

Date: January 14th, 2019

Resume

Full name: Orit Braun Benyamin

ACADEMIC DEGREES

- 2009 Ph.D., Aerospace Engineering, Technion - Israel Institute of Technology, Haifa, Israel
- 1999 M.Sc., Department of Bio-Medical Engineering, Technion - Israel Institute of Technology, Haifa, Israel
- 1992 B.Sc., Mechanical Engineering, Technion - Israel Institute of Technology, Haifa, Israel.

ACADEMIC APPOINTMENTS

- 2015-present ORT Braude College, Karmiel, Israel
Senior Lecturer, Mechanical Engineering Department
- 9.2016–2.2017 Researcher, sabbatical at Aerospace Engineering, Technion
- 2009-2014 ORT Braude College, Karmiel, Israel
Lecturer, Mechanical Engineering Department
- 2000-present Haifa University, Physiotherapy Department, Haifa, Israel
Adjunct Lecturer
- 1997-2009 Technion, Department of occupational therapy, Faculty of Medicine, Haifa, Israel, Adjunct Lecturer

PROFESSIONAL EXPERIENCE

- 1991-1997 Oil Refineries Ltd (ORL), Haifa, Israel
Mechanical engineer at ORL – maintenance engineer.

RESEARCH INTERESTS

- Biomechanics
- Rehabilitation Biomechanics
- Arterial and Venous Flow

TEACHING EXPERIENCE

2003-present Ort Braude College of Engineering – undergraduate
 Creative Introduction to Mechanical Engineering, Introduction to Biomechanics, Advanced Engineering Design, Implant Biomechanics, Rehabilitation Biomechanics

2000-Present Haifa University - undergraduate
 Introduction to Biomechanics and electrostatics

1997-2009 Technion - undergraduate
 Introduction to Biomechanics

BRAUDE ACTIVITIES

2018-present Member of Mechanical Eng. academic committee at ORT Braude College

2013-present Member of steering committee of flagship project at ORT Braude College

2015-2017 Member of Scholarship Committee at ORT Braude College

2012-2017 Academic Advisor of Biomechanics program for outstanding high school students, Atidim and Galilee Development Ministry.

2015-2016 Research committee

DEPARTMENTAL ACTIVITIES

2003-present Head of Biomechanics Specialization

2014 Academic consultant for freshmen students of Mechanical Engineering Dept.

2015 – 2017 Seminar committee

FELLOWSHIPS, AWARDS and HONORS

- 2012 Outstanding faculty member
- 2013 Best poster presentation orthopedic rehabilitation, Rehabilitation conference
The Israel Association of Physical Medicine & rehabilitation, Tel Aviv
- 2015 Outstanding instructional and teaching development
- 2016 Prize of the Council for Higher Education Israel, named after Shosh Shenfield
Belinsky, Academics and students involved in the community
- 2017 Outstanding faculty member

RESEARCH GRANTS

External

Participation of Students and Academy in Community Oriented Projects (Rehabilitation biomechanics), 2011, Council for higher education 40000NIS, PI Dr. Orit Braun Benyamin, OBC

Participation of Students and Academy in Community Oriented Projects (Rehabilitation biomechanics), 2012, Council for higher education 30000NIS, PI Dr. Orit Braun Benyamin, OBC

Participation of Students and Academy in Community Oriented Projects (Advanced Engineering Design), 2012, Council for higher education 40000NIS, PI Dr. Orit Braun Benyamin, OBC

Participation of Students and Academy in Community Oriented Projects (Rehabilitation biomechanics), 2013, Council for higher education 30000NIS, PI Dr. Orit Braun Benyamin, OBC

Participation of Students and Academy in Community Oriented Projects (Advanced Engineering Design), 2013, Council for higher education 30000NIS, PI Dr. Orit Braun Benyamin, OBC

Flagship project: Rehabilitation Knowledge Center at ORT Braude College, 2013, Council for higher education 400000NIS, OBC

Participation of Students and Academy in Community Oriented Projects (Rehabilitation biomechanics), 2014, Council for higher education 30000NIS, PI Dr. Orit Braun Benyamin, OBC

Participation of Students and Academy in Community Oriented Projects (Advanced Engineering Design), 2014, Council for higher education 30000NIS, PI Dr. Orit Braun Benyamin, OBC

Rehabilitation Knowledge Center at ORT Braude College, 2014, Partnership2Gether Karmiel-Misgav – Pittsburgh, 10000\$, PI Dr. Orit Braun Benyamin, OBC

Flagship project: Rehabilitation Knowledge Center at ORT Braude College, 2014, Council for higher education 400000NIS, OBC

Participation of Students and Academy in Community Oriented Projects (Rehabilitation biomechanics), 2015, Council for higher education 30000NIS, PI Dr. Orit Braun Benyamin, OBC

Participation of Students and Academy in Community Oriented Projects (Advanced Engineering Design), 2015, Council for higher education 30000NIS, PI Dr. Orit Braun Benyamin, OBC

Rehabilitation Knowledge Center at ORT Braude College, 2015, Partnership2Gether Karmiel-Misgav – Pittsburgh, 10000\$, PI Dr. Orit Braun Benyamin, OBC

Flagship project: Rehabilitation Knowledge Center at ORT Braude College, 2015, Council for higher education 400000NIS, OBC

Participation of Students and Academy in Community Oriented Projects (Rehabilitation biomechanics), 2016, Council for higher education 40000NIS, PI Dr. Orit Braun Benyamin, OBC

Participation of Students and Academy in Community Oriented Projects (Advanced Engineering Design), 2016, Council for higher education 40000NIS, PI Dr. Orit Braun Benyamin, OBC

Flagship project: Rehabilitation Knowledge Center at ORT Braude College, 2016, Council for higher education 250000NIS, OBC

Participation of Students and Academy in Community Oriented Projects (Rehabilitation biomechanics), 2017, Council for higher education 40000NIS, PI Dr. Orit Braun Benyamin, OBC

Participation of Students and Academy in Community Oriented Projects (Implant Biomechanics), 2017, Council for higher education 40000NIS, PI Dr. Orit Braun Benyamin, OBC

Flagship project: Rehabilitation Knowledge Center at ORT Braude College, 2017, Council for higher education 250000NIS, OBC

"MEHALEV": Students of Engineering on Behalf of People with disabilities, 2017, Zimmer Family foundation, 25,000\$, PI Dr. Orit Braun Benyamin, OBC

Multidisciplinary Engineering R&D Center developing innovative rehabilitative equipment for individuals as well as animals with disabilities, 2017, Rothberg foundation, 45,000\$, PI Dr. Orit Braun Benyamin, OBC

"MEHALEV": Students of Engineering on Behalf of People with disabilities, 2018, Zimmer Family foundation, 25,000\$, PI Dr. Orit Braun Benyamin, OBC

Participation of Students and Academy in Community Oriented Projects (Rehabilitation biomechanics), 2018, Council for higher education 40000NIS, PI Dr. Orit Braun Benyamin, OBC

Participation of Students and Academy in Community Oriented Projects (Implant Biomechanics), 2018, Council for higher education 40000NIS, PI Dr. Orit Braun Benyamin, OBC

Flagship project: Rehabilitation Knowledge Center at ORT Braude College, 2018, Council for higher education 250000NIS, OBC

Ergonomic Engineering Solutions Project for People with Disabilities - Training Engineers to Include Workers with Disabilities in a Rehabilitation Work Plant, Keren Manof, National Insurance Institute of Israel, 2019, 300000NIS, OBC

Engineers of the Future for the Employment of People with Disabilities ICA, 2019, 20,000\$, PI Dr. Orit Braun Benyamin, OBC

Participation of Students and Academy in Community Oriented Projects (Rehabilitation biomechanics), 2019, Council for higher education 40000NIS, PI Dr. Orit Braun Benyamin, OBC

Participation of Students and Academy in Community Oriented Projects (Implant Biomechanics), 2019, Council for higher education 40000NIS, PI Dr. Orit Braun Benyamin, OBC

Keren Peres Naftali, 2020, 200000NIS, PI Dr. Orit Braun Benyamin, OBC

"MEHALEV": Students of Engineering on Behalf of People with disabilities, 2020, Zimmer Family foundation, 25,000\$, PI Dr. Orit Braun Benyamin, OBC

Internal

"Improving the process of walking rehabilitation due to neurological problems: monitoring the loading of the lower extremities", July 2011, OBC research committee, NIS 7100

"Diagnosis of the motor ability of people with disabilities in the upper extremities using software / system accessible switches for the study and practice of music", July 2016, OBC research committee, NIS 5000

"A system for monitoring and reducing vibrations while writing", July 2016, OBC research committee, NIS 5000

PUBLICATIONS

Theses

“Spatial and temporal expression of Vascular Adhesion Molecule 1 (VCAM-1) and activation of Nuclear Factor kB (NFkB) in vascular endothelial cells under well-defined non-laminar atherogenic shear stress patterns in 3-D geometries.”, under the supervision of Prof. Jacob Cohen, Ph.D. thesis, 2009

“Contribution of the collagen network to the load bearing properties of cartilage tissue: influence of age and crosslinks”, under the supervision of Prof. A. Maroudas, M.Sc. thesis, 1997

Refereed Papers in Professional Journals

Published Papers

- Nicole Verzijl, Jeroen DeGroot, Chaya Ben Zaken, **Orit Braun-Benjamin**, Alice Maroudas, Ruud A. Bank, Joe Mizrahi, Casper G. Schalkwijk, Suzanne R. Thorpe, John W. Baynes, Johannes W. J. Bijlsma, Floris P. J. G. Lafeber, Johan M. TeKoppele, Crosslinking by advanced glycation end products increases the stiffness of the collagen network in human articular cartilage: A possible mechanism through which age is a risk factor for osteoarthritis, *Arthritis & Rheumatism*, 46 (1), 114–123, 2002
- Shmuel Springer, **Orit Braun-Benjamin**, Chen Abraham-Shitreet, Meni Becher, Yocheved Laufer, “The Effect of Electrode Placement and Interphase Interval on Force Production During Stimulation of the Dorsiflexor Muscles”, *Artificial Organs* (Impact Factor: 1.96). 08/2014; DOI: 10.1111/aor.12346
- Gerry Leisman, **Orit Braun-Benjamin**, Robert Melillo, “Cognitive-Motor Interactions of the Basal Ganglia in Development”, *Frontiers in systems neuroscience*, 2014, Volume 8 Issue 16, doi: 10.3389/fnsys.2014.0016.
- **O. Braun Benyamin**, J. Cohen, S. Braun, "Controlling environmental interference via a 2-phase measurement strategy", *Measurement* (Impact Factor: 1.526), Volume 47, January 2014, Pages 234–239
- O. Muller, N. Shalit, **O. Braun Benyamin**, "Students of Engineering on Behalf of People with Disabilities: Evaluating the Impact of an Institution's Flagship Project", *Frontiers in Education* 2015 IEEE.
- O. Muller, V. Dangur, **O. Braun Benyamin**, "Developing Devices for People with Disabilities: Challenges and Gains of Project-Based Service Learning", *International Journal of Engineering Education* Vol. 35, No. 5, pp. 1402–1414, 2019.

Other Publications

- **PATENT PENDING:** System and method for locking an intramedullary nail in a bone, I. Illouz, R. Mor Yossef, O. Braun Benyamin, Provisional Patent Application No. 63 / 089,031
- **PATENTS:** Endoscope holder, D. Solomieski, O. Braun Benyamin, N. Navot, I. Lichter, U.S. Provisional Patent Application No. 62/117,029
- O. Braun Benyamin: " Analysis of Fundamental Human Movements", Physiotherapy Journal IPTS, December 2011, Vol 13/3 pp. 25 (in Hebrew)

CONFERENCES

- Ben Emergi, Tyler J. Bray, **Dr. Orit Braun-Benjamin**, Adi Toledano-Shubi, Daphna Livne, Dorit Itah: "Development of the Handle Grip of a Walker for Hemiplegic Post-Stroke Patients", Rehab Science & Technology Update 2018 Congress.
- **Orit Braun-Benjamin**, Dor Dahan, Adi Toledano-Shubi, Daphna Livne, Kyle Berkow: "Pelvic lift: Coupling calculated bone stresses envelope to the physiotherapy and functional independence", Rehab Science & Technology Update 2017 Congress.
- **Orit Braun Benyamin**, Adi Toledano-Zahrchi, Daphna Livne: " ORT Braude College & Western Galilee Medical Center, Collaboration for Development of Tailor Made Rehabilitation Equipment in the Northern Region of Israel", Rehab Science & Technology Update 2016 Congress.
- **Orit Braun Benyamin:** " Biological Markers and flow Regimes Governing the Initiation of Atherosclerosis", October 2007, The 3rd ORT Braude College Interdisciplinary Research Conference, Hagoshrim, Israel
- **Orit Braun Benyamin:** " Advanced Engineering Design Course as a Leverage for Academic", January 2011 The 2nd Industry-Academia Conference Industry-Oriented Innovation in Academia, OBC, Israel
- **O. Braun Benyamin:** " Improving functional performance neurological and orthopedic trauma: monitoring the load bearing distribution between the lower extremities", September 2011, The 7th ORT Braude College Interdisciplinary Research Conference Kfar Blum, Israel
- **O. Braun Benyamin:** "A rehabilitation knowledge center" December 2012 3rd International Conference on Pediatric Chronic Diseases, Disability and Human Development, Jerusalem, Israel
- **Orit Braun Benyamin:** " People with disabilities in the working world", November 2014 The 5th Industry- Diverse employment industry and academia, Head of round table, OBC, Israel

ORGANIZED CONFERENCE

- 2017 Head of organizing conference committee: Community-oriented engineering - produce solutions for people with disabilities, OBC, Israel
- 2019 Head of organizing conference committee: 9th Academy-Industry Conference: Human Service Robots: Agriculture and Medicine, OBC, Israel

Summary of my Activities and Future Plans

AREAS OF INTEREST

Engineering disciplines are evolving, but Rehabilitation is one of the certain candidates to become more and more important. Biomechanics and design geared to rehabilitation should be taught at leading Engineering schools. My own focus is on the disabled community: Cerebral Palsy, paraplegic, quadriplegic, amputated limbs.

The main philosophy is to design and implement tailor made affordable solutions obtained by creative design. Most solutions involve interdisciplinary aspects, with mechanical engineering usually the basic one. Most solutions involve interdisciplinary aspects.

The projects' initiated by O. Braun Benyamin are almost unique (and hence considered as part of Braude flagship project), as they include student involvement with disabled community, discussion of solutions, design and actual implementation, beta test by disabled children and people and final delivery. Graduating students will also have been exposed to the real-life practical engineering.