (Researcher supervisor). **9KCHF** (6 months).
- 12/2021 Microsoft Swiss Joint Research Centre. **180KCHF** (3 years, 3 groups). EPFL Smart Kitchen: Home-based functional assessment platform for neurological patients

SUPERVISION OF JUNIOR RESEARCHERS AT GRADUATE AND POSTGRADUATE LEVEL

- Postgraduate:**
- Eduardo Alho (2019), M.D., Neurosurgeon, São Paulo.
 - Debora Campos (2016-2019), Physiotherapist, São Paulo.
 - Sabrina Almeida (2016-2018), Physiotherapist, São Paulo.
 - Patricia Baptista Augusto (2016-2018), Psychologist, São Paulo.
 - Claudia Gitti (2015-2017), Psychologist, São Paulo.
- PhD students:**
- Valeria de Seta (2021 – 2022), University of Roma.
 - Daniel J.L.L Pinheiro (2020 –), Escola Paulista Medicina, São Paulo.
 - Giulia Dominijanni (2020 –), EPFL.
 - Leonardo Pollina (2021 –), EPFL.
 - Mouhamed Zorkot (2022 –), EPFL.
- Master students:**
- Magnus Kalff (2020), M.D. student, Universität Düsseldorf.
 - EPFL: Jonathan Muheim (2022); Andre Clerc (2021); Karim Zeid (2018); Aurelie Selfslagh (2017); Aurelien Essig (2016); Antoine Schaller (2016); Florin Dzeladini (2011).
 - Polito, Turin, Italy: Federica Smeriglio (2022); Eugenio Anselmino (2020); ISD, Natal, Brazil: Maria A. Aratanha (2015); Caltech: Michael Devyver (2008).

TEACHING ACTIVITIES

2023	Haptic human robot interfaces, EPFL, lecturer
2023	Rehabtech - Technologies for innovation in rehabilitative medicine and for assistance, Politecnico Milano, lecturer
2020 – 2022	Fundamentals of Neuroengineering, EPFL, lecturer
2020 –	Robotics practicals, EPFL, TP assistant
2007 – 2010	Static and Dynamic course, EPFL, teaching assistant Robotics and assembling, EPFL, responsible assistant

MEMBERSHIPS IN PANELS, BOARDS, ETC., AND INDIVIDUAL SCIENTIFIC REVIEWING ACTIVITIES

Associate Editor:	Frontiers in Biomedical Robotics, Transactions on neural systems and rehabilitation engineering, Frontiers in Neurorobotics
Reviewer:	Scientific Report, PLOS One, J. Neuroscience, J. of Neural Engineering, Spinal Cord, Brain Imaging and Behavior, Frontiers, International Journal of Human-Computer Studies, IEEE Open Journal of Engineering in Medicine and Biology
Ph.D. Jury:	Porssut Thibault Serge Mario (2020), LNCO, EPFL Alexandre Moly (2020), Clinattec Demesmaeker Robin Jonathan (2021), UPCOURTINE, EPFL

Conference organization IEEE EMBS Conference on Neural Engineering 2021 (award and exhibition chair)
Member of the Scientific Committee for the Master in Rehabtech Politecnico Milano, Italy

ACTIVE MEMBERSHIPS IN SCIENTIFIC SOCIETIES, FELLOWSHIPS IN RENOWNED ACADEMIES

International Experts Project (Chinese Ministry of Science and Technology)	Clinical BMI society (Tübingen, Germany) Society for Neuroscience (Washington, DC, USA)
IEEE Engineering in Medicine and Biology Society	

PRIZES, AWARDS, FELLOWSHIPS

09/2022	2022 BCI award, 2 nd place winner.
06/2019	2019 BCI award, Nominated.
05/2014	2013 EPFL doctorate special distinction.
06/2013	CNPq Junior Post-Doc scholarship
11/2011	Poster selected as <i>Hot topic</i> at Society for Neuroscience in Washington.

PATENTS

Co-inventor	Thermal sensing device and sensory feedback system and method using such thermal sensing device (2022)
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PUBLICATIONS IN PEER-REVIEWED SCIENTIFIC JOURNALS

M. Ploumitsakou, J. Muheim, A. Felouzis, N.-I. Carbonell Muñoz, F. Iberite, O. Akouissi, F. Morosato, E. Gruppioni, D. Filingeri, S. Micera, **S. Shokur**. Remapping Wetness Perception in Upper Limb Amputees. Under Review

G. Dominijanni, D. Leal Pinheiro, L. Pollina, B. Orset, M. Gini, E. Anselmino, C. Pierella, J. Olivier, S. Micera*, **S. Shokur*** (2023). Natural and non-intrusive control strategy for augmenting the body with extra robotic arms. **Science Robotics**. Accepted

J. Muheim, F. Iberite, O. Akouissi, R. Monney, F. Morosato, E. Gruppioni, S. Micera*, **S. Shokur*** (2023). Validation of a sensory-motor prosthesis with integrated thermal feedback in a transradial amputee, **CELL Med**, in Press.

S. Shokur, S. Micera (2023). Thermal Phantom Sensations in arm amputees and what it means for future prosthetics. **Temperature**. Accepted

D. J. Pinheiro, J. Faber, S. Micera, **S. Shokur** (2023). Human-machine interface for two-dimensional steering control with the auricular muscles. **Frontiers in Neurorobotics**, 17, 1154427.

S. Tortora, F. Artoni, S. Micera, L. Tonin, **S. Shokur**. (2023). Hybrid brain-robot interfaces for enhancing mobility. **Frontiers in Neurorobotics**, 17.

F. Iberite, J. Muheim, O. Akouissi, S. Gallo, G. Rognini, F. Morosato, A. Clerc, M. Kalff, E. Gruppioni, S. Micera*, **S. Shokur*** (2023). Restoration of natural thermal sensation in upper-limb amputees. **Science**. ([LINK](#))

E. Losanno, M. Mender, C. Chestek, **S. Shokur**, S. Micera (2023). Neurotechnologies to restore hand functions. **Nature Reviews Bioengineering**. ([LINK](#))

T. K. Fujioka Shida, C. Eunice N. de Oliveira, D. S. F Campos, E. Los Angeles, C. Bernardo, L. dos Santos de Oliveira, L. Cupertino, T. Novaes, **S. Shokur**, M. Bouri, D. Boari (2023). Effect of freezing of gait and dopaminergic medication in the biomechanics of lower limbs in the gait of patients with Parkinson's disease compared to neurologically healthy. **Neuroscience Letters**. ([LINK](#))

M. A. L. Nicoletis, E. J. L. Alho, A. R. C. Donati, S. Yonamine, M. A. Aratanha, G. Bao, D. S. F. Campos, S. Almeida, D. Fischer, **S. Shokur** (2022). Training with noninvasive brain-machine interface, tactile feedback, and locomotion to enhance neurological recovery in individuals with complete paraplegia: a randomized pilot study. **Scientific Reports**. ([LINK](#))

A. M. Dingle, K. Moxon, **S. Shokur**, I. Strauss (2022). Getting Neuroprosthetics Out of the Lab: Improving the Human-Machine Interactions to Restore Sensory-Motor Functions. **Frontiers in Robotics and AI**, 147. ([LINK](#))

D. F. De Campos, **S. Shokur**, A. C. De Lima-Pardini, M. Runfeng, M. Bouri, M., & D.B. Coelho (2022). Kinematics predictors of spatiotemporal parameters during gait differ by age in healthy individuals. **Gait & Posture**. ([LINK](#))

C. R. De Souza, R. Miao, J. A. De Oliveira, A. C. De Lima-Pardini, D. F. De Campos, C. Silva-Batista, L. Teixeira, **S. Shokur**, M. Bouri and D. B. Coelho (2022). A Public Data Set of Videos, Inertial Measurement Unit, and Clinical Scales of Freezing of Gait in Individuals With Parkinson's Disease During a Turning-In-Place Task. **Frontiers in Neuroscience**, 116. ([LINK](#))

L. Cupertino, T.G. Dos Reis, T.M. Costa, **S. Shokur**, M. Bouri, A.C. de Lima-Pardini, & D.B. Coelho (2022). Biomechanical aspects that precede freezing episode during gait in individuals with Parkinson's disease: A systematic review. **Gait & Posture**, 91, 149-154. ([LINK](#))

S. Shokur*, G. Dominijanni*, G. Salviotti, S. Buehler, E. Palmerini, S. Rossi, F. De Vignemont, A. d'Avella, T. R. Makin, D. Prattichizzo & S. Micera (2021). The neural resource allocation problem when enhancing human bodies with extra robotic limbs. **Nature Machine Intelligence** ([LINK](#))

S. Shokur*, A. Mazzoni*, G. Schiavone, D. J. Weber, & S. Micera (2021). A modular strategy for next-generation upper-limb sensory-motor neuroprostheses. **CELL Med** ([LINK](#))

V. Mendez, F. Iberite, S. Micera*, **S. Shokur*** (2021). Current Solutions and Future Trends Of Robotic Prosthetic Hands. **Annual Review of Control Robotics and Autonomous Systems**. ([LINK](#))

S. Shokur *, J. E. O'Doherty*, L. E. Medina, M. A. Lebedev, M. A. L. Nicolelis (2019). Creating a neuroprosthesis for active tactile exploration of textures. **Proceedings of the National Academy of Sciences**. ([LINK](#))

S. Shokur*, A. Selfslagh*, D. S.F. Campos, A. R. C. Donati, S. Almeida, M. Bouri, M. A. L. Nicolelis (2018). Non-invasive, Brain-controlled functional electrical stimulation for locomotion rehabilitation in paraplegic patients. **Scientific Reports** 9, no. 1 (2019): 6782. ([LINK](#))

S. Shokur, A.R. C. Donati, D. S. F. Campos, C. M. Gitti, G. Bao, D. Fischer, S. B. Almeida, V. A. S. Braga, P. B. Augusto, C. Petty, M. Lebedev, A. W. Song, M. A. L. Nicolelis (2018). Sensorimotor, visceral, and psychological improvement in chronic paraplegic ASIA A/B patients after a training integrating brain-machine interface, visuotactile feedback, and locomotion. **PloS one** 13, no. 11 (2018): e0206464. ([LINK](#))

S. Shokur, S. Gallo, R. C. Moioli, A. R. C. Donati, E. Morya, H. Bleuler, M. A. L. Nicolelis (2016). Assimilation of virtual legs and perception of floor texture by complete paraplegic patients receiving artificial tactile feedback, **Scientific Reports**. 6, DOI:10.1038/srep32293. ([LINK](#))

R. C. Donati*, **S. Shokur***, E. Morya, D. S. F. Campos, R. C. Moioli, C. M. Gitti, P. B. Augusto, S. Tripodi, C. G. Pires, G. A. Pereira, F. L. Brasil, S. Gallo, A. A. Lin, A. K. Takigami, M. A. Aratanha, S. Joshi, H. Bleuler, G. Cheng, A. Rudolph, M. A. L. Nicolelis (2016). Long-Term Training with a Brain-Machine Interface-Based Gait Protocol Induces Partial Neurological Recovery in Paraplegic Patients. **Scientific Reports**. 6, 30383. ([LINK](#))

P. J. Ifft, **S. Shokur**, Z. Li, M. A. Lebedev, & M. A. L. Nicolelis (2013). A brain-machine interface enables bimanual arm movements in monkeys. **Science translational medicine**, 5(210), 210ra154-210ra154. ([LINK](#))

S. Shokur, J. E. O'Doherty, J. A. Winans, H. Bleuler, M. A. Lebedev, & M. A. L. Nicolelis (2013). Expanding the primate body schema in the sensorimotor cortex by virtual touches of an avatar. **Proceedings of the National Academy of Sciences**, 110(37), 15121-15126. ([LINK](#))

J. E. O'Doherty, M. A. Lebedev, P. J. Ifft, K. Z. Zhuang, **S. Shokur**, H. Bleuler, & M. A. L. Nicolelis (2011). Active tactile exploration using a brain-machine-brain interface. **Nature**, 479(7372), 228-231. ([LINK](#))

* authors contributed equally

PEER-REVIEWED BOOKS/MONOGRAPHS

M. Badi, S. Borgognon, J. E. O'Doherty, **S. Shokur** (2021). Cortical stimulation for somatosensory feedback: translation from nonhuman primates to clinical applications. **Somatosensory Feedback for Neuroprosthetics**. Elsevier/Academic Press.

F. Iberite, V. Mendez, A. Manzoni*, S. Micera*, **S. Shokur*** (2021). Biomimetic bidirectional hand neuroprostheses for restoring somatosensory and motor functions. **Somatosensory Feedback for Neuroprosthetics**.

S. Shokur (2021). Towards Brain-Machine Interface-Based Rehabilitation for Patients with Chronic Complete Paraplegia. **Brain-Computer Interface Research**. Springer.

* authors contributed equally

PEER-REVIEWED CONFERENCE PROCEEDINGS

M. Zorkot, A. L. S. Viana, F. L. Brasil, A. L. P. da Silva, G. F. Borges, C. C. do Espírito Santo, E. Morya, S. Micera, **S. Shokur**, M. Bouri (2023). Immediate effect of ankle exoskeleton on spatiotemporal parameters and center of pressure trajectory after stroke. Proceedings of 2023 IEEE-RAS-EMBS International Conference on Rehabilitation Robotics (**ICORR**).

R. Miao, **S. Shokur**, A. C. D. L. Pardini, D. Boari, & M. Bouri, M. (2021). Detecting Freezing of Gait in Parkinson's Disease Patient via Deep Residual Network. In *2021 20th IEEE International Conference on Machine Learning and Applications (ICMLA)* (pp. 320-325). IEEE.

M. N. Kalff; **S. Shokur**; E. F. Lavado; S. Micera (2021). Material surface detection on various body parts: a preliminary study for temperature substitution for upper arm amputee. In 10th International IEEE/EMBS Conference on Neural Engineering (NER).

M. Bouri, A. Selfslagh, D. Campos, S. Yonamine, A.R.C Donati, and **S. Shokur** (2019). Closed-Loop Functional Electrical Stimulation for Gait Training for Patients with Paraplegia. In *2018 IEEE International Conference on Robotics and Biomimetics (ROBIO)*, pp. 1489-1495. IEEE.

B. Hannes, T. Vouga, A. Ortlieb, R. Baud, J. Fasola, J. Olivier, **S. Shokur**, and M. Bouri (2018). Exoskeletons as Mechatronic Design Example. *New Trends in Medical and Service Robotics*, pp. 109-117. Springer, Cham.

T. Vouga, A. Ortlieb, R. Baud, J. Fasola, J. Olivier, **S. Shokur**, and M. Bouri (2018). Personalized Exoskeleton Development: Three Examples. *BCNAE: Body Consciousness in Natural and Artificial Environments*. Reutlingen, Germany.

D. J. Zielinski, R. P. McMahan, **S. Shokur**, E. Morya, and R. Kopper (2014). Enabling Closed-Source Applications for Virtual Reality via OpenGL Intercept-based Techniques. *SEARS*, pp. 1–6.

Sengul, **S. Shokur**, and H. Bleuler (2013). Brain Incorporation of Artificial Limbs and Role of Haptic Feedback. *New Trends in Medical and Service Robots*. Springer International Publishing, 2014. 257-268.

M. Hara, **S. Shokur**, A. Yamamoto, T. Higuchi, R. Gassert and H. Bleuler (2010). Virtual Environment to Evaluate Multimodal Feedback Strategies for Augmented Navigation of the Visually Impaired. *32nd Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, Buenos Aires, Argentina

L. Righetti, **S. Shokur**, and M. S. Capcarrere (2003). Evolution of fault-tolerant self-replicating structures. In *European Conference on Artificial Life VIII (ECAL'03)*, pages 278–288, Berlin.

CONTRIBUTIONS TO BOOKS

Solaiman Shokur - CV

In battaglia, quando l'uva è matura. Quarant'anni di Afghanistan, Società, politica e comunicazione.
Contributed on the writing of a chapter.

INVITED TALKS

May 2023	Invited Speaker. In2PrimateBrains. Crete, Greece
April 2023	Speaker, Machine-Brain Interfaces: Improving the Human and Machine Interactions. IEEE NER, Baltimore, MD.
Nov 2022	Invited Speaker. IEEE Brain Discovery. San Diego, CA.
July 2022	Invited Speaker (Host: Prof. James Patton), Restoration of thermal sensation in transradial amputee patients. Workshop on Therapeutic peripheral stimulation, Glasgow, UK
June 2022	Plenary Lecture SINS National Meeting of PhD Students in Neuroscience, Brescia, Italy.
July 2022	Invited talk, Elite Master of Science program in Neuroengineering Retreat, Berghaus Kahlrückenalpe, Germany
April 2022	Lecturer, BCI & NEUROTECHNOLOGY SPRING SCHOOL 2022 (Host: Christoph Guger)
Oct 2021	Guest lecture, VII Neuroengineering Symposium, ISD, Macaiba, Brazil
Sep 2021	Guest lecture at Skoltech Young Scientists School "Neurotechnologies and Bioelectronic Medicine", Moscow, Russia.
Feb 2021	Invited speaker (Neuromeetup Bern). Brain on the move, Bern
Mar 2019	Invited speaker. (Host: Dr. Hugo Peluffo). <i>Neurotrauma 2019 Institut Pasteur</i> Montevideo, Uruguay.
Feb 2019	Symposium speaker. (Host: Prof. Hannes Bleuler). <i>Laboratory of Robotics Systems</i> . Weisshorn, Switzerland.
Dec 2018	Symposium speaker. (Host: Prof. Rómulo Fuentes). <i>Instituto de Neurociências BNI, University of Chile</i> , Santiago, Chile.
Sep 2018	Invited speaker (Host: Prof Reiner). Sensorimotor improvements in chronic complete paraplegic patients after a training integrating brain-machine interfaces, visuotactile feedback, and locomotion. <i>Sensory-motor systems lab, ETH, Zurich</i> , Switzerland.
Aug 2018	Keynote speaker (Host: Asociación Nacional de Estudiantes de Bioquímica). <i>35 National Congress of Biochemistry</i> , Santiago, Chile.
Sep 2017	Invited speaker (Host: Dr. Marcelo Ricardo de A. Sartori). Brain-Machine Interfaces based neurorehabilitation and sensory substitution. <i>Hospital AACD</i> , São Paulo, Brazil
May 2017	Invited speaker (Host: Prof. Adriano Siqueira). Brain-Machine Interfaces based neurorehabilitation and sensory substitution with spinal cord injury patients. <i>Universidade de São Paulo, USP - São Carlos</i> , São Carlos, Brazil
May 2017	Invited Speaker. Walk Again Project. From São Paulo to the world: neuroscience, robotics and virtual reality revolutionizing treatment for paraplegia. <i>Swissnex</i> , São Paulo, Brazil.

Solaiman Shokur - CV

- Mar 2017 Invited speaker (Host: Prof. Jean Fabre). Brain-machine interfaces-based neurorehabilitation and sensory substitution. *Departement of Neurology and neurosurgery, Universidade Federal de São Paulo, São Paulo, Brazil.*
- Nov 2016 Symposium speaker: Sensory substitution and changing in body schema representation. *Institute of Psychiatry FMUSP, São Paulo, Brazil*
- Jan 2016 Invited speaker (Host: Prof. Hannes Bleuler). Walk assistance for paraplegics with haptic feedback. *LNCO – LSRO – RELAB workshop, Leysin, Switzerland*
- August 2014 Invited speaker (Host: Prof Benabid). Brain-machine interfaces: Closing the Loop, *Clinicatec, Grenoble, France*
- June 2014 Invited speaker (Host: Dr. Mohamed Bouri). A Brain Controlled Exoskeleton for the opening of the 2014 Soccer World Cup. *New Trends in Medical and Service Robots, MeSRoB, EPFL, Lausanne, Switzerland*
- Sep 2013 Symposium speaker. A brain-controlled avatar. *Walk-again project symposium, Hospital AACD, São Paulo, Brazil*
- June 2013 Invited speaker (Host: Prof. Olaf Blanke). Virtual reality-based brain-machine interface. *Laboratory of Cognitive Neuroscience, EPFL, Lausanne, Switzerland*
- July 2013 Symposium Speaker. Brain Incorporation of artificial limbs and role of haptic feedback. *New Trends in Medical and Service Robots, MeSRoB, Belgrade, Serbia*
- May 2013 Invited speaker (Host: Dr. Holger Franz Sperdin). Brain-machine interfaces and virtual reality with primates. *Hospital Universitaire de Genève, Geneva, Switzerland*
- May 2013 Invited speaker (Host Prof: Roger Gassert). Brain-machine interfaces and incorporation of virtual limbs. *Rehabilitation engineering lab, ETH, Zurich, Switzerland*
- February 2013 Retreat speaker. Virtual reality-based brain-machine-interface for sensorimotor and social experiments with monkeys, Leysin, Switzerland
- September 2010 Symposium speaker. Virtual Environment to Evaluate Multimodal Feedback Strategies for Augmented Navigation of the Visually Impaired. *Annual International Conference of the IEEE EMBC, Buenos Aires, Argentina*
- June 2009 Speaker. Brain-computer interfaces. *5th International surgery course Hospital Universitaire de Genève, Geneva, Switzerland*
- November 2008 Speaker. Neuroprosthetics at EPFL. *4th Geneva International Robotic and surgery course, Hospital Universitaire de Genève, Geneva, Switzerland*

OUTREACH ACTIVITIES

- Sep 2020 Invited speaker (TedX Luzern). Science will disappoint you until it doesn't.
- June 2014 I represented the walk again project team on the field for the kick-off of the 2014 Soccer World Cup in Sao Paulo, Brazil, in front of 60'000 people. The kick was done by a paraplegic patient brain-controlling a lower-limb exoskeleton.
- 2013 Teacher for 'Cientista do Futuro' (scientist of the future) at Natal, RN, Brasil. I introduced teenagers from the least developed areas in Brazil to programming via mobile robots and virtual reality.
- 2008, 2009, 2011 Part of the organization team for the festival de la robotic at EPFL, Lausanne. The festival de la robotic is particularly popular among children, young adults, and families. I animated a workshop on the programming of mobile robots.

ABSTRACTS AND POSTERS

2022

S. Shokur, F. Iberite, F. Morosato, S. Gallo, E. Gruppioni, S. Micera (2022). Presence of a thermal phantom sensation in transradial amputee patients. *In Society for Neuroscience Meeting, San Diego, CA.*

F. Iberite, **S. Shokur**, J. Muheim, O. Akouissi, A. Clerc, A. Felouzis, M. Kalff, E. Lavado, L. Testa, Maria Ploumitsakou, Federico Morosato, E. Gruppioni, S. Micera (2022). Wearable display to restore thermal sensation in upper-limb amputee patients. *In Society for Neuroscience Meeting, San Diego, CA.*

G. Dominijanni, L. Dowdall, M. Molina, D. Clode, S. Micera, **S. Shokur**, T. R. Makin (2022). Assessment of Augmented Hands Synergies. *In Society for Neuroscience Meeting, San Diego, CA.*

L. Pollina, G. Dominijanni, D. Leal, B. Orset, **S. Shokur**, S. Micera (2022). Assessment of a diaphragmatic respiration-based control strategy for Extra Robotic Limbs. *In Society for Neuroscience Meeting, San Diego, CA.*

D.J. L.L. Pinheiro, J. Faber, **S. Shokur**, S. Micera (2022). Auricular muscle control of extra degree of freedom for human enhancement. *In Society for Neuroscience Meeting, San Diego, CA.*

G. Dominijanni, D. Clode, S. Micera, **S. Shokur**, T. Makin (2022). Markerless Pose Estimation for an Augmented Hand with Minimal Training Data. 44th Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC). Glasgow.

2021

G. Dominijanni, **S. Shokur**, S. Micera (2021). Guidelines for Sensory-Motor Control of Extra Limbs. *10th International IEEE/EMBS Conference on Neural Engineering (NER).*

S. Shokur, G. Dominijanni, S. Micera (2021). Guidelines for the Assessment of Extra Robotic Limbs Implementations. *10th International IEEE/EMBS Conference on Neural Engineering (NER).*

M. Bouri, J. Poncet, M. Runfeng, D. Boari and **S. Shokur** (2021). Safe Virtual Reality-based Setup for the Investigation and the Treatment of Freezing of Gait in Parkinson's Parkinson's Disease Patient. *10th International IEEE/EMBS Conference on Neural Engineering (NER)*.

E. Anselmino, G. Dominijanni, **S. Shokur**, S. Micera (2021). A sensory substitution module for Extra Robotic Limbs. *10th International IEEE/EMBS Conference on Neural Engineering (NER)*.

2019

S. Shokur, D.S. F. Campos, A. R. C. Donati, E. J. L. Alho, M. Lebedev, M.A. Nicolelis (2019). The Walk Again Neurorehabilitation: BMI-based clinical application to induce partial neurological recovery for patients with chronic complete spinal cord injury patients. *8th Graz Brain-Computer Interface Conference, Graz, Austria*.

E. Alho, **S. Shokur**, S. Yamauti, D. Campos, Y. Shan, G. Shan, J. Lu, W. Song, Y. Tang, G. Zhao, M. A. Nicolelis (2019). Surface-based morphometric brain analysis in paraplegic patients after training with brain-machine interfaces, visuo-tactile feedback and assisted locomotion. *In 49th Society for Neuroscience Meeting, Chicago, IL*.

S. Shokur, D. Schwarz, D. S. F. Campos, A. C. Donati, G. Bao, N. M. P. C. Rios, A. Lin, A. Takigami, M. A. Aratanha, S. Y. Yamauti, S. S. Joshi, R. C. Moiola, F. L. Brasil, E. Morya, M. A. Nicolelis (2019). Validation of an assistive-oriented and rehabilitative-oriented brain-machine interface paradigm for locomotion restoration in a group of patients with chronic complete spinal cord injury. *In 49th Society for Neuroscience Meeting, Chicago, IL*.

2018

S. Shokur, F. Asnis, S. Almeida, M.A.L. Nicolelis (2018). The peripersonal space representation in paraplegic patients depends on the level of lower-limb residual neurological functions. *In 48th Society for Neuroscience Meeting, San Diego, CA*.

2017

S. Shokur, A. R. C. Donati, M. A. L. Nicolelis (2017). Long-term training with non-invasive brain machine-interfaces and locomotion promotes neurological improvement in patients with chronic complete paraplegia: a pilot clinical trial. *In 47th Society for Neuroscience Meeting. Washington, DC*.

A. Selfslagh, **S. Shokur**, A. R. C. Donati, D. S. F. Campos, S. B. de Almeida, N. Padula, H. Bleuler, M. Bouri, M. A. L. Nicolelis (2017). Locomotion training with closed-loop brain-machine interface and lower-limb functional electrical stimulation for complete paraplegic patients. *In 47th Society for Neuroscience Meeting. Washington, DC*.

A. R. C. Donati, **S. Shokur**, D. S. F. Campos, M. A. L. Nicolelis (2017). Development of a New Motor Assessment for Spinal Cord Injury Patients. *In International Neurorehabilitation Symposium (INRS), London*.

D. S. F. Campos, A. Selfslagh, **S. Shokur**, A. R. C. Donati, D. Fischer, M. Bouri, H. Bleuler, M. A. L. Nicolelis (2017). Developing a new synergic muscle contraction gait model produced by surface functional electrical stimulation (FES) in humans after complete spinal cord injury (SCI). *In Annual Meeting of the International Functional Electrical Stimulation Society (IFESS), London*.

2016

M. A. L. Nicoletis, A. R. C. Donati, **S. Shokur**, E. Morya (2016). Brain-machine-interface based neurorehabilitation induces partial neurological recovery in paraplegic patients. *In 9TH World Congress for neurorehabilitation*, Philadelphia, PA.

A. R. C. Donati, **S. Shokur**, D. S. F. Campos, C. G. Pires, D. Fischer, E. Morya, M. A. L. Nicoletis (2016). Improvement of trunk stability in chronic paraplegic patients after long-term training with robotic orthotic trainers. *In 9TH World Congress for neurorehabilitation*, Philadelphia, PA.

S. Shokur, A. R. C. Donati, R. C. Moioli, M. A. L. Nicoletis (2016). Tactile feedback restoration using sensory substitution in chronic paraplegic patients. *In 9TH World Congress for neurorehabilitation*, Philadelphia, PA.

S. Shokur, A. R. C. Donati, D. S. F. Campos, D. Fischer, P. B. Augusto, C. M. Gitti, G. Bao, E. Morya, M. A. L. Nicoletis (2016). Partial sensorimotor recovery in chronic complete spinal cord injury patients following a 24-month neuro-rehabilitation training with brain-machine interface controlled virtual and robotic gait devices. *In 46th Society for Neuroscience Meeting*, San Diego, CA.

A. Essig, **S. Shokur**, A. Schaller, S. Gallo, A. R. C. Donati, G. Bao, M. Bouri, H. Bleuler, M. A. L. Nicoletis (2016). Measuring lower limb peripersonal space in spinal cord injury patients using an audio-tactile stimulation. *In 46th Society for Neuroscience Meeting*, San Diego, CA.

D. S. F. Campos, A. R. C. Donati, D. Fischer, **S. Shokur**, M. A. L. Nicoletis (2016). Active Rehabilitation program for motor complete spinal cord injury: impact on motor neurological recovery. *In XXV Congresso Brasileiro de Medicina Física e Reabilitação*, São José do Rio Preto, SP, Brazil.

P. B. Augusto, C. M. Gitti, A. R. C. Donati, **S. Shokur**, M. A. L. Nicoletis (2016). Changes in body image after training with virtual reality for patients with chronic spinal cord injury. *In XXV Congresso Brasileiro de Medicina Física e Reabilitação*, São José do Rio Preto, SP, Brazil.

V. A. Sousa Braga, A. R. C. Donati, **S. Shokur**, M. A. L. Nicoletis (2016). Improvement of bowel functions in patients with chronic spinal cord injury following a long-term neurorehabilitation training. *In XXV Congresso Brasileiro de Medicina Física e Reabilitação*, São José do Rio Preto, SP, Brazil.

2015

S. Shokur, S. Gallo, R. Moioli, M. Bouri, E. Morya, H. Bleuler, M. A. L. Nicoletis (2015). Inducing paraplegic patients to perceive distinct ground textures using tactile feedback generated by virtual feet. *In Society for Neuroscience 45nd Annual Meeting*, Chicago, IL.

F. L. Brasil, **S. Shokur**, R. C. Moioli, A. R. C. Donati, E. Morya, M. A. L. Nicoletis (2015). Walk using single leg control at BMI driven exoskeleton. *In Society for Neuroscience 45nd Annual Meeting*, Chicago, IL.

M. A. Aratanha, **S. Shokur**, F. Brasil, A. R. C. Donati, S. Gallo, E. Morya, M. A. L. Nicoletis (2015). Closed loop brain controlled avatar training for locomotion with spinal cord injured patients. *In Society for Neuroscience 45nd Annual Meeting*, Chicago, IL.

A. R. C. Donati, **S. Shokur**, E. Morya, C. Gitti, P. Augusto, G. Dias, D. Campos, D. Yoshihara, M.A.L Nicoletis (2015). Twelve months of physical rehabilitation protocol integrating brain controlled locomotor training and tactile feedback for patients with chronic spinal cord Injury. *In Society for Neuroscience 45nd Annual Meeting*, Chicago, IL.

R. Moiola, **S. Shokur**, S. Gallo, F. Brasil, E. Morya, M. Nicoletis (2015). Cortical incorporation of virtual legs in Spinal Cord Injured patients. *In Society for Neuroscience 45th Annual Meeting*, Chicago, IL.

2014

M. A.L. Nicoletis, **S. Shokur**, A. Lin, R. Moiola, F. Brasil, N. Peretti, K. Fast, A. Takigami, E.Morya, G. Cheng, L. Sawaki, R. Kopper, D. Schwarz, S. Gallo, M. Lebedev, S. Joshi, H. Bleuler, A. Rudolph. The Walk Again Project: Using a Brain-Machine Interface for establishing a bi-directional Interaction between paraplegic subjects and a lower limb exoskeleton (2014). *In Society for Neuroscience 44th Annual Meeting*, Washington, DC.

F. L. Brasil, R. C. Moiola, **S. Shokur**, K. Fast, A. L. Lin, N. A. Peretti, A. Takigami, K. Lyons, D. J. Zielinski, L. Sawaki, S. Joshi, E. Morya, M. A. L. Nicoletis. The Walk Again Project: an EEG/EMG training paradigm to control locomotion (2014). *In Society for Neuroscience 44th Annual Meeting*, Washington, DC.

A. Lin, D. Schwarz, R. Sellaouti, **S. Shokur**, R. C. Moiola, F. L. Brasil, K. R. Fast, N. A. Peretti, A. Takigami, S. Gallo, K. Lyons, P. Mittendorfer, M. Lebedev, S. Joshi, G. Cheng, E. Morya, A. Rudolph, M. Nicoletis (2014). The walk again project: brain-controlled exoskeleton locomotion. *In Society for Neuroscience 44th Annual Meeting*, Washington, DC.

R. C. Moiola, F. L. Brasil, **S. Shokur**, A. L. Lin, K. Fast, N. Peretti, A. Takigami, D. Schwarz, E. Morya, M. A. L. Nicoletis (2014). The Walk Again Project: Analysis of brain activity of spinal cord injury patients during training with a BMI. *In Society for Neuroscience 44th Annual Meeting*, Washington, DC.

A. Ramakrishnan, P. J. Ifft, Z. Li, **S. Shokur**, M. A. Lebedev, M. A. L. Nicoletis (2014). Brain-machine interface featuring cooperation and social interaction. *In Society for Neuroscience 43rd Annual Meeting*, San Diego, CA.

2012

P. Ifft, **S. Shokur**, M. Lebedev, Z. Li and M. A. L. Nicoletis (2012). Bimanual brain-machine interface. *In Society for Neuroscience 42nd Annual Meeting*, New Orleans, LA.

S. Shokur, J.A. Winans, J.E. O'Doherty, M. A. Lebedev, H. Bleuler and M. A. L. Nicoletis. (2012). Beyond the homunculus: Visual responses of primary somatosensory cortex (S1) neurons to virtual touch of a virtual arm. *In Society for Neuroscience 42nd Annual Meeting*, New Orleans, LA.

2011

S. Shokur, P. Ifft, M. A. Lebedev, H. Bleuler and M. A. L. Nicoletis (2011). Social interaction probed by reaching to face images: Rhesus monkeys consider a textured monkey avatar as a conspecific. *Society for Neuroscience 41st Annual Meeting*, Washington, DC.

2008

A. Tate, **S. Shokur**, H. Bleuler, and M. A. L. Nicoletis (2008). *Predicting locomotor activity via neural ensemble recordings in the primary motor cortex in rats. Society for Neuroscience 38th Annual Meeting*, San Diego, CA.

S. Shokur, A. J. Tate, H. Bleuler, and M. A. L. Nicoletis (2008). Gait pattern prediction via bilateral neural ensemble recordings in motor cortex in rats. *In 6th FENS Forum of European Neuroscience (FENS)*, Geneva, Switzerland.