Dec, 2023

R E S U M E

Alon Wolf
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ACADEMIC DEGREES

2023 Doctor Honoris Causa (Dr.h.c) Budapest University of Technology and Economics

2002 Ph.D. - Faculty of Mechanical Engineering, Technion, Israel

1998 M.Sc. - Faculty of Mechanical Engineering, Technion, Israel

1995 B.Sc. (Cum Laude) - in Mechanical Engineering, Faculty of Mechanical Engineering, Technion, Israel

ACADEMIC APPOINTMENTS

2022-date Millstone/St. Louis Academic Chair Professor

2019-2022 Professor, Faculty of Biomedical Engineering, Technion–Israel (secondary appointment)

2018-date Professor, Faculty of Mechanical Engineering, Technion–Israel

2012-2018 Associate Professor (tenured), Faculty of Mechanical Engineering, Technion–Israel Institute of Technology

2005-12 Senior Lecturer, Faculty of Mechanical Engineering, Technion–Israel Institute of Technology

2003-05 Research Scientist, ICAOS (Institute for Computer Assisted Orthopedic Surgery), West Penn Hospital, Pittsburgh PA, USA

2002-03 Post-Doctoral Research Associate, Mechanical Engineering Department, Carnegie Mellon University, Pittsburgh PA, USA

Visiting appointments

2018-date Distinguished Visiting Professor, Bologna Business School, Universoty of Bologna, Itali

2004-08 Adjunct Assistant Professor, School of Medicine Department of Surgery, University of Pittsburgh, Pittsburgh PA, USA

2003-06 Adjunct Faculty, The Robotics Institute, Carnegie Mellon University, Pittsburgh PA, USA

PROFESSIONAL EXPERIENCE (outside academia)

2022-date Visiting faculty Researcher, Verily (Google)

2022-date Advisory Board, Vertical Field Ltd

2005-date Co-inventor and founder *Medrobotics Corporation*

1995 Mechanical Engineer, Elbit Ltd, Israel

1993-95 Mechanical Engineer and Mechatronics Designer, Eilon Engineering, Israel

1991-97 Member of the Senate Undergraduate and Graduate Court, Technion-Israel Institute of Technology, Haifa, Israel

RESEARCH INTERESTS

My research interests are in the field of theoretical and applied kinematics, in particular with applications to robotics and biomechanics. Specific interests are:

- Kinematics of mechanisms and motion
- Medical Robotics/Devices
- Biomechanics – gait analysis and rehabilitation
- Parallel and Hyper-redundant robots

TEACHING EXPERIENCE

Faculty of Mechanical Engineering, Technion, 2006-present. Courses:

- Electric Motors, Undergraduate course (undergraduate course)
- Kinematics and Kinetics in Biomechanics and Robotics (graduate course)
- Introduction to Mechatronics (undergraduate course)
- Introduction to Mechanical Engineering (undergraduate course)
- Kinematics of Mechanisms (undergraduate course)
- Advanced Robotic Lab (undergraduate course)

The Robotics Institute, Carnegie Mellon University USA 2004

- Advanced Topics in Kinematics (graduate course)

Design of new courses

- Electric Motors (redesign the old course)
- Kinematics and Kinetics in Biomechanics and Robotics

TECHNION ACTIVITIES

2023- Dean of the Faculty of Mechanical Engineering (starting 1/2023)

2019-2022 Vice President for External Relations & Resource Development

2018-date Director, The Israeli Olympic Sport Research Center

2011-date Technion representative in FIRST Israel and member of the board

2011-2022 Board Member, Technion Alumni organization

2007-date Member, Steering Committee and Referee for Technion's "TechnoBrain" competition

2017-2019 Member of the Technion Library Committee

2013-2019 Member of the Technion Senate (elected)

2009-2019 Board Member, Technion Center for Autonomous System, TASP

2014-2017 Member of the Senate General Faculty-Student Committee, Technion

2015-2016 Member of the Technion Graduate School Award Committee

2012-2015 Board Member, National Center for Science and Technology teachers - MoreTech

DEPARTMENTAL ACTIVITIES

2019-2019 Deputy dean for graduate studies

2012-2019 Member of the Department Undergraduate Studies Committee

2006-date Director and Founder of the Biorobotics and Biomechanics Research Lab, Faculty of Mechanical Engineering

2012-2015 Deputy Dean for Students in Undergraduate Studies

2012-2015 Member of the Department Graduate Studies Committee

2007-2015 Chair of the Faculty Awards Committee, Faculty of Mechanical Engineering

2006-2012 Head of the Creative Design Student Lab, Faculty of Mechanical Engineering

2006-2011 Head of the Complex Design Student Lab, Faculty of Mechanical Engineering, Undergraduate students (after the retirement of Prof. M. Weiss)

PROFESSIONAL ACTIVITIES

2021-date International advisory board Bologna Business School

Member of Editorial Boards

2018-2021 Associate Editor, ASME Journal of Mechanisms and Robotics

2016-date Associate Editor - Clinical Biomechanics

2014-date Editorial Board Member, Journal of Soft Robotics

2014-date Editorial Committee, Biomechanica Hungarica

2011-date Editorial Advisory Board Member, Journal of Electromyography & Kinesiology

2007-2017 Editorial Board Member, Recent Patents in Mechanical Engineering

2013 Guest Editor, Special Issue on Rehabilitation Bioengineering, Annals of Biomedical Engineering

2004-2006 Editorial Review Board Member, International Journal of Medical Robotics and Computer Assisted Surgery

2001-2005 Associate Editor and Scientific and Technical Advisor, ARGOS- European Association of Research Groups for Spinal Osteosynthesis

Membership in Committees

201X Member, Israel Science Foundation Evaluation Committee on Mechanical Engineering

2006 Member, NIH Special Emphasis Panel/Initial Review Group for NIAMS R03 (O1)

2012-2015 Member of the European Union panel of the integrated-projects and coordination-actions of the Cognitive systems, Interaction, Robotics unit E5

2005-2006 Member, International Program Committee for IASTED International Conference on Robotics and Applications (RA 2005/6)

Reviewer

IEEE Transaction on Robotics
ASME Journal of Mechanical Design
ASME Journal of Mechanism and Robotics
Journal of Mechanism and Machine Theory
Journal of Robotic Systems
Medical & Biological Engineering & Computing
Journal of Biomechanics
Journal of Electromyography and Kinesiology (Editorial Board)
Journal of Orthopaedic Research

PUBLIC ACTIVITIES

2022-date	Advisor and Member, Magna cum Laude-Reut Board of Trustees
2021-2021	Member of the High Level Working Group at the Ministry of Health on the development of standards for the facility management in hospitals in Romania (Minister appointment)
2017-2022	Board of Trustees, Reali Hebrew School, Haifa, Israel (Technion appointment)
2011-date	Board Member, FIRST Israel and director of FIRST-Technion
2008-2017	Head (chief) of the Tidhar and Ilanot (Haifa) Branches of Israeli Scouts
2015-2016	Pedagogic Committee, Reali Hebrew School, Haifa, Israel
2006–2016	Lecture to high school students, "Bashaar" Academic Community for the Israeli Society

MEMBERSHIP IN PROFESSIONAL SOCIETIES

2017-date	Fellow ASME (for contribution to Medical Robotics and education)
2017-date	Senior Member IEEE
2014-date	OARSI: Osteoarthritis Research Society International
2012-date	World Congress of Biomechanics
2008-date	European Society of Biomechanics
2004-2017	Member ASME
2003-2017	Member IEEE
2004-2006	CAOS International (Computer Assisted Orthopaedic Surgery)

FELLOWSHIPS, AWARDS AND HONORS

2022	Medal of Honor, Romanian Society of Anesthesia and Intensive Care
2021	The Variety award for ground braking technology and science for the help of disabled people.
2018	1st prize award- Medical Entrepreneurship conference 2018, Technion Medical School (with two of my supervised undergraduate students)

2017 Uzi and Michal Halevi Grant for Innovative Applied Engineering Research

2016 Hershel Rich Technion Innovation Award

2016 Selected and Appointed to the IEEE EMBS, Engineering in Medicine and Biology Society, Distinguished Lecturer Program 2016-2017

2015 The Juludan Research Prize Fund (for outstanding research in the application of modern scientific or engineering techniques to medicine

2014 Innovation of the year in Healthe (Flex system), Popular Science

2013 Yanai Award for Excellence in Academic Education

2013 Awarded for best basic science research by the Israeli Medical Association Scientific Council (Advisor of Dr. Shahar Grunner)

2013 Citation for Teaching Excellence in winter semester of 2012 (also in 2011, 2010, 2008, 2006)

2012 Innovation of the year in security (Snakebot), Popular Science

2010 High Technion Excellence in Teaching, Technion, Israel

2010 Henri Gutwirth Fund Award for Promotion of Research, Technion, Israel

2009 High Technion Excellence in Teaching, Technion, Israel

2009 Honorable Mention, Student Project Award, Technion, Israel (Advisor)

2008 Salomon Simon Mani Award for Excellence in Teaching, Technion, Israel

2008 Second best Annual Student Project Award, Technion, Israel (Advisor)

2006 Conference Best Paper Award - Biorob 2006, IEEE International Conference on Biorobotics and Biomechatronics, Pisa Italy

2001 Awarded for High Academic Achievements by Dean of Graduate Study, Technion, Israel

1999 Teaching Assistant Award for Consistent Excellency, Technion, Israel

1995 Teaching Assistant Award for Excellency, Technion, Israel

GRADUATE STUDENTS, POSTDOCTORAL FELLOWS

Completed PhD theses

Yair Herbst 2023 (Co-advisor, Prof. Lihi Zelnik Manor (EE))
Thesis title: Personalized Haptic Systems for Able-Bodied and Prosthetic Hand Users
Recipient of the Sherman and Gutwirth Award for Excellence

Hadar Shaulian 2023 (Co-advisor, Prof. Amit Gefen, TAU)
Thesis title: An Autonomic Biomechanical System for Patient- Specific Foot Ground Reaction Force Regulation-Based on Finite Element Analysis

Benjamin Groisser, 2022 (Co-advisor Prof. Ron Kimmel (CS))
Thesis title: Intermodal Human Body Modeling: Combining Radiography with Topographic Imaging for Non Ionizing Assessment of Adolescent Idiopathic Scoliosis

Mona Khoury, 2019, (Clinical Advisor – Associate Clinical Prof. Nimrod Rozen)
Thesis title: Investigating gait adaptations thorough correlates of normal vs. challenged gait
Currently: Research staff at Technion BRML (Prof. Wolf)

Debbie Solomonow, 2016 (Clinical Advisor – Associate Clinical Prof. Nimrod Rozen)
Thesis title: Short-term and long-term biomechanical effects of foot center of pressure manipulation on the hip joint in healthy subjects and in patients with degenerative changes of the hip joint
Currently: Research staff at Technion BRML (Prof. Wolf)

Dana Solav, 2016 (Co-advisor Prof. Miles B. Rubin)
Thesis title: Non-rigid kinematics in various biomechanical applications using Cosserat Point Theory
Recipient of the Gutwirth Award for Excellence
Recipient of the HP Award for Research, Technion I.I.T
Currently: Associate Professor, Faculty of Mechanical Engineering Technion I.I.T

Arielle Fischer, 2016
Thesis title: Unloading effect on joints and muscle activation
Recipient of the Swiss Federal-Government Research Award Grant
Recipient of the Late Nadav Shoham Award for Research, Technion I.I.T
Currently: Associate Professor, Faculty of Biomedical Engineering Technion I.I.T

Ouriel Barzilai, 2016 (Co-Advisor Associate Prof. Lihi Zelnik Manor E.E)
Thesis title: Active Vision: From biokinematics and animal behavior to robotics
Recipient of the Late Nadav Shoham Award for Research, Technion I.I.T
Currently: Algorithm and Software Engineer, Object Recognition team, Perceptual Computing, Intel Corporation, Jerusalem, Israel

Eitan M. Debbi (MD), 2015
Thesis title: Biomechanics of motor reduction of gait patterns in patients after total knee arthroplasty
Recipient of the Gutwirth Award for Excellence
Recipient of the Late Nadav Shoham Award for research, Technion I.I.T
Currently: Orthopaedic surgeon, HSS, NYC, USA

Yoel Shapiro, 2014
Thesis title: Continuous flexible robotic structures
Recipient of the 2011 IAI Research Scholarship
Recipient of the Gutwirth Award for Excellence
Currently: Researcher at Amazon Research Center, Haifa, Israel

Amir Haim (MD), 2011 (Clinical Advisor Dr. Nimrod Rozen)
Thesis title: Plasticity of locomotor patterns and gait conditioning via controlled biomechanical intervention
Recipient of the Gutwirth Award for Excellence
Currently: Senior orthopaedic surgeon and director of research, Loewenstein Hospital Rehabilitation Center, Israel

Completed MSc theses

Dean Zadok (Co- advisor Prof Alex Bronstein CS), 7/2022
Thesis title:Towards Predicting Fine Finger Motions from Ultrasound Images via Kinematic Representation

Shunit Polinsky, 5/2021
Research area: Biomechanics- Prosthetic Hands

Yoni Chechik, 2020 (Electrical Engineering – Co advisor with Associate Prof. Lihi Zelnik-Manor)
Thesis title: MagnetoTactile Feedback Apparatus

Olga Polovinets, 2017 (Co-Advisor Prof. Anath Fischer, Clinical Advisor Clinical Associate Prof. Ronit Wollstein)
Thesis title: Biomechanics of the human wrist under loading

Oded Salomon, 2015
Thesis title: Hyper redundant mechanism design

Ifat Gertler, 2014
Thesis title: Medical robotics

Arielle Fischer, 2013 (Approved direct PhD program, Jan 2013)
Thesis title: Unloading effect on joints and muscle activation

Leav Oz-Ari, 2013 (Brakim)
Thesis title: Motion planning for hyper redundant snake-like robots

Dana Solav, 2012 (Approved direct PhD program, Nov 2012)
Recipient of the Gutwirth Award for Excellence
Thesis title: Soft tissue artifact during gait analysis

Mona Khoury, 2011
Thesis title: Foot center of pressure manipulation during gait

Yulia Goryachev (Genis), 2011
Thesis title: The effect of footwear-generated biomechanical manipulations on the electromyogram activation pattern in the lower extremity

Ouriel Barzilai, 2010 (*cum laude*)
Thesis title: An adaptive virtual biofeedback system

Yoel Shapiro, 2009
Thesis title: Haptic control system for a robotic medical system with application to surface acquisition of a joint for joint arthroplasty

Alois Pfenigger, 2008. University of Bern, Switzerland, local advisor Prof. Dr. Jurgen Burger (MSc in Mechanical Engineering)
Thesis title: Novel cardiac catheterization system

Merav Mor (Senesh), 2008
Thesis title: Skin movement artifact modeling and compensation in marker-based human motion estimation for biomechanics studies
Recipient of the Gutwirth Award for Excellence

Completed Post-Doctoral Fellows and Research Members

Dr. Amir Haim, 2014, PhD at Technion I.I.T
Currently: Senior orthopaedic surgeon, Loewenstein Hospital Rehabilitation Center, IL

Dr. Ariel Dowling, 2013-2014, PhD at Stanford University
Currently: Researcher in a high tech company, Boston, USA

Dr. Pazit Levinger, 2012, PhD at La Trobe University, Australia
Currently: Associate Professor, Victoria University, Australia

Dr. Daniel Glussman, 2009, PhD at Technion I.I.T.
Currently: Researcher with J&J Ventor

Dr. Gabor Kosa, 2008, PhD at Technion I.I.T.
Currently: Researcher, Department of Biomedical Engineering University of Basel, Switzerland

Dr. Amir Shapiro, 2006, PhD at Technion I.I.T (while at Carnegie Mellon University)
Currently: Associate Professor, Department of Mechanical Engineering, Ben-Gurion University, Beer Sheba, Israel

Hagai Bamberger, 2009, PhD at Technion I.I.T (Spent a sabbatical from RAFAEL with me while at Carnegie Mellon University working on his PhD)
Thesis title: Kinematics of micro parallel robots
Currently: Senior Engineer, RAFAEL, Israel

Completed MD Fellows (advisor of medical doctors for their basic science research)

Dr. Shahar Grunner (MD), basic science research, 2012, Rambam Health Care Campus and Israel Medical Association
Recipient of the best basic science research by the Israeli Medical Association Scientific Council (2013)

Dr. Shadi Seadia (MD), basic science work, 2011, Rambam Health Care Campus and Israel Medical Association

Dr. Itai Holtzer (MD), basic science work, 2007, Tel Aviv Medical Center and Israel Medical Association

Dr. Michael Shnider (MD), basic science work, 2002, Carmel Medical Center and Israel Medical Association

PhD theses in process

Dean Zadok

Co- advisor Prof Alex Bronstein CS
Research area: Ultrasound Images for bionic control

MSc theses in process

Ari Meles Braverman (Co- advisor Associate Prof Amir Degani CE)
Thesis title: Development of Manipulator for Autonomous Collaborative Robots for Construction Site Preparation

RESEARCH GRANTS

3/22-3-25 KAMIN, Israeli Innovation authority
Title: Haptic feedback system
Amount: 400,000 $US
Role: Co- Principle Investigator (With Prof. Lihi Zelnik Manor)

7/19-7-21 EIT-Health
Title: SET ID 19593 (approved for funding)
Amount: 205,000 Euro
Role: Principle Investigator

12/18-12/21 MOST-Ministry of Science & Technology
Title: Dynamic and control of an amphibian snake-like robot
Amount: 1,499,379 NIS (approx. $US 400,000)
Role: Principal Investigator (Co Principle Investigators: Yizhar Or)

1/15-12/16 KAMIN - Chief scientist
Title: An elephant trunk-like hyper redundant robot for high payload
Amount: NIS 840,000 (approx $US 215,000)
Role: Principal Investigator

10/13-12/14 MAFAT Israel Ministry of Defense
Subject: Robotics
Amount: $50,000
Role: Principal Investigator

9/12-8/13 MAFAT Israel Ministry of Defense
Title: Bi Bellow actuator for large motions
Amount: NIS 107,000 (approx $US 30,000)
Role: Principle Investigator

10/12-10/13 Israeli Police Department
Title: The biomechanical influence of bomb squad vest on gait
Amount: NIS 110,000 (about $30,000)
Role: Principal Investigator

10/11-10/14 Israel Science Foundation – BIKURA
Title: Active vision: from animal behavior to robotics
Amount: NIS 643,500 (about $186,000)
Role: Principal Investigator (Co Principle Investigators: Gutfreund, Ben Sahar)

01/11-12/11 British Technion Society
Title: Assisted living technology for elderly population
Amount: $US 48,000
Role: Principal Investigator

4/10-4/12 MAGNETON (Israel Chief Scientist Office)
Title: Design tools for biomechanics of self protection vests
Amount: $500,000
Role: Principal Investigator

4/10-3/11 University of Haifa-Technion Joint Research Fund
Title: Functional Electrical Stimulations for paraplegic patients
Amount: $10,000
Role: Principal Investigator (Technion side)

8/09-8/10 Plasan Sasa Ltd
Title: Biomechanics testing of weight carrying

Amount: $47,000
Role: Principal Investigator

8/08-7/10 DFG- German Research Foundation
Title: Mechanism of active vison in barn-owls: From atomic head movements to complex visual behaviors
Amount: €30,000
Role: Co- Principle Investigator replacing Prof. Ehud Rivlin (P.I- Prof. Hermann Wagner, University of Aachen-Germany)

6/07-6/11 MAFAT Israel Ministry of Defense
Title: Urban search and rescue snake robots
Amount: ~$620,000
Role: Principal Investigator

9/06-9/2011 NIHR01
Title: Articulated robot for epicardial interventions
Amount: ~$1,800,000
Role: Co-Principal Investigator
Principal Investigator: Marco Zenati MD (University of Pittsburgh)

1/05-30/07 NIHR01
Title: Mini bone-attached robot for joint arthroplasty
Amount: $375,000.00
Role: Co-Principal Investigator
Principal Investigator: B. Jaramaz (ICAOS, Pittsburgh chief research officer)

1/03-31/08 NSF grant IIS-0325920, ITR
Title: Data-driven Human Knee Modeling for Expert Surgical Planning Systems
Amount: $1,040,000.00
Role: Co-Principal Investigator
Principal investigator: B. Jaramaz (ICAOS, Pittsburgh chief research officer)

PUBLICATIONS

Theses

T1 Wolf A. Sensor Integration in Robotic Assembly Tasks, MSc Thesis, Technion- I.I.T, Haifa 1995. Advisors: Dr. Eyal Zussman and Prof. Moshe Shpitalni

T2 Wolf A. Line Geometry Tools for the Analysis and Synthesis of a Medical Robot, Ph.D Dissertation, Technion-I.I.T., Haifa 2002. Advisor: Prof. Moshe Shoham

Published journal papers (students, postdoctoral and researchers are underlined)

J1. Wolf A, Shoham M, Shnider M, Roffman M. Morphometric study of the human lumbar spine for operation-workspace specifications. Spine, Vol 26 (22), pp 2472-2477, 2001

J2. Wolf A, Shoham M. Investigation of parallel manipulators using linear complex approximation. ASME Journal of Mechanical Design, Vol 125(3), pp 564-572, 2003

J3. Wolf A, Shoham M, Shnider M, Roffman M. Feasibility study of a mini, bone-attached, robotic system for spinal operation: analyses and experiments. Spine, Vol 29 (2), pp 220-228, 2004

J4. Wolf A, Shoham M, Ottaviano E, Ceccarelli M. Application of line geometry and linear complex approximation to singularity analysis of the 3-DOF CaPaMan parallel manipulator. Mechanism and Machine Theory, Vol 39 (1), pp 75-95, 2004

J5. Wolf A, Jaramaz B, Lisien B, DiGioia AM III. MBARS: mini bone attached robotic system for joint arthroplasty. International Journal of Medical Robotics and Computer Assisted Surgery, Vol 1 (2), pp 101-121, 2005

J6. Wolf A, DiGioia AM III, Mor AB, Jaramaz B. A kinematic model for estimating cup alignment error during total hip arthroplasty. Journal of Biomechanics, Vol 38 (11), pp 2257-2265, 2005

J7. Wolf A, DiGioia AM III, Mor AB, Jaramaz B. Cup alignment error-model for total hip arthroplasty. Clinical Orthopaedics and Related Research, Vol 437, pp 132-137, 2005

J8. Wolf A, Choset H, Brown HB, Casciola R. Design and control of a mobile hyper-redundant urban search and rescue robot. Advanced Robotics, Vol 19 (3) pp 221-248, 2005

J9. O'Halloran D, Wolf A, Choset H. Design of a high-impact survivable robot. Journal of Mechanism and Machine Theory, Vol 40 (12), pp 1345-1366, 2005

J10. Abraham NJ, Wolf A, Choset H, A potential function approach to surface coverage for a surgical robot. Journal of Computer Aided Surgery, Vol 11(1), pp 1-9, 2006

J11. Shamas E, Wolf A, Choset H, Three degrees of freedom joint for spatial hyper-redundant robots. Journal of Mechanism and Machine Theory, Vol 41 (2), pp 170-190, 2006

J12. Wolf A, Shoham M. Screw theory tools for the synthesis of the geometry of a parallel robot for a given instantaneous task. Journal of Mechanism and Machine Theory, Vol 41 (6), pp 656-670, 2006

J13. Ota T, Degani A, Zubiate B, Wolf A, Choset H, Schwartzman D, Zenati M. Epicardial atrial ablation using a novel articulated robotic medical probe via a percutaneous subxiphoid approach. Innovations Vol 1(6), pp 335-340, 2006

J14. Wolf A, Degani A. Recognizing knee pathologies by classifying instantaneous screws of the six degrees-of-freedom knee motion. Journal of Medical & Biological Engineering & Computing, Vol 45 (5), pp 475–482, 2007

J15. Wolf A, Jaramaz B, Murtha P.E. Fully automated computer algorithm for calculating articular contact points with application to knee biomechanics. Medical & Biological Engineering & Computing, Vol 46 (3), pp 233-240, 2008

J16. Bamberger H, Wolf A, Shoham M. Architectures of translational parallel mechanism for MEMS fabrication. ASME Journal of Mechanical Design, vol. 130 (8), 084502 (8 pages), 2008

J17. Bamberger H, Wolf A, Shoham M. Assembly modes changing in parallel mechanism. IEEE Transaction on Robotics, Vol. 24 (4), pp 765-772, 2008

J18. Haim A, Rozen N, Dekel S, Halperin N, Wolf A. Control of knee coronal plane moment via modulation of center of pressure: a prospective gait analysis study. Journal of Biomechanics, Vol 41(14), pp 3010-3016, 2008

J19. Mor M, Wolf A. Motion estimation using point cluster method and Kalman filter. ASME Journal of Biomechanical Engineering, Vol 131(5), 051008-1:7, 2009

J20. Mor M, Gottlieb O, Wolf A. Nonlinear model based estimation of rigid-body motion via an indirect measurement of an elastic appendage. ASME Journal of Vibration and Acoustics, Vol 132(1), 011007-1 – 011007-12 (12 pages), 2010

J21. Haim A, Rozen N, Wolf A. The influence of sagittal center of pressure offset on gait kinetic and kinetics. Journal of Biomechanics, Vol 43 (5), pp 969-977, 2010

J22. Sharp I, Wolf A, Rubin MB. Arithmetic and geometric solutions for average rigid-body rotation. Mechanism and Machine Theory, Vol 45 (9), pp 1239-1251, 2010

J23. Shapiro Y, Wolf A. Introducing haptic capabilities to a bone-mounted robot for intra-operative surface scanning. International Journal of Medical Robotics and Computer Assisted Surgery, Vol 6(3), pp 444-453, 2010

J24. Wolf A, Glozman D. Singularity analysis of large workspace 3RRRS parallel mechanism using line geometry and linear complex approximation. ASME Journal of Mechanisms and Robotics, Vol 3, pp 011004-1 – 011004-9, February 2011

J25. Genis Y, Debbi EM, Haim A, Wolf A. The effect of manipulation of the center of pressure of the foot during gait on the activation patterns of the lower limb musculature. Journal of Electromyography and Kinesiology, Vol 21(2), pp 333-339, 2011

J26. Shapiro Y, Gabor K, Wolf A. Bi-bellows: pneumatic bending actuator. Sensors and Actuators A: Physical, Vol 167(2), pp 484-494, 2011

J27. Barzilay O, Wolf A. A fast implementation for EMG signal linear envelope computation. Journal of Electromyography and Kinesiology, Vol 21(4), pp 678-682, 2011

J28. Goryachev Y, Debbi EM, Haim A, Rozen N, Wolf A. Foot center of pressure manipulation and gait therapy influence lower limb muscle activation in patients with osteoarthritis of the knee. Journal of Electromyography and Kinesiology, Vol 21(5), pp 704-711, 2011

J29. Wolf A, Senesh M. Estimating joint kinematics from skin motion observation: modeling and validation. Computer Methods in Biomechanics and Biomedical Engineering, 14(11), pp 939-946, 2011

J30. Haim A, Wolf A, Rubin G, Guryachev Y, Khoury M, Rozen N. Effect of center of pressure modulation on knee adduction moment in medial compartment knee osteoarthritis. Journal of Orthopedic Research, Vol 29(11), pp 1668-74, 2011

J31. Haim A, Rubin G, Rozen N, Guryachev Y, Wolf A. Reduction in knee adduction moment via non-invasive biomechanical training: A longitudinal gait analysis study. Journal of Biomechanics, Vol 45(1), pp. 41-45, 2012.

J32 Solomon O, Wolf A. Inclined links hyper redundant elephant trunk like robot. ASME Journal of Mechanisms and Robotics, Vol 4(4), November 2012, pp 045001-1 – 6, 2012

J33 Debbi EM, Wolf A, Haim A. Detecting and quantifying global instability during a dynamic task using kinetic and kinematic gait parameters. Journal of Biomechanics, Vol 45(8), pp. 1366-1371, 2012

J34 Debbi EM, Wolf A, Guriachev Y, Yizhar Z, Luger E, Debi R, Haim A, In-shoe center of pressure: Indirect force plate vs. direct insole measurement, The Foot, Vol 22(4), pp. 269-275, 2012.

J35 Springer S, Vatine J.J, Lipson R, Wolf A, Laufer Y, Effects of Dual-Channel Functional Electrical Stimulation on Gait Performance in Patients with Hemiparesis, The Scientific World Journal, Vol 2012, Article ID 530906, 2012

J36 Barzilay O, Wolf A, Adaptive Rehabilitation Games, Journal of Electromyography and Kinesiology, Vol 23(1), pp. 182-189, 2013

J37 Springer S, Vatine J.J, Lipson R, Wolf A, Laufer Y, The effects of dual-channel functional electrical stimulation on stance phase sagittal kinematics in patients with hemiparesis, Journal of Electromyography and Kinesiology, Vol 23(2), pp. 476-482, 2013

J38 Shapiro Y, Wolf A, Kosa Gabor, Piezoelectric Deflection Sensor for a Bi-Bellows Actuator, IEEE Transactions on Mechatronics, Vol 18(3), pp1226-1230, 2013

J39 Khoury M, Wolf A, Debbi EM, Herman A, Haim A. Foot Center of Pressure Trajectory Alteration by Biomechanical Manipulation of Shoe Design, Foot & Ankle International, Vol 34(4), pp 593-598, 2013

J40 Shapiro Y, Kosa G, Wolf A, Shape Tracking of Planar Hyper Flexible Beams via Embedded PVDF Deflection Sensors, IEEE/ASME Transactions on Mechatronics, Vol 19(4), pp 1260-1267, 2014

J41 Dowling A, Barzilay O, Lombrozo Y, Wolf A, An Adaptive Home-Use Robotic Rehabilitation System for the Upper Body, IEEE Journal of Translational Engineering in Health and Medicine, Vol 2, 2100310, 2014

J42 Wolf A. Instantaneous screws of weight-bearing knee: What can the screws tell us about the knee motion? ASME Journal of Biomedical Engineering, Vol. 136(7), pp. 136-137, 2014

J43 Solav D, Rubin MB, Wolf A, Soft Tissue Artifact compensation using Triangular Cosserat Point Elements (TCPEs), International Journal of Engineering Science, Vol 85, Dec 2014, pp. 1-9, 2014

J44 Solomonov-Avnon D, Haim A, Herman A, Rozen N, Wolf A, Reduction of Frontal-Plane Hip Joint Reaction Force via Medio-lateral Foot Center of Pressure Manipulation: a pilot study, Journal of Orthopeadic Research, Vol 33(2), pp. 261-269, 2015

J45 Wolf A, Portnoy P, Gefen A, Editorial: Rehabilitation Bioengineering, Annals of Biomedical Engineering, Vol 43(2), pp. 259-260, Feb 2015

J46 Shapiro Y, Kosa G, Wolf A, Modeling a Hyper-Flexible Planar Bending Actuator as an Inextensible Euler- Bernoulli Beam for use in flexible robot, J. Soft Robotics, Vol 2(2), pp. 71-79, 2015

J47 Debbi EM, Wold A, Goryachev Y, Rozen N, Haim A, Alterations in Sagittal Plane Knee Kinetics in Knee Osteoarthritis Using a Biomechanical Therapy Device, Annals of Biomedical Engineering,Vol 43(5), pp 1089-1097, 2015

J48 Fischer AG, Wolf A, Assessment of The Effects of Body Weight Unloading on Overground Gait Biomechanical Parameters, Clinical Biomechanics, Vol 30(5), pp. 454-461, 2015

J49 Fischer AG, Debbi EM, Wolf A, Effects of Body Weight Unloading on Electromyographic Activity during Overground Walking, Electromyography & Kinesiology, Vol. 25(4), pp. 709-714, 2015

J50 Debbi EM, Haim A, Wolf A, Frontal plane biomechanics of the operated and non-operated knees before and after unilateral total knee arthroplasty, Clinical Biomechanics, Vol 30(9), pp. 889-894, 2015

J51 Khoury M, Haim A, Herman A, Rozen N, Wolf A, Alternation of the foot center of pressure trajectory by an unstable shoe design, Journal of Foot and Ankle Research, DOI: 10.1186/s13047-015-0124-3, 2015

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Books and Book Chapters

Book chapters

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E32 Solav D, Rubin MB, Wolf A, Soft Tissue Artifact Description using triangular Cosserat point elements, The 25th Congress of the International Society of Biomechanics, Glasgow UK, 12-16 July 2015

E33 Fischer A, Wolf A, assessment of the effects of body weight unloading on kinematics, kinetics, muscle activity, and center of pressure during overground gait. 25th Congress of the International Society of Biomechanics, Glasgow UK, 12-16 July 2015

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E35 Wollstein R , Poloviniets O, Wolf A, Description of the Forces Applied During Different Push-up Styles, 25th ISSH Annual Meeting, Jerusalem, Israel, 2015.

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E37 Wollstein R, Poloviniets O, Wolf A, The Shoulder and Elbow During Different Push-up Styles, The 36th Annual meeting of Israel IOA in Conjunction with the 26th Annual Meeting of The ISSH, Tel-Aviv, Israel, 2016.

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E39 Wolf A, Shaulian H, A robotic shoe for monitoring and manipulation of the foot center of pressure for rehabilitation and diagnostic, CMBBE2018, March 26-29, 2018, Lisbon Portugal

E40 Benjamin Groisser, Roger Widmann, Howard Hillstrom, Ron Kimmel, Alon Wolf, Motion Correction for Slot Scanners via Simultaneous Depth Imaging, European Society of Biomechanics, 2019

E41 Hadar Shaulian, Amit Gefen*, Alon wolf. "Patient-specific method for foot ulcer treatment and prevention, based on finite element analysis", The European Conference on Controversies in Diabetic Foot Management (DiabeticFoot-Europe), Vienna Austria May, 2019

E42 Hadar Shaulian, Amit Gefen, Alon wolf, “A Method for Foot Ulcer Treatment and Prevention, based on Finite Element Analysis”, European Society of Biomechanics (ESB), Vienna Austria, July 2019.

E43 Benjamin Groisser, Roger Widmann, Howard Hillstrom, Ron Kimmel, Alon Wolf Estimation of Functional Joints from Surface Scans, European Society of Biomechanics, 2020

E44 Hadar Shaulian, Amit Gefen, Alon wolf, “Finite Element-Based Method for Determining an Optimal Offloading Design for Treating and Preventing Heel Ulcers”, The 2nd European Conference on Controversies in Diabetic Foot Management, Berlin Germany, December 2020.

E45 Benjamin Groisser, Ron Kimmel, Alon Wolf, Howard Hillstrom, Roger Widmann, Reliability of a Full-Body Topographic Scanner For Automated Analysis of Spine Deformity Society on Scoliosis Orthopaedic and Rehabilitation Treatment, 2021

E46 Benjamin Groisser, Alon Wolf, Ron Kimmel, U-mesh, Human Correspondence Matching with Mesh Convolutional Networks Israeli Geometric Deep Learning Workshop, 2021

E47 Hadar Shaulian*, Amit Gefen, Alon wolf, “Finite element modeling of plantar tissue stresses induced by the clinical practice of off-loading of the diabetic heel”, the 26th Congress of the European Society of Biomechanics (ESB), Milan, Italy, July 2021.

PLENARY, KEYNOTE OR INVITED TALKS

1. Parallel Robots: Theory and Applications, EURON-European Research Robotics Network, Benidorm, Spain, March 2007
2. Robotics, From Carl Chapec to exploration of Mars, Researcher’s Night, Israel National Science Museum, Haifa, September 2009
3. Medical Robotics, World Innovation Summit09, Tel Aviv, Israel, September 2009
4. Biorobotics and Evolution of Robotics, The Royal Institute of Great Britain, London UK, October 2009
5. Biorobotics - How much can we learn and copy from nature? Tel Aviv Workshop on Science, Technology and Security, Named after Prof. Yuval Neeman, December 2009, Plenary talk
6. Robotics, The Ron Arad Lecture, Royal College of Physicians, London UK, October 2010
7. Medical Robotics, Rambam Health Care Campus Seminar Series, Haifa, April 2011

8. Technology and Rehabilitation, The Israeli Association of Physical & Rehabilitation Medicine annual conference, Tel Aviv, 26/11/2012, Plenary talk
9. BIOMED 2013, 10th International Conference on Modeling and Measurements in Medicine and Biology, Budapest, Hungary, April 24-26, 2013, Keynote speaker
10. The effect of alternating foot center of pressure on kinematic, kinetic, and electromyographic parameters of the lower limbs biomechanics, 2013 College of Podiatry conference, Liverpool UK, 14-16/11/2013, Plenary talk
11. Biorobotics: application of robotic systems in the clinical setting, 2013 College of Podiatry conference, Liverpool UK, 14-16/11/2013, Plenary talk
12. From Bio to Robotics, What is the connection between Ants, Snakes, Elephants, barn-Owls, Humans, and Robots , Israel Conference of Mechanical Engineering (ICME 2015), Tel Aviv, Israel, March 2015, Plenary talk
13. The Human Machine Merger: Are we headed for the MMATRIX, The 25th CIRP Design Conference Innovative Product Creation, March 2-4, 2015, Haifa Israel, Keynote speaker
14. On Biorobotics and Biomechanics, Connected Health, May 31-Jun 1, 2016, Monaco
15. Medical Robotics and Biomechanics, First European FrenchTech Alsace Workshop, Nov 15-16, 2016 Strasburg, France
16. Medical Robotics: Past- Present-Future, 37th Annual meeting of the Israeli Society for Vision and Eye Research, March 15-16, 2017, Tel Aviv, Israel, Keynote speaker
17. Future Robot Nanobased Surgery for Today Unreachable Targets, 10th European Global Summit for Cutting-Edge Medicine, May 7 -10, 2017, Basel, Switzerland, Plenary talk
18. Robotics, research and business, Bologna Business School Innovation Talks, May 12, 2017, Bologna, Italy, Keynote speaker
19. Medical Robotics: Past- Present-Future, IEEE EMBS workshop Otto Von Guericke University, July 13, Magdeburg, Germany, Invited talk
20. Technological Challenges in Medical Robotics for Surgery and Patient Specific Treatment, 15th Global Conference on Sustainable Manufacturing, Haifa IL, Sep 25 2017, Keynote speaker
21. On Robotics and Medical Robotics current research and the future, Skolkovo Robotics Forum April 23-24, 2018, Moscow, Russia, Invited speaker
22. Frontier in Surgical Robotics, Israel Surgical Association Annual Conference, , May 9-11, 2018, Jerusalem , Israel, Invited speaker
23. From Industry 4.0 to Hospital 4.0 and Innovation, Ferrari, July 19 2018, Maranello, Italy, Invited talk
24. Medical Robotics, BergamoScienza Science Festival, May 14. 2018, Bergamo, Italy, keynote speaker
25. Going digital in medical and biomedical related research, March 26-27 2019, Monaco, Invited speaker
26. Patient-specific method for foot ulcer treatment and prevention, based on finite element analysis, Diabetic Foot Europe 2019, May 2-3 2019, Vienna Austria, Invited speaker.
27. International Summer School on Imaging with Medical Applications (SSIMA), September 16-20, 2019 in Bucharest, Romania, Keynote speaker

28. TEDx Montecarlo, From Bench to Bedside - Human health in the 21st century, October 27, 2020.

29. SRATI 2022, The 48th congress of the Romanian society of anesthesia and intensive care, Biomechanics based treatment of osteoarthritis in the knee and hip, Sinaia Romania 11-15 May 2022

30. SSIMA2022, 6th International School on Imaging with Medical Application, Medical Technology from Bench to bedside, Oradea Romania, 5-9 Sept 2022

Invited Departmental Seminars

Stanford – Mechanical Engineering seminar

MIT – Media Lab

HSS - Hospital for Special Surgery, New York, NY, USA

Budapest University of Technology and Economics, Hungary

Imperial College, London, UK

Berlin University Charite, Julius Wolff Institute, Germany

Bristol University, UK

ETH-Zuirich, Switzerland

University of Maryland, USA

Johns Hopkins University, USA

McGill University, Canada

Carnegie Mellon University, USA

Technion, Ben Gurion University, Tel Aviv University, Israel

PARTICIPATION IN ORGANIZING CONFERENCES

2022 Co-Chair, SSIMA 2022, Medical Image Computing and Image-Assisted Robotic Surgery, Sept 5-9, Oradea Romania.

2018 Special Session co-chair: Modeling and simulations for describing mechanisms of action and determining efficacy of medical technologies and processes, CMBBE2018, March 26-29, 2018, Lisbon Portugal

2016 General Chair, 34th Israeli Conference of Mechanical Engineering, Nov 22-23, 2016, Tehnion I.I.T, Israel

2016 Program Chair, Medical Robotics, Biomed 2016, 15th National Life Sciences & Technology Week May 24-26, 2016 |David InterContinental Tel Aviv, Israel

2013 Associate Editor, IEEE International Conference on Robotics and Automation (ICRA 2013), Karlsruhe, Germany

2012 Associate Editor, IEEE Biorob 2012, Rome Italy

2009 World Innovation Summit, Tel Aviv, Conference Board and Program Chair for Robotics

2009 Robotics: Science and System Conference, University of Washington, Seattle USA, Program Committee and Conference Board

2008 ISRACAS08, Israel Conference for Medical Robotics and Computer Assisted Surgery, Tel Aviv, Program Chair

IN THE NEWS

Newspaper articles

2012 Le Point: " Le Robot-Serpent d'Alon Wolf, 6 Decembre

2012 Popular Science: "Invisible Warriors", January 1

2011 Popular Science: "The Terminator Scenario", January 1

2009 Sky-News: "Serpent Spy: Israel's New Robotic Snake", June 11

2009 Fox-News: "Israel Develops Military Robot Snake", June 11

2009 Jerusalem Post: "A robotic snake to fix broken hearts", January 30

2008 Technology Review (MIT press): "Snakelike Robots for Heart Surgery"

2006 Yediot Aharonot (news section): "Snake cavern", December 11

2006 Globes: "Robotics – the new world", February 16

2005 Pittsburgh Post Gazette Business News: "CMU tech transfer office spawns 50 start-ups", October 5

Television/Radio

2021 **"**A Doctors Word", Israel channel 11

2014 "Maze Muza": Meet the scientist, about robotics

2010 "Erev Hadash: Israekli channel 1 evening news", January 3

2009 "GALATZ: Retzuat Habitachon", December 30

2009 "Fox-News: America's Newsroom", June 11

2009 "BBC World News" – June 16

2008 "Saturday night news with Oshrat Kotler" – Israel channel 10, July 26

2007 "Science news" – Israel science channel 8, February 7

2006 "6 with" – the 6 PM evening news, Israel channel 2, December 11

2006 "In the morning" – the morning edition, Israel news channel 10, December12