

CURRICULUM VITAE FOR CWRU SCHOOL OF MEDICINE

JANUARY 20, 2023

PERSONAL INFORMATION

Name; Sulzer, James
Credentials; Ph.D.

Department of Physical Medicine and Rehabilitation
The MetroHealth System
Case Western Reserve University
School of Medicine
4229 Pearl Rd, Cleveland, OH 44109
jss280@case.edu; jsulzer@metrohealth.org

EDUCATION & TRAINING

Education

The Ohio State University, Columbus, Ohio
Bachelor of Science, Mechanical Engineering
09/1998-12/2002

Northwestern University, Evanston, Illinois
Master of Science, Mechanical Engineering
09/2003-04/2006

Northwestern University, Evanston, Illinois
Doctorate of Philosophy, Mechanical Engineering
04/2006-10/2009

PhD Thesis

Title: Robotic Intervention for people with stiff-knee gait after stroke

Thesis Committee members:

James L. Patton
Yasin Y. Dhaher
Ross Bogey
T. George Hornby
Michael A. Peshkin
Keith Gordon

Post-Graduate Training

Swiss Federal Institute of Technology, Zurich
Department of Health Science and Technology
Postdoctoral Fellow
10/2009-08/2013

ACADEMIC APPOINTMENTS

Assistant Professor, Mechanical Engineering
The University of Texas at Austin
08/2013-06/2022

Clinical Associate Professor, Physical Medicine and Rehabilitation
Case Western Reserve University
06/22-09/22

Associate Professor, with Tenure, Physical Medicine and Rehabilitation
Case Western Reserve University
09/22-present

MEMBERSHIP IN PROFESSIONAL SOCIETIES

Society for Neuroscience
Member
2009-present

International Society of Rehabilitation Robotics
Member
06/2019-present

IEEE
Member
08/2022-present

PROFESSIONAL SERVICES

Editorial Board

Frontiers in Rehabilitation Sciences
2021-present

American Journal of Physical Medicine and Rehabilitation
2022-present

Ad Hoc Editor

CPresource.org
2022

Board of Directors

Replay for Kids
2022-present

Manuscript Reviewer

Ad Hoc reviewer for:

American Journal of Psychiatry
Annals of Neurology
Annals of Clinical Translational Neurology
ASME Journal of Biomechanical Engineering

ASME Journal of Medical Devices
ASME Journal of Mechanisms and Robotics
Biological Psychiatry
Brain Imaging and Behavior
Brazil Journal of Physical Therapy
Cerebral Cortex
Current Opinion in Biomedical Engineering
eNeuro
Frontiers in Behavioral Neuroscience
Frontiers in Human Neuroscience
Frontiers in Neurorobotics
Gait and Posture
Human Brain Mapping
Journal of Biomechanics
Journal of Neuroscience
Journal of Medical Robotics Research
Journal of NeuroEngineering and Rehabilitation
Motor Control
Nature Biomedical Engineering
Nature Human Behavior
Neuroimage
Neurology
Neuroradiology
Neuroscience and Behavioral Reviews
Neuroscience
PLOS One
IEEE Robotics and Automation Letters
Scientific Reports
Sensors
IEEE Transactions on Biomedical Engineering
Topics in Cognitive Science
IEEE Transactions in Neural Systems and Engineering
IEEE Transactions in Mechatronics

Associate Editor for:

International Conference on Rehabilitation Robotics (ICORR) 2022

Study Sections/ Grant Review Committees

NSF MRI Panel FY22

NSF Convergence Accelerator Panel FY22

Ad Hoc grant reviews

Israeli Ministry of Science, Technology and Space
Swiss Federal Institute of Technology, Zurich
National Center for Neuromodulation for Rehabilitation
Swiss National Science Foundation
Mission Connect Foundation
RWTH Aachen University Junior Principal Investigator Fellowship
UT Austin Brain Research Foundation
Sir Henry Wellcome Foundation
Dutch Research Council
Brain Research Trust

COMMITTEE SERVICE

International

1st Real-time Functional Imaging and Neurofeedback Conference (rtFIN, 06/2012-12/2012)

Role: Founder and Organizer. I created the concept of an international fMRI neurofeedback community during my postdoc at ETH Zurich, secured funding from the Swiss National Science Foundation, recruited industrial sponsors, planned the scientific program, invited and organized 8 keynote lecturers, and emceed the conference of 120 international attendees.

Real-time Functional Imaging and Neurofeedback Community (12/2012-present)

Role: Founder. In addition to founding the conference, I created an email list and website that remains the hub of communication in the field.

2nd Real-time Functional Imaging and Neurofeedback Conference (08/2014-02/2015)

Role: Co-Organizer. Together with Prof. Ranganatha Sitaram (University of Florida), we organized the second version of rtFIN in Gainesville. I contributed to organizing logistics, planning the scientific program, inviting keynote lecturers, evaluating abstracts, and emceeding the ~200-attendee conference.

3rd Real-time Functional Imaging and Neurofeedback Conference (05/2017-11/2017)

Role: Scientific Program Chair. The third version of rtFIN was hosted by Dr. Mitsuo Kawato (ATR Japan). I planned out the entire scientific program including keynote lecturers, poster and podium sessions for the ~300-person conference.

4th Real-time Functional Imaging and Neurofeedback Conference (06/2019-12/2019)

Role: Program Committee Member. For fourth iteration, I helped determine keynote speakers, evaluate abstracts, and plan scientific program. I also provided institutional knowledge of the conference, held in Maastricht, The Netherlands for ~300 attendees.

5th Real-time Functional Imaging and Neurofeedback Conference (10/2021-10/2022)

Role: Program Committee Member. In the fifth iteration, I helped determine the keynote speakers, evaluate abstracts, plan the scientific program and provide institutional knowledge of the conference. The conference, held at Yale in New Haven, CT, is expected to attract ~300 attendees.

Regional

AustinUP (01/2018-03/2018)

2nd AustinUP Aging Symposium

Role: Co-organizer. I helped moderate discussions and plan out speakers.

University

University of Texas at Austin

Clinically Applied Rehabilitation Research and Engineering (CARE) Initiative (01/2014-08/2017)

Role: Founder and Director. I recruited 30 PIs and many more students, local clinicians and community members to join a rehabilitation research community. I raised internal funds from UT, organized international speakers on a monthly basis, created and planned events such as CARE Research Day, created spin-off organizations in multimodal neuroimaging and brain-computer interfaces, and started a monthly newsletter relevant to the rehabilitation community.

University of Texas at Austin

Cockrell School of Engineering

Engineering in Health Care Symposium, (01/2016-03/2016)

Role: Co-Chair. I planned the event with other professors, created the program and moderated discussions for the ~100-attendee local conference.

University of Texas at Austin

1st Annual CARE Research Day (01/2016-04/2016)

Role: Chair and Founder. I created and planned out all aspects of the event, invited the keynote lecturer, reviewed abstracts and planned out poster judging. The conference hosted ~100 attendees.

University of Texas at Austin

2nd Annual CARE Research Day (01/2017-04/2017)

Role: Chair. I created and planned out all aspects of the event, invited the keynote lecturer, reviewed abstracts and planned out poster judging. The conference hosted ~100 attendees.

University of Texas at Austin

Cockrell School of Engineering

Aging-in-Place Symposium 01/2017-03/2017

Role: Co-Chair. I created the concept, planned the event with other professors, and moderated discussions for the ~100-attendee local conference.

University of Texas at Austin

Cellular to Clinically Applied Rehabilitation Research and Engineering (CARE) Initiative, Co-Director (09/2017-05/2022)

Role: Together with Linda Noble-Hausselein (Psychology/Neurology, UT), I co-directed CARE, continuing leadership of the organization I founded 3 years earlier. We tripled the budget from \$14K/yr to \$55K/yr, hired a program coordinator, facilitated 55 collaborative publications from 2018-2022 and \$15.27M of collaborative funding between CARE PIs, managed 45 active PIs, nearly 400 on the email list, created a Rehab Research retreat with 30 PIs, several iterations of CARE Research Day, managed monthly newsletters, and created mutually beneficial research relationships with clinics all over Austin. CARE continues to be the hub of rehabilitation for all of Central Texas.

University of Texas at Austin

Texas Robotics, (09/2017-05/2022)

Role: Portfolio Chair. I managed new entrants to the Texas Robotics Portfolio Program

University of Texas at Austin

Multimodal Neuroimaging Initiative (10/2018-05/2019)

Role: Founder and Co-Director. Together with Bharath Chandrasekaran (Speech Language and Hearing Sciences, UT), we raised over \$250K from the Vice President of Research at UT and the Schools of Engineering, Liberal Arts, Education and Communications to create a multimodal brain imaging center based on EEG and fNIRS technologies. We sent out monthly newsletters, organized training sessions, and created an email list.

University of Texas at Austin

Biomedical Imaging Center Director Search Committee, (10/2018-05/2019)

Role: Member. I participated in the vetting of candidates for the hiring of the Director of the Biomedical Imaging Center at UT.

University of Texas at Austin

3rd Annual CARE Research Day (01/2018-04/2018)

Role: Chair. I created and planned out all aspects of the event, invited the keynote lecturer, reviewed abstracts and planned out poster judging. The conference hosted ~100 attendees.

University of Texas at Austin

4th Annual CARE Research Day (01/2019-04/2019)

Role: Co-Chair. I supervised the event, participating in the invitation to the keynote lecturer, reviewed abstracts and planned out poster judging. The conference hosted ~100 attendees.

Department of Kinesiology and Exercise Science

Robotics Faculty Search Committee (10/2019-05/2020)

Role: Member. I participated in the vetting of candidates for the hiring of two candidates for Assistant Professor in the Department of Kinesiology and Exercise Science.

University of Texas at Austin
5th Annual CARE Research Day, (01/2021-04/2021)
Role: Co-Chair. I supervised the event, participating in the invitation to the keynote lecturer, reviewed abstracts and planned out poster judging. The conference hosted ~100 attendees.

University of Texas at Austin
6th Annual CARE Research Day, (01/2022-04/2022)
Role: Co-Chair. I collaborated in inviting the keynote lecturer, promoting the event, and supervised the judging. The conference hosted ~100 attendees.

Department

Department of Mechanical Engineering (UT Austin)
Graduate Student Recruitment Committee (09/2018-09/2021)
Role: I solely vetted all candidates and made offers in the Biomechanical Area in the Department of Mechanical Engineering.

Department of Mechanical Engineering (UT Austin)
Robotics Faculty Search Committee (Position 1), (09/2018-05/2019)
Role: Member. I participated in the vetting of candidates for the hiring of two candidates for Assistant Professor in Robotics

Department of Mechanical Engineering (UT Austin)
Robotics Bridges to the Future (09/2018-09/2021)
Role: Mentor. I provided advice to undergraduates on curriculum.

Department of Mechanical Engineering (UT Austin)
Biomechanics Bridges to the Future (09/2019-09/2021)
Role: Mentor. I provided advice to undergraduates on curriculum.

Department of Mechanical Engineering (UT Austin)
Robotics Faculty Search Committee (Position 2) (09/2019-05/2020)
Role: Member. I participated in the vetting of candidates for the hiring of two candidates for Assistant Professor in Robotics

HONORS & AWARDS

James S. Sulzer Travel Award
CARE Initiative (UT Austin)
Annual award presented in my name to graduate students to attend conferences.
Dedicated to me due to my founding and service to CARE.
4/2022 - present

Mission Connect Foundation
Eugene Alford Robotics Award
11/2021

Mission Connect Foundation
Eugene Alford Robotics Award
11/2015

NIH
K12 Career Development Award 5K12HD073945
08/2013

ETH Zurich
ETH Postdoctoral Fellowship
10/2010

Rehabilitation Institute of Chicago
Sarah Baskin Award for Excellence in Research Rehabilitation
06/2009

Northwestern University
Cabell Fellowship
09/2008

US Department of Veterans Affairs
VA Predoctoral Fellowship
09/2008

American Heart Association
Predoctoral Fellowship
09/2006

Rehabilitation Institute of Chicago
Sarah Baskin Award for Excellence in Research Rehabilitation
06/2006

Northwestern University
Walter Murphy Fellowship
08/2003

TEACHING ACTIVITIES

Curriculum/ Course Development

1. University of Texas at Austin
Dynamics
2014-2021
Estimated hours taken to create: 240
Audience: 2nd/3rd year undergraduate Mechanical Engineering students
2. University of Texas at Austin
Introduction to Robot Modeling and Control
2016-2022
Estimated hours taken to create: 300
Audience: 4th year undergraduate and 1st/2nd year graduate Mechanical Engineering, Electrical and Computer Engineering, Computer Science and Aerospace Engineering students
3. University of Texas at Austin
Rehabilitation Engineering
2015-2022
Estimated hours taken to create: 80
Audience: 4th year undergraduate and 1st/2nd year graduate Mechanical Engineering, Biomedical Engineering and Kinesiology students

Invited Lectures

Note: classification of conferences is based on relative location of my contemporary home institution. I was located in Chicago from 2003-2009, Zurich from 2009-2013, and Austin from 2013-present.

International

1. “Exoskeletons in Stiff-Knee gait after stroke”. Swiss Federal Institute of Technology. Department of Mechanical Engineering. 01/2009.
2. “Combining neuroscience and robotics for rehabilitation”. Imperial College London 10/2010.
3. “Combining neuroscience and robotics for rehabilitation”. Columbia University, Department of Mechanical Engineering. 03/2011.
4. “Combining neuroscience and robotics for rehabilitation”. University of Michigan. Department of Mechanical Engineering. 04/2011.
5. “Rehabilitation, Robotics, and Real-time fMRI”. Organization for Human Brain Mapping (OHBM), Beijing, China. 06/2012.
6. “Rehabilitation, Robotics, and Real-time fMRI”. ATR Japan. 09/2012
7. “Rehabilitation, Robotics, and Real-time fMRI”. Tokyo Bay Rehabilitation Hospital. 09/2012.
8. “Rehabilitation, Robotics, and Real-time fMRI”. Case Western Reserve University. Department of Biomedical Engineering. 10/2012.
9. “Rehabilitation, Robotics, and Real-time fMRI”. Vanderbilt University. Department of Mechanical Engineering. 02/2013.
10. “Rehabilitation, Robotics, and Real-time fMRI”. Cleveland State University Department of Mechanical Engineering. 03/2013.
11. “Rehabilitation, Robotics, and Real-time fMRI”. Colorado School of Mines. Department of Mechanical Engineering. 03/2013.
12. “Rehabilitation, Robotics, and Real-time fMRI”. Cleveland Clinic Foundation Department of Biomedical Engineering. 03/2013.
13. “Rehabilitation, Robotics, and Real-time fMRI”. Italian Institute of Technology, Genoa, Department of Biomedical Engineering. 07/2013.
14. “Towards Neurally Guided Physical Therapy following Stroke”. Pontifical Catholic University of Chile. Department of Biomedical Engineering. 08/2016.
15. “Neural Operant Conditioning”. IEEE Biorobotics and Biomechatronics Conference, (Biorob). New York, NY. 11/2020.
16. “A Rehabilitation Engineer and a Caregiver: How a dual role brings new perspective”. NeuroRehack21. 07/2021.
17. **Keynote Lecture:** “Our Child’s TBI: A Rehabilitation Engineer’s Personal Experience, Technological Approach, and Lessons Learned”. RehabWeek Virtual. 09/2021.

National

18. “Exoskeletons in Stiff-Knee gait after stroke”. Johns Hopkins University. Department of Mechanical Engineering. 05/2009.
19. “Exoskeletons in Stiff-Knee gait after stroke”. Massachusetts Institute of Technology. Department of Mechanical Engineering 06/2009.
20. “Exoskeletons in Stiff-Knee gait after stroke”. Yale University. Department of Mechanical Engineering. 05/2009.
21. “Rehabilitation, Robotics, and Real-time fMRI”. ASME Dynamic Systems and Controls Conference. 10/2014.
22. “Towards Neurally Guided Physical Therapy following Stroke”. Lawrence Livermore National Labs 12/2015.
23. “Learning to Control the Brain”. American Heart Association Scientific Sessions. November 2015.
24. “Self-regulation strategy, feedback timing and hemodynamic properties modulate learning in a simulated fMRI neurofeedback environment”. Kennedy Krieger Institute. 02/2017
25. “Towards Neurally Guided Physical Therapy following Stroke”. University of Delaware Department of Biomedical Engineering. 02/2017.
26. “Towards multimodal targeted interventions following stroke”. North Carolina State University 01/2018.

27. "Making exoskeletons friendly to people after stroke". NSF Human-Friendly Workshop (San Antonio, TX). 05/2019.
28. "Neuromodulation via biofeedback: potential and limitations". National Center for Neuromodulation for Rehabilitation. Charleston, SC, 03/2020 (cancelled due to coronavirus)
29. "Technologies in Stroke Rehabilitation". Recovering from Stroke 2020 Conference, Houston, TX, 05/2020. (cancelled due to coronavirus)
30. "A Rehabilitation Engineer's Approach to his Daughter's TBI". NSF LIBERATE Workshop, 05/2021.
31. "Addressing post-stroke Stiff-Knee gait using biomechanics, neurophysiology, and robotics". Cleveland State University Dept of Mechanical Engineering. 07/2021.
32. "Addressing post-stroke Stiff-Knee gait using biomechanics, neurophysiology, and robotics". University of Pittsburgh School of Health and Rehabilitation Sciences. 07/2021.
33. "Addressing post-stroke Stiff-Knee gait using biomechanics, neurophysiology, and robotics". University of Illinois-Chicago. 09/2021.
34. "Challenges in Pediatric Rehabilitation: A Dual Caregiver-Scientist Perspective". Northwestern University. 10/2021.
35. "Challenges in Pediatric Rehabilitation: A Dual Caregiver-Scientist Perspective". University of Notre Dame. 2/2022.
36. "Challenges in Pediatric Rehabilitation: A Dual Caregiver-Scientist Perspective". Kennedy Krieger Institute. 2/2022.
37. "Challenges in Pediatric Rehabilitation: A Dual Caregiver-Scientist Perspective". University of Delaware. 2/2022.
38. Panel Discussion on Caregiver Challenges. University of Delaware. 4/2022.
39. "Challenges in Pediatric Rehabilitation: A Dual Caregiver-Scientist Perspective". University of Houston. 9/2022.
40. **Keynote Lecture:** "A Dual Caregiver-Scientist Perspective of Pediatric TBI: Advice for Therapists". Academy of Neurologic Physical Therapy (ANPT) Conference. Minneapolis, MN. 10/2022.

Regional

41. "Towards Neurally Guided Physical Therapy following Stroke". UT Health Science Center San Antonio 11/2017.
42. "Probing gait impairment after stroke using exoskeletons". WeRob2017 (Houston, TX). 11/2017.
43. "Making exoskeletons friendly to people after stroke". WeRob2019 (Houston, TX) 11/2019 Wearable Robotics Conference (cancelled due to logistics)
44. "A Rehabilitation Engineer and a Caregiver: How a dual role brings new perspective". Mission Connect Foundation Advisory Board. Houston, TX. 09/2021.
45. "Our Child's TBI: A Rehabilitation Engineer's Personal Experience, Technological Approach, and Lessons Learned". Mission Connect Foundation. 10/2021

Local

46. "Exoskeletons in Stiff-Knee gait after stroke". University of Illinois-Chicago. Department of Kinesiology. 09/2009.
47. "Targeting Plasticity using Neurofeedback". Plasticize Workshop (FP7 Programme) University of Zurich. 09/2011.
48. "Rehabilitation, Robotics, and Real-time fMRI". University Hospital Zurich. Department of Maxillofacial Surgery. 11/2012.
49. "Towards Neurally Guided Physical Therapy following Stroke". University of Texas at Austin Centennial Lecture Series, Department of Mechanical Engineering 09/2013.
50. "Towards Neurally Guided Physical Therapy following Stroke". St. David's Hospital and UT School of Nursing 09/2017.
51. "Neuromodulation via biofeedback: potential and limitations". UT Austin Dept of Kinesiology and Health Education. 02/2020.
52. "Our Child's TBI: A Rehabilitation Engineer's Personal Experience, Technological Approach, and Lessons Learned". CARE Initiative. March 2021.

53. “Our Child’s TBI: A Rehabilitation Engineer’s Personal Experience, Technological Approach, and Lessons Learned”. UT Dept of Speech Language and Hearing Sciences. 05/2021.
54. “Prioritizing Rehabilitation”. UT Austin Chapter of the IEEE Robotics and Automation Society, 11/2021.
55. “Neural Operant Conditioning”. Brain Body Robotics Course, UT Austin. 11/2021.
56. “Robotics, biomechanics and neurophysiological approaches to treating neurological injury”. Pi Tau Sigma at UT Austin. 2/2022.

Grand Rounds

National

57. “Our Child’s TBI: A Rehabilitation Engineer’s Personal Experience, Technological Approach, and Lessons Learned”. Northwestern Feinberg School of Medicine Grand Rounds. 06/2021.
58. “A Dual Caregiver-Scientist Perspective of Pediatric TBI”. UT Health Sciences Center Houston, McGovern Medical School and TIRR Memorial Hermann Grand Rounds. 08/2022.

Trainees / Mentees

Postdoctoral Scholars

<u>Name</u>	<u>Start Date</u>	<u>End Date</u>	<u>Co-Advisor</u>	<u>Current Employer</u>
1. Kellen Krajewski	07/2022			
2. Ricardo Siu	10/2022			

Graduated PhD Students

<u>Name</u>	<u>Start Date</u>	<u>End Date</u>	<u>Co-Advisor</u>	<u>Current Employer</u>
3. Tunc Akbas	08/2013	12/2018		Engineer, Intel Corporation
4. Sung Yul Shin	08/2014	05/2019		Postdoctoral Fellow, Shirley Ryan AbilityLab
5. Ethan Oblak	08/2013	12/2019	Jarrold Lewis-Peacock (Psychology, UT)	Postdoctoral Fellow, RIKEN Institute, Japan
6. Shih-Yun Lo	08/2016	05/2021	Andrea Thomaz (ECE, UT)	Research Scientist, Toyota Research Institute
7. Chungmin Han	09/2015	12/2021	Paul Ferrari (Psychology, UT)	Postdoctoral Fellow, NIH NIDA
8. Ana de Oliveira	09/2015	07/2022	Ashish Deshpande (ME, UT)	Senior Robotics Engineer, Asensus Surgical
9. Jeonghwan Lee	09/2017	07/2022		Engineer, Contoro Robotics

Current PhD Students (All students except for Correa at UT)

<u>Name</u>	<u>Start Date</u>	<u>Co-Advisor</u>
10. Kyoungsoon Kim	09/2016	
11. Justin Kilmarx	09/2018	Jarrold Lewis-Peacock (Psychology, UT)
12. Juan Correa	08/2022	

Graduated Masters students

<u>Name</u>	<u>Start Date</u>	<u>End Date</u>	<u>Co-Advisor</u>	<u>Current Employer</u>
13. Gaurav Ghorpade	08/2015	08/2017		Engineer, CGG
14. Allison Berman	09/2017	05/2018	Jarrod Lewis-Peacock (Psychology, UT)	Engineer, Google
15. Kevin Warburton	08/2016	01/2019	Ashish Deshpande (ME, UT)	Engineer, Southwest Research Institute
16. Sunil Prajapati	08/2018	05/2019		PhD student, Southern Methodist University
17. Keith Macon	08/2019	05/2020	Kathleen Manella (University of St. Augustine)	Engineer, Baker Engineering and Risk Consultants
18. Mark Chiarello	09/2019	12/2021	Mandy Salinas (Kinesiology, UT)	Engineer, Harmonic Bionics
19. Olewaseun Fashina	09/2020	05/2022		Engineer, Mass Product Development
20. Michael Normand	09/2020	05/2022		Engineer, Harmonic Bionics

Visiting Scholars

<u>Name</u>	<u>Start Date</u>	<u>End Date</u>	<u>Home Institution</u>
21. Marcel Jakob	09/2014	03/2015	ETH Zurich, Switzerland
22. Manuel Koch	10/2014	04/2015	ETH Zurich, Switzerland
23. Thibault Roumengous	03/2016	09/2016	Aix-Marseilles University, France
24. Laura Santoso	08/2017	04/2018	University of Massachusetts, Amherst
25. Lailu Li	10/2017	04/2018	Harbin University of Technology, China
26. Juan Pablo Garcia	01/2019	06/2019	Pontifical Catholic University, Chile
27. Shail Jadav	06/2019	09/2019	IIT Gandhinagar, India
28. Laura Van Poppel	10/2019	02/2020	TU Delft, The Netherlands
29. Franz Bachler	02/2020	07/2020	University of Innsbruck, Austria

Undergraduate supervision

Rewire undergraduate lab assistants: 54 (48 ME at UT Austin), Names upon request

Undergraduate Team Project Supervision

Program	Semester	Department	Topic
Senior Capstone	SP22	Mechanical Engineering	Interactive therapy wall
Senior Capstone	SP22	Mechanical Engineering	Head support for gait trainer
Medical Device	AU21	Mechanical Engineering	Clinical partial weight support gait trainer

			Outdoor partial weight support gait trainer
Medical Device	AU21	Mechanical Engineering	
Medical Device	AU21	Mechanical Engineering	EEG Brain-Computer Interface
Senior Capstone	AU21	Mechanical Engineering	Swallow sensor
Senior Capstone	AU21	Mechanical Engineering	Partial weight support gait trainer
FIRE	SP21	Mechanical Engineering	Interactive keyboard game for pediatric rehabilitation
Senior Capstone	SP21	Mechanical Engineering	Pediatric Rehabilitation Toy
Senior Capstone	AU20	Mechanical Engineering	Communication Device for TBI
Senior Capstone	AU20	Mechanical Engineering	Rehab toys for TBI
Senior Capstone	SP20	Mechanical Engineering	Swaddle Testing
Senior Capstone	SP19	Mechanical Engineering	Diastasis Recti detection device
Senior Capstone	SP19	Mechanical Engineering	Wheelchair wrist assistance
FIRE	AU18	Mechanical Engineering	Wheelchair Anchor Device
Senior Capstone	SP18	Mechanical Engineering	Diastasis Recti detection device
Senior Capstone	SP18	Biomedical Engineering	Arm Exoskeleton
FIRE	AU17	Mechanical Engineering	Wheelchair Training Device
Senior Capstone	AU16-SP17	Mechanical Engineering	Elbow Exoskeleton
Senior Capstone	SP17	Mechanical Engineering	fNIRS Headcap Montage
Senior Capstone	AU16	Mechanical Engineering	Oil Flange
Senior Capstone	AU16	Mechanical Engineering	Ankle Clonus Test Rig
FIRE	AU16	Mechanical Engineering	Wheelchair lift
Senior Capstone	SU16	Mechanical Engineering	Earthquake simulator
Senior Capstone	AU15	Mechanical Engineering	Hand orthosis for arthritis
Senior Capstone	AU14-SP15	Biomedical Engineering	IMU Balance Measurement
FIRE	AU15	Mechanical Engineering	Wheelchair lift
FIRE	AU14-SP15	Mechanical Engineering	Adaptive grill tool
Senior Capstone	AU13-SP14	Biomedical Engineering	Leg orthosis

RESEARCH / GRANT SUPPORT

NIH National Institutes of Child Health and Human Development 5R01HD100416
Combining neurophysiology and biomechanics to delineate post-stroke gait
PI

Role: I initiated and developed the overall concept and primarily wrote the proposal. My expertise in biomechanics, robotics and neurophysiology were key in obtaining the grant.

25% effort

25% salary support

\$1,398,065

8/1/2020-7/31/2025

Previous support

NIH National Eye Institute 1R01EY028746

Biasing the Forgetting of Visual Memories

Co-Investigator

Role: I assisted in development of the concept. My expertise in fMRI neurofeedback was critical and obtaining the funding.

8% effort

8% salary

\$1,250,000

09/2018-08/2022

NIH National Center for Medical Rehabilitation Research 5P2CHD086844

Simulating Operant Conditioning

Project PI

Role: I developed the concept and exclusively wrote the proposal. My combined expertise in computational methods, neurofeedback, and electrophysiology were used to obtain the award.

5% Effort

0% Salary support

\$37,312

09/2020-12/2021

Kleberg Foundation

Neurally Guiding Fine Motor Control after Stroke

PI

Role: I supervised the collection of preliminary data, initiated and developed the concept and primarily wrote the proposal. My expertise in fMRI neurofeedback, motor control, and stroke rehabilitation were important in obtaining the funds.

17% effort

17% salary

\$453,515

1/2017-11/2020

NIH National Center for Medical Rehabilitation Research 5P2CHD086844

Can RF H-reflex be operantly conditioned?

Project PI

Role: I initiated and developed the concept and exclusively wrote the proposal. My expertise in neurofeedback, electrophysiology and stroke rehabilitation were important in obtaining the funds.

5% effort

0% salary

\$7,500

9/2018-8/2019

Army Advanced Medical Technology Initiative (AAMTI)

Custom 3D Printed Montage for fNIRS

Co-Investigator

Role: I initiated and developed the concept and exclusively wrote the proposal. Due to Army funding I could not be listed as PI. My expertise in mechanical design and neuroimaging were important in obtaining the funding.

5% effort

0% salary

\$33,900

9/2018-5/2020

NIH National Center for Medical Rehabilitation Research 5P2CHD086844

fMRI operant conditioning of fine motor skills

Project PI

Role: I initiated and developed the concept and primarily wrote the proposal

5% effort

0% salary

\$37,411

11/2016-12/2017

NIH DHHS

The Contributions of Neural Competition To Intentional Forgetting And Real-Time Neurofeedback (Tracy Wang F32)

Co-PI

Role: I contributed my knowledge in fMRI neurofeedback

0% effort

0% salary

\$187,358

12/2016-11/2019

Mission Connect Foundation

A Predictive Kinematic Biomarker of Recovery for Acute Patients with SCI and Stroke

PI

Role: I initiated and developed the concept and exclusively wrote the proposal. My expertise in computational methods, gait biomechanics and stroke rehabilitation was important in obtaining the funding.

5% effort

5% salary

\$92,529

9/2015-8/2018

Mission Connect Foundation

A low-cost gait rehabilitation robot for people with spinal cord injury

PI

Role: I initiated and developed the concept and exclusively wrote the proposal. My expertise in mechanical design and stroke rehabilitation were used to obtain the funding.

5% effort

0% salary

\$92,529

6/2015-5/2016

University of Texas System (UT BRAIN)

Enhancing complex motor performance using neurofeedback

PI

Role: I developed the concept and primarily wrote the proposal. My expertise in neurofeedback and motor control were critical in obtaining the funding.

5% effort

5% salary

\$130,000

7/2015-7/2018

University of Texas System (UT BRAIN)

A robotic approach to investigate brainstem correlates of spasticity

PI

Role: I initiated and developed the concept and primarily wrote the proposal. My expertise in neuroimaging and stroke rehabilitation were important in obtaining the funding.

5% effort

5% salary

\$100,000

7/2015-7/2018

University of Texas System (UT BRAIN)

Adaptive brain training using neurofeedback

Co-I

Role: I helped write the proposal and develop the concept. My expertise in fMRI neurofeedback and motor control were critical elements of the grant.

5% effort

5% salary

\$100,000

7/2015-7/2018

NIH K12 Career Development Award 5K12HD073945

Towards Neurally Guided Therapy after Stroke

Trainee

Role: I developed the concept and exclusively wrote the proposal. My expertise in motor control, fMRI neurofeedback and rehabilitation were important in obtaining the funding.

25% effort

25% salary

\$270,000

9/2013-8/2015

Internal Funding

Cockrell School of Engineering

Cellular to Clinically Applied Rehabilitation Research (CARE) Initiative

\$165,350

9/2018-8/2021

University of Texas at Austin

Vice President of Research

Multimodal Neuroimaging Initiative

\$225,000

9/2016-8/2020

UT- Pontificia Universidad Catolica de Chile Seed Award

How reward influences brain regulation

\$25,000
9/2016-8/2017

Cockrell School of Engineering
CARE Initiative
\$46,000
9/2014-8/2018

BIBLIOGRAPHY

Peer Reviewed Articles

Served as mentor for those with a *

1. **J S Sulzer**, M A Peshkin, J L Patton. Pulling Your Strings. IEEE Robotics and Automation Magazine. vol. 15, no. 3. pp. 70-78. September 2008. <https://doi.org/10.1109/MRA.2008.927692>
 - Qualitative statement of contribution: I created the idea, developed the robot and experimental design, led data analysis and writing.
2. **J S Sulzer**, R A Roiz, M A Peshkin, J L Patton. A Highly Backdrivable, Lightweight Knee Actuator for Investigating Gait in Stroke. IEEE Transactions on Robotics. vol. 25, no. 3. pp. 539-548. April 2009. <https://doi.org/10.1109/TRO.2009.2019788>
 - Qualitative statement of contribution: I created the idea, developed the robot and experimental design, led data analysis and writing.
3. **J S Sulzer**, K E Gordon, Y Y Dhaher, M A Peshkin, J L Patton. Preswing Knee Flexion Assistance is Coupled with Hip Abduction in People with Stiff-Knee Gait after Stroke. Stroke. vol. 41 no. 8. pp. 1709-14. June 2010. <https://doi.org/10.1161/STROKEAHA.110.586917>
 - Qualitative statement of contribution: I created the idea, developed the experimental design, led data analysis and writing.
4. J. Arata, S. Terakawa, **J. Sulzer**, R. Gassert, H. Fujimoto. MRI-compatible grasping force sensor with an inclined double parallel structure using fiber optics. J Systems, Control and Information, Vol.26(3). 2013. <https://doi.org/10.5687/iscie.26.110>
 - Qualitative statement of contribution: I helped develop the concept with Arata and Gassert and contributed to writing.
5. **J Sulzer**, S. Haller, F. Scharnowski, N. Weiskopf, N. Birbaumer, M.L. Blefari, A. Bruehl, L. G. Cohen, R., deCharms, R. Gassert, R. Goebel, U. Herwig, S. LaConte, D. Linden, A. Luft, E. Seifritz, R. Sitaram. Real-time fMRI Neurofeedback: Progress and Challenges. NeuroImage. Vol. 76. pp. 386-399. August 2013. <https://doi.org/10.1016/j.neuroimage.2013.03.033>
 - Qualitative statement of contribution: I led the writing of the manuscript and editing.
6. A B Bruehl, S Scherpiet, **J Sulzer**, P Staempfli, E Seifritz, U Herwig. Real-time Neurofeedback Using Functional MRI Could Improve Down-Regulation of Amygdala Activity During Emotional Stimulation: A Proof-of-Concept Study. Brain Topography Vol. 27. 138-148. November 2013. <https://doi.org/10.1007/s10548-013-0331-9>
 - Qualitative statement of contribution: I helped create the experimental setup and helped write and edit the manuscript. All experiments were conducted at the University Hospital of Psychiatry, Zurich.
7. **J Sulzer**, R Sitaram, M L Blefari, N Birbaumer, S Kollias, K E Stephan, A Luft, R Gassert. Neurofeedback-mediated self-regulation of the dopaminergic midbrain. NeuroImage. Vol. 83. 817-825. December 2013. <https://doi.org/10.1016/j.neuroimage.2013.05.115>
 - Qualitative statement of contribution: I conceptualized the experiment, designed the experiment, conducted the experiment, analyzed the data and led the writing of the manuscript. All experiments were conducted at ETH Zurich.
8. M L Blefari, **J Sulzer**, M-C Hepp-Reymond, S Kollias and R Gassert. Improvement in precision grip force control with self-modulation of primary motor cortex during motor imagery. Front. Behav. Neurosci. 9:18. February 2015. <https://doi.org/10.3389/fnbeh.2015.00018>
 - Qualitative statement of contribution: I conceptualized the idea, designed the experiment, and created the experimental setup. I collected some data. I supervised the analysis and primarily wrote the manuscript. All experiments were conducted at ETH Zurich.

9. B Vigar, **J Sulzer**, R Gassert. Design and Evaluation of a Cable-Driven fMRI-Compatible Haptic Interface to Investigate Precision Grip Control. *IEEE Transactions on Haptics*. October 2015. 9(1). 20-32. <https://doi.org/10.1109/TOH.2015.2485201>
 - Qualitative statement of contribution: I helped design the device, contributed to analysis and wrote and edited parts of the manuscript. All experiments were conducted at ETH Zurich.
10. K Emmert, R Kopel, **J Sulzer**, AB Bruehl, BD Berman, DEJ Linden, SG Horovitz, M Breimhorst, A Caria, S Frank, S Johnston, Z Long, C Paret, F Robineau, R Veit, A Bartsch, CF Beckmann, D Van De Ville, S Haller. Meta-analysis of real-time fMRI neurofeedback studies using individual participant data: How is brain regulation mediated? *NeuroImage*. 124. pp. 806-12. January 2016. <https://doi.org/10.1016/j.neuroimage.2015.09.042>
 - Qualitative statement of contribution: I collected and analyzed data and wrote and edited parts of the manuscript.
11. R. Sitaram, T. Ros, L. Stoeckel, S. Haller, F. Scharnowski, J. Lewis-Peacock, N. Weiskopf, M. L. Blefari, M. Rana, E. Oblak, N. Birbaumer, **J. Sulzer**. Closed-loop brain training: the science of neurofeedback. *Nature Reviews Neuroscience*. Vol 18. pp. 86-100. December 2016. <https://doi.org/10.1038/nrn.2016.164>
 - Qualitative statement of contribution: I wrote about large sections of the paper, edited others' sections, designed key figures, and developed the concept of the paper.
12. M Tucker, C Shirota, O Lambercy, **J Sulzer**, R Gassert. Design and Characterization of an Exoskeleton for Perturbing the Knee during Gait. *IEEE Transactions on Biomedical Engineering*. 99. January 2017. <https://doi.org/10.1109/TBME.2017.2656130>
 - Qualitative statement of contribution: I contributed to the underlying idea, supervised data analysis, and helped edit the manuscript.
13. E. Oblak*, J. Lewis-Peacock, **J. Sulzer**. Self-regulation strategy, feedback timing and hemodynamic properties modulate learning in a simulated fMRI neurofeedback environment. *PLOS Computational Biology*. E1005681. July 2017. <https://doi.org/10.1371/journal.pcbi.1005681>
 - Qualitative statement of contribution: I developed the idea with Oblak, helped design experiments, supervised analysis, and edited and wrote parts of the manuscript. All experiments were conducted at UT Austin.
14. S. Y. Shin*, A. Deshpande, and **J. Sulzer**. Design of a single degree-of-freedom, adaptable electromechanical gait trainer for people with neurological injury. *ASME Journal of Mechanisms and Robotics*, Vol 10(T4). August 2018. <https://doi.org/10.1115/1.4039973>
 - Qualitative statement of contribution: I developed the idea with Shin and Deshpande, helped design the device, supervised analysis, and edited and wrote parts of the manuscript. All experiments were conducted at UT Austin.
15. J. Duenas, **J Sulzer**, P. Staempfli, M.C. Hepp-Reymond, S. Kollias, E. Seifritz, and R. Gassert. BOLD signal in sensorimotor regions reveals differential encoding of passive forefinger velocity and displacement amplitude. *NeuroImage*, vol. 173, pp. 332-340. June 2018. <https://doi.org/10.1016/j.neuroimage.2018.02.052>
 - Qualitative statement of contribution: I conceived the idea, designed the experiment, supervised the analysis, and contributed to the writing and editing of the manuscript. All experiments were conducted at the University Hospital Zurich
16. M Kirschner R Sladky, A Haugg, P Staempfli, E Jehli, M Hodel, E Engeli, S Huesli, M Baumgartner, BB Quednow, **J. Sulzer**, Q Huys, E Seifritz, F Scharnowski, M Herdener. Self-regulation of the dopaminergic reward circuit in cocaine users with mental imagery and neurofeedback. *EBioMedicine*. Vol. 37 pp. 489-498. November 2018. <https://doi.org/10.1016/j.ebiom.2018.10.052>
 - Qualitative statement of contribution: I designed the experimental setup and protocol and contributed to the editing of the manuscript.
17. U Herwig, J Lutz, S Scherpiet, H Scheerer, J Kohlberg.; S Opialla, A Preuss, VR Steiger, **J. Sulzer**, S Weidt, P Staempfli, M Rufer, E Seifritz, L Jaencke, AB Bruehl. Training emotion regulation through real-time fMRI neurofeedback of amygdala activity. *NeuroImage*. Vol 184. January 2019. <https://doi.org/10.1016/j.neuroimage.2018.09.068>
 - Qualitative statement of contribution: I assisted in developing the experimental design, created the setup, and assisted in writing and editing the manuscript. All experiments were conducted at the University Hospital Zurich.
18. T. Akbas*, R.R. Neptune, **J. Sulzer**. Neuromusculoskeletal simulation reveals abnormal rectus femoris-gluteus medius coupling in post-stroke gait. *Frontiers in Neurology*. Vol. 10 pp 301. April 2019. <https://doi.org/10.3389/fneur.2019.00301>

- Qualitative statement of contribution: I developed the idea along with Akbas and Neptune. I collected the data from my PhD, designed the experiment, guided the data analysis and interpretation, and wrote and edited the manuscript. All experiments were conducted at the Rehabilitation Institute of Chicago, whereas analysis was conducted in my lab at UT Austin.
19. T. Akbas*, S. Prajapati*, D. Ziemnicki*, P. Tamma*, S. Gross*, **J. Sulzer**. Hip circumduction is not a compensation for reduced knee flexion angle during gait. *Journal of Biomechanics*. Vol. 87. pp 150-156. April 2019. <https://doi.org/10.1016/j.jbiomech.2019.02.026>
 - Qualitative statement of contribution: I developed the underlying idea with Akbas, designed the experiment, helped determine data analysis and its interpretation, and wrote and edited the manuscript. All experiments took place in my lab at UT Austin.
 20. E Oblak*, **J. Sulzer**, J. Lewis-Peacock. A simulation-based approach to improve decoded neurofeedback performance. *NeuroImage* Vol. 195. pp. 300-310. July 2019. <https://doi.org/10.1016/j.neuroimage.2019.03.062>
 - Qualitative statement of contribution: I developed the underlying idea along with Oblak and Lewis-Peacock. I helped design the experiment and with data analysis and contributed to writing and editing the manuscript. All the experiments were conducted in the Biomedical Imaging Center at UT Austin.
 21. T. Ros, S. Enriquez-Geppert, V. Zotev, K. Young, G. Wood, S. Whitfield-Gabrieli, F. Wan, P. Vuilleumier, F. Vialatte, D. Van De Ville, D. Todder, T. Surmeli, **J. Sulzer**, U. Strehl, M. Sterman, N. J Steiner, B. Sorger, S. Soekadar, R. Sitaram, L. Sherlin, M. Schöenberg, F. Scharnowski, M. Schabus, K. Rubia, A. Rosa, M. Reiner, J. Pineda, C. Paret, A. Ossadtchi, A. Nicholson, W. Nan, J. Minguez, J-A. Micoulaud-Franchi, D. Mehler, M. Lührs, J. Lubar, F. Lotte, D. Linden, J. Lewis-Peacock, M. Lebedev, R. Lanius, A. Kübler, C. Kranczioch, Y. Koush, L. Konicar, S. Kohl, S. Kober, M. Klados, C. Jeunet, T. Janssen, R. Huster, K. Hoedlmoser, L. Hirshberg, S. Heunis, T. Hendler, M. Hampson, A. Guggisberg, R. Guggenberger, J. Gruzelier, R. Goebel, N. Gninenko, A. Gharabaghi, P. Frewen, T. Fovet, T. Fernández, C. Escolano, A-C. Ehlis, R. Drechsler, R deCharms, S. Debener, D. De Ridder, E. Davelaar, M. Congedo, M. Cavazza, M. Breteler, D. Brandeis, J. Bodurka, N. Birbaumer, O. Bazanova, B. Barth, P. Bamidis, T. Auer, M. Arns, R. Thibault. Consensus on the reporting and experimental design of clinical and cognitive-behavioural neurofeedback studies (CRED-nf checklist). *Brain*. March 2020. <https://doi.org/10.1093/brain/awaa009>
 - Qualitative statement of contribution: I assisted with conceptualizing the guidelines and editing the manuscript.
 22. S.Y. Shin*, R.K. Lee, P. Spicer, **J. Sulzer**. Quantifying dosage of physical therapy using lower body kinematics: a longitudinal pilot study on early post-stroke individuals. *Journal of Neuroengineering and Rehabilitation*. Vol 17. February 2020. <https://doi.org/10.1186/s12984-020-0655-0>
 - Qualitative statement of contribution: I developed the idea with Shin, designed the experiment, guided the analysis of the data, and wrote a significant part of the paper, including editing and review. Experiments were conducted at St. David's Medical Center.
 23. S.Y. Shin*, R.K. Lee, P. Spicer, **J. Sulzer**. Does kinematic gait quality improve with functional gait recovery? A longitudinal pilot study on early post-stroke individuals. *Journal of Biomechanics*. March 2020. <https://doi.org/10.1016/j.jbiomech.2020.109761>
 - Qualitative statement of contribution: I developed the idea with Shin, designed the experiment, guided the analysis of the data, and wrote a significant part of the paper, including editing and review. Experiments were conducted at St. David's Medical Center.
 24. T. Akbas*, K. Kim*, K. Doyle*, K. Manella, R. K. Lee, P Spicer, M. Knikou, and **J. Sulzer**. Rectus femoris hyperreflexia contributes to Stiff-Knee gait after stroke. *Journal of Neuroengineering and Rehabilitation*. 17:117. August 2020. <https://doi.org/10.1186/s12984-020-00724-z>
 - Qualitative statement of contribution: I developed the underlying idea along with Akbas, worked with Akbas on all analysis, led the design of the experiment, and wrote a significant part of the paper, including editing and review. All experiments were conducted in my lab.
 25. J. Kilmarx*, E. Oblak*, **J. Sulzer**, J. Lewis-Peacock. Towards a common template for neural reinforcement of finger individuation. *Scientific Reports*. 11, no. 1 (2021): 1-11. <https://doi.org/10.1038/s41598-020-80166-8>
 - Qualitative statement of contribution: I developed the idea along with Lewis-Peacock, supervised data analysis, including editing and review.
 26. J. Lee*, L. Li*, S. Y. Shin*, Ashish D. Deshpande, and **James Sulzer**. "Kinematic comparison of single degree-of-freedom robotic gait trainers." *Mechanism and Machine Theory* 159 (2021): 104258. <https://doi.org/10.1016/j.mechmachtheory.2021.104258>

- Qualitative statement of contribution: I developed the idea along with Lee, supervised data analysis, including editing and review.
27. **J. Sulzer** and L. Karfeld-Sulzer. “Our Child’s TBI: A Rehabilitation Engineer’s Personal Experience, Technological Approach, and Lessons Learned”. *Journal of NeuroEngineering and Rehabilitation*. 18 no. 59 (2021): 1-12. <https://doi.org/10.1186/s12984-021-00862-y>
 - Qualitative statement of contribution: I wrote and developed principles in the manuscript, edited the manuscript along with Dr. Karfeld-Sulzer
 28. E Oblak*, J A Lewis-Peacock, and **J. Sulzer**. Differential neural plasticity of individual fingers revealed by fMRI neurofeedback. *Journal of Neurophysiology*. March 2021. 125(5), pp.1720-1734. <https://doi.org/10.1152/jn.00509.2020>
 - Qualitative statement of contribution: I developed the idea along with Oblak and Lewis-Peacock, supervised data analysis, including editing and review.
 29. A. de Oliveira*, **J. Sulzer**, A. Deshpande. Assessment of upper-extremity joint angles using Harmony exoskeleton. *IEEE Transactions on Neural Systems and Rehabilitation Engineering*. April 2021. 29, pp.916-925. <https://doi.org/10.1109/TNSRE.2021.3074101>
 - Qualitative statement of contribution: I helped with experimental design, supervised data analysis and writing.
 30. H. Lu, E. Lorenc, H. Zhu, J. Kilmarx*, **J. Sulzer**, C. Xie, P. Tobler, A. Watrous, A. Orsborn, J. Lewis-Peacock, S. Santracruz. Multi-scale neural decoding and analysis. *Journal of Neural Engineering*. July 2021. <https://doi.org/10.1088/1741-2552/ac160f>
 - Qualitative statement of contribution: I helped with conceptualization and writing.
 31. K. Macon*, D. Hoang, L. Elizondo, K. Kallus, **J. Sulzer**, K Manella. Accuracy and Reliability of Single Camera Measurements of Ankle Clonus and Quadriceps Hyperreflexia. *Archives of Rehabilitation Research and Clinical Translation*. August 2021. <https://doi.org/10.1016/j.arrct.2021.100153>
 - Qualitative statement of contribution: I created the idea with Manella and Macon, supervised the data analysis, developed experimental methods and helped edit and write the manuscript.
 32. M. Akselrod, B. Vigar, J. Duenas, R. Martuzzi, **J. Sulzer**, A. Serino, O. Blanke, R. Gassert. Contribution of interaction force to the sense of hand ownership and the sense of hand agency. *Scientific Reports*. 11, 18069. 2021. <https://doi.org/10.1038/s41598-021-97540-9>
 - Qualitative statement of contribution: I developed the idea and assisted with writing.
 33. L. Hellrung, M. Kirschner, **J. Sulzer**, R. Sladky, F. Scharnowski, M. Herdener, P. Tobler. Individual differences in successful self-regulation of the dopaminergic midbrain. *Communications Biology*. 5(1). August 2022. pp. 1-13. <https://doi.org/10.1038/s42003-022-03756-4>
 - Qualitative statement of contribution: Helped collect and analyze data, assisted with writing
 34. M. Chiarello*, J. Lee*, M. Salinas, R. Hilsabeck, J. Lewis-Peacock, **J. Sulzer**, The effect of biomechanical features on dual-task gait. *IEEE Sensors*. In Press. <https://doi.org/10.1109/JSEN.2022.3227475>
 - Qualitative statement of contribution: Helped design study, developed idea, assisted with analysis and writing, overall supervision of project.

In Submission/In Review

35. K. Kim*, K. Manella, R. K. Lee, **J. Sulzer**. Operant down-conditioning of the rectus femoris: a feasibility study.
36. M. Normand*, J. Lee*, H. Su, **J. Sulzer**. Pelvic weight and placement effects on walking.
37. J. Lee*, T. Akbas*, **J. Sulzer**. Predictors of rectus femoris reflex in post-stroke SKG.

In Preparation

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38. K. Kim*, N. Schweighofer, E. Oblak*, K. Manella, **J. Sulzer**. Simulated operant H-reflex conditioning
39. C. Han*, M. McManis, L. Abraham, D. Schnyer, **J. Sulzer**, P. Ferrari. Beta modulation in bilateral primary V1 area in dynamic visuomotor isometric pinch tracking task.
40. J. Lee*, M. Bowden, R. R. Neptune, S. Kautz, **J. Sulzer**. Characterizing post-stroke Stiff-Knee gait.

41. K. Kim*, N. Schweighofer, E. Oblak*, K. Manella, **J. Sulzer**. Simulated operant H-reflex conditioning: Trial-by-trial predictions

Peer-reviewed Conference Proceedings

Served as mentor for those with a *

42. **J S Sulzer**, MA Peshkin, J L Patton. MARIONET: An exotendon-driven Roatry Series Elastic Actuator for exerting joint torque. Proc. IEEE Int. Conf. on Rehabilitation Robotics (ICORR) Chicago, IL. June 2005. <https://doi.org/10.1109/ICORR.2005.1501062>
- Qualitative statement of contribution: I developed the idea, designed the experiment, designed the robot, performed data analysis, editing and writing.
43. **J. S. Sulzer**, S.-B. Kamalakkannan, D. R. Morr, J. Wiechel, B. Tanner and D. Guenther. Simplified MADYMO Model of the IHRA Head-form Impactor. Proc. SAE Int. Conf. on Digital Human Modeling. Lyon, France. July 2006. <https://doi.org/10.4271/2006-01-2349>
- Qualitative statement of contribution: I developed the computational model, conducted analysis and contributed to writing.
44. **J S Sulzer**, M A Peshkin and J L Patton. Catastrophe and Stability Analysis of a Cable-driven Actuator. IEEE International Conference of Engineering in Medicine and Biology Society. New York, NY. August, 2006. <https://doi.org/10.1109/IEMBS.2006.260514>
- Qualitative statement of contribution: I developed the theory and computational model, performed data analysis, editing and writing.
45. **J S Sulzer**, A Salamat, V S Chib, and J E Colgate. A Behavioral Adaptation Approach to Identifying Visual Dependence of Haptic Perception. Second Joint Eurohaptics Conference and Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems. Tsukuba, Japan. March, 2007. <https://doi.org/10.1109/WHC.2007.2>
- Qualitative statement of contribution: I developed the idea, designed the experiment, performed data analysis, editing and writing.
46. **J S Sulzer**, M A Peshkin, J L Patton. Design of a Mobile, Inexpensive Device for Upper Extremity Rehabilitation at Home. Proc. IEEE Int. Conf. on Rehabilitation Robotics (ICORR), Noordwijk, Netherlands. June 2007. <https://doi.org/10.1109/ICORR.2007.4428535>
- Qualitative statement of contribution: I developed the design, edited and wrote the manuscript.
47. **J S Sulzer**, K E Gordon, T G Hornby, M A Peshkin, J L Patton. Adaptation to Knee Flexion Torque during Gait. Proc. IEEE Int. Conf. on Rehabilitation Robotics (ICORR), Kyoto, Japan. 2009. <https://doi.org/10.1109/ICORR.2009.5209499>
- Qualitative statement of contribution: I developed the idea, designed the experiment, performed data analysis, editing and writing.
48. **J S Sulzer**, V S Chib, M-C Hepp-Reymond, S Kollias, R Gassert. BOLD Correlations to Force in Precision Grip: An Event-Related Study. IEEE International Conference of Engineering in Medicine and Biology Society. Boston, MA. September, 2011. <https://doi.org/10.1109/IEMBS.2011.6090655>
- Qualitative statement of contribution: I helped develop the concept with Arata and Gassert and contributed to writing.
49. J Arata, S Terakawa, H Fujimoto, **J Sulzer**, R Gassert. MRI-Compatible Grasping Force Sensor with an Inclined Double Parallel Structure using Fiber Optics. Proceedings of the ASME/ISCIE 2012 International Symposium on Flexible Automation (ISFA). St. Louis, MO. June 2012.
- Qualitative statement of contribution: I helped develop the concept with Arata and Gassert and contributed to writing.
50. A Immoos Dailly*, R Sigrist, Y Kim, P Wolf, H Erkens, J Cerny, A Luft, R Gassert, **J Sulzer**. Can simple error sonification in combination with music help improve accuracy in upper limb movements? IEEE International Conference on Biomedical Robotics and Biomechanics. Rome, Italy. June 2012. <https://doi.org/10.1109/BioRob.2012.6290908>
- Qualitative statement of contribution: I developed the idea, designed the experiment, supervised data analysis, edited and wrote the manuscript.
51. M. Tucker, A. Moser, O. Lambercy, **J. Sulzer**, R. Gassert. Design of a wearable perturbator for human knee impedance estimation during gait. Proc. IEEE Int. Conf. on Rehabilitation Robotics (ICORR), Seattle, WA. June 2013. <https://doi.org/10.1109/ICORR.2013.6650372>

- Qualitative statement of contribution: I contributed towards the design of the device, wrote and edited the manuscript.
52. **J. Sulzer**, J. Duenas, P. Staempfli, M.-C. Hepp-Reymond, S. Kollias, E Seifritz, R. Gassert. Delineating the whole brain BOLD response to passive movement kinematics. Proc. IEEE Int. Conf. on Rehabilitation Robotics (ICORR), Seattle, WA. June 2013. <https://doi.org/10.1109/ICORR.2013.6650474>
 - Qualitative statement of contribution: I designed the experiment, supervised data analysis, edited and wrote the manuscript.
 53. T. Akbas*, R.R. Neptune, **J. Sulzer**. Reflexive Contributions of Rectus Femoris to Hip Abduction in People with Stiff-Knee Gait. World Congress on Biomechanics (WCB), Boston, MA. 2014.
 - Qualitative statement of contribution: I helped with the conceptual design with Akbas, collected the data, helped with data analysis and interpretation, and helped edit and write the manuscript. All experiments took place at the Rehabilitation Institute of Chicago
 54. **J. Sulzer**, E. Oblak*. Towards Neurally Guided Physical Therapy. IEEE International Conference of Engineering in Medicine and Biology Society, Chicago, IL. August 2014.
 - Qualitative statement of contribution: I conceptualized and wrote the manuscript with help from Oblak.
 55. C Han*, E Oblak*, L Abraham, P Ferrari, M McManis, D Schnyer, and **J Sulzer**. An MRI-compatible force sensor for measuring differential isometric precision grip force. IEEE International Conference of Engineering in Medicine and Biology Society. Jeju Island, South Korea. July 2017. <https://doi.org/10.1109/EMBC.2017.8036943>
 - Qualitative statement of contribution: I helped design the sensor, supervised analysis, and helped edit and write the manuscript.
 56. T. Akbas*, R.R. Neptune, **J. Sulzer**. Avoiding deleterious effects of exoskeletal assistance in people with Stiff-Knee Gait after stroke. IEEE International Wearable Robotics Conference. Houston, TX. October 2017. <https://doi.org/10.1109/WEROB.2017.8383855>
 - Qualitative statement of contribution: I helped with the conceptual design with Akbas, collected the data, helped with data analysis and interpretation, and helped edit and write the manuscript. All experiments took place at the Rehabilitation Institute of Chicago.
 57. K. Warburton*, A.C. de Oliveira*, E.M. Ogden, Y. Yun, **J. Sulzer**, and A.D. Deshpande. Mirrored Movement Therapy Using an Upper Body Robotic Exoskeleton for Stroke. IEEE International Wearable Robotics Conference. Houston, TX. October 2017. <https://doi.org/10.1109/WEROB.2017.8383836>
 - Qualitative statement of contribution: I helped with the conceptual design, interpretation of data, and editing of the manuscript. All experiments took place at UT Austin.
 58. A.C. de Oliveira*, K. Warburton*, Y. Yun, E.M. Ogden, **J. Sulzer**, and A.D. Deshpande. Arm Kinematics Estimation with the Harmony Exoskeleton. IEEE International Wearable Robotics Conference. Houston, TX. October 2017. <https://doi.org/10.1109/WEROB.2017.8383839>
 - Qualitative statement of contribution: I helped with the conceptual design, interpretation of data, and editing of the manuscript. All experiments took place at UT Austin.
 59. A.C. de Oliveira*, K Warburton*, **J. Sulzer**, and AD Deshpande. Effort Estimation in Robot-aided Training with a Neural Network. IEEE International Conference on Robotics and Automation (ICRA) 2019. Montreal, Canada. May 2019. <https://doi.org/10.1109/ICRA.2019.8794281>
 - Qualitative statement of contribution: I helped with the conceptual design, interpretation of data, and editing of the manuscript. All experiments took place at UT Austin.
 60. L. F. Santoso, F. Baqai, M. Gwozdz, J. Lange, M. Rosenberger, **J. Sulzer**, D. Paydarfar. Applying machine learning algorithms for automatic detection of swallowing from sound. EMBS. Bonn, Germany. July 2019. <https://doi.org/10.1109/EMBC.2019.8857937>
 - Qualitative statement of contribution: I developed the experimental design with Santoso, oversaw data analysis, and helped edit the manuscript. All experiments were conducted at UT Austin.
 61. J. Lee*, S. Y. Shin*, G. Ghorpade*, T. Akbas*, **J. Sulzer**. Sensitivity comparison of inertial to optical motion capture during gait: implications for tracking recovery. IEEE-RAS-EMBS International Conference on Rehabilitation Robotics (ICORR). Toronto, Canada. June 2019. <https://doi.org/10.1109/ICORR.2019.8779411>
 - Qualitative statement of contribution: I developed the concept, designed the experiment, oversaw the analysis, and helped write and edit the manuscript. All experiments were conducted in my lab at UT Austin.
 62. S.Y. Shin*, **J. Sulzer**. An Online Transition of Speed-dependent Reference Joint Trajectories for Robotic Gait Training. IEEE-RAS-EMBS International Conference on Rehabilitation Robotics (ICORR). Toronto, Canada. June 2019. <https://doi.org/10.1109/ICORR.2019.8779359>

- Qualitative statement of contribution: I developed the concept with Shin, helped guide the analysis, and contributed to writing and editing the manuscript.
63. T. Akbas*, **J. Sulzer**. Musculoskeletal simulation framework for impairment-based exoskeletal assistance post-stroke. IEEE-RAS-EMBS International Conference on Rehabilitation Robotics (ICORR). Toronto, Canada. June 2019. <https://doi.org/10.1109/ICORR.2019.8779564>
- Qualitative statement of contribution: I developed the concept with Akbas, oversaw the analysis, and helped write and edit the manuscript.
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- Qualitative statement of contribution: I developed the concept with Li and Ress. I helped design the experiment, supervised the analysis, and helped edit and write the manuscript. All experiments were conducted at Baylor College of Medicine.
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 American Congress of Rehabilitation Medicine
 IEEE International Haptics Symposium
 World Congress on Biomechanics
 IEEE Biomedical Robotics and Biomechatronics Conference
 ASME Dynamic Systems and Controls Conference
 American Heart Association Scientific Sessions
 IEEE International Wearable Robotics Conference
 ASME/ISCIE International Symposium on Flexible Automation (ISFA)
 SAE Int. Conf. on Digital Human Modeling
 Organization for Human Brain Mapping (OHBM)
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