28rd December 2022

RESUME

Joachim Abraham Behar
ID: 336215249
Birthdate: 23 April 1988
Haifa, Israel
(+972) 4 829 4125, jbehar@technion.ac.il
ORCID: 0000-0001-5956-7034
https://aim-lab.github.io/ || https://youtu.be/q5hHZsY2FM4

ACADEMIC DEGREES

2011-2015 PhD in Biomedical Engineering, University of Oxford, UK.
Dissertation title: "Extraction of Clinical Information from the Non-Invasive Fetal Electrocardiogram".
Advisor: Prof. Gari Clifford.

2010-2011 M.Sc., (**with distinction**) Biomedical Engineering, University of Oxford, UK.
Thesis title: "Analysis of accelerometer data for apnea screening"
Advisor: Prof. Gari Clifford.

2008-2011 MEng., (**with distinction**), Ingénieur civil des Mines, Ecole Nationale Supérieure des Mines de Saint-Etienne, France.

ACADEMIC APPOINTMENTS

2022-to date Founding director of the Technion-Rambam Initiative in Medical AI (TERA).

2019-to date Assistant Professor, Technion Institute of Technology, Faculty of Biomedical Engineering Haifa, Israel.

2015-2018 Post-Doctoral Fellow, Technion Institute of Technology, Faculty of Biomedical Engineering, Haifa, Israel.
Advisor: Prof. Yael Yaniv.

2009 Erasmus, Ecole Polytechnique Fédérale de Lausanne, Switzerland.

RESEARCH INTERESTS

Digital signal processing, machine learning, deep learning, big data, digital health, personalized medicine, sleep medicine, optimal state estimation, crowd sourcing, non-invasive foetal electrocardiography, heart rate variability analysis, ophthalmology, mathematical modeling of the biochemical and bioenergetics signaling in the heart, atrial fibrillation and sinoatrial node cell activity.

TEACHING EXPERIENCE

2022-to date **Machine Learning for Physiological Time Series Analysis** (#336018, 2.5 points), Technion.

2019-to date **Machine Learning in Healthcare** (#336546, 3 points), Technion.
Course site: https://aim-lab.github.io/mlcourse.html

The digital health revolution: from idea to bedside (#338002, 1 point), Technion.
Course site: https://aim-lab.github.io/digital-health-course

2015-2017 Teaching assistant and lecturer, undergraduate level, Bioelectricity, Technion-IIT, Israel.

2015-2017 **Newly designed laboratory:** Biomedical Instrumentation Laboratory, undergraduate level, Technion-IIT, Israel.

2012-2014 Teaching assistant and lecturer at the department of Biomedical Engineering, University Oxford. I was assistant for the following courses:

- Machine learning, graduate level.
- Biomedical signal processing, graduate level.
- Computational methods, graduate and undergraduate level.
- Affordable healthcare technology, graduate level.
- Biomedical instrumentation laboratory, undergraduate.

PUBLIC PROFESSIONAL ACTIVITIES

Editorial member for archived journals

2016-to date Editorial board member for IOP Physiological Measurement.

Participation in organizing conferences and workshops

2022 Scientific organizer of the Technion-Rambam Hack: Machine Learning In Healthcare between Technion, Rambam and MIT, Rambam Health Care Campus, Haifa, Israel, March 2022. Three days event with >220 participants.

2021 Organization of the second workshop on the topic of "Atrial fibrillation modelling, diagnosis, phenotyping and treatment", 9th Nov. 2021 and with the participation of Technion (Israel), Shaare Zedek (Israel), Lund University (Sweden), INSERM (France), Mayo Clinic (US), Cambridge (UK), Emory University (US).

2020 Organization of a workshop on the topic of "Atrial fibrillation modelling, diagnosis, phenotyping and treatment", 7th Sept. 2020 and with the participation of Technion (Israel), Lund University (Sweden) and l'INSERM, (France).

2019 Organizer and session chair of the special session on "computational fetal monitoring" at Computing in Cardiology 2019, Singapore.

2014-to date Program committee member Computing in Cardiology (CinC) conference.
2013 Co-organizer of the MIT-Physionet/CinC competition 2013 on the topic of Noninvasive fetal ECG. Session chair CinC conference 2013, Zaragoza, Spain.

Reviewer for grants

- U.S.-Israel Binational Science Foundation.
- Israel Science Foundation.

Reviewer for archived journals

- European Heart Journal.
- Sleep Research Society: Sleep.
- IEEE: Transaction in Biomedical Engineering
- IEEE: Journal of Biomedical and Health Informatics
- Nature: Nature Schizophrenia
- Nature: Scientific Reports
- Elsevier: Digital Signal Processing
- Elsevier: Computers in Biology and Medicine
- Elsevier: Biomedical Signal Processing and Control
- Springer: Medical & Biological Engineering & Computing
- Springer: BioMedical Engineering OnLine
- Springer: Sleep and Breathing.
- IOP Physiological Measurement
- PLOS: Plos One.

MEMBERSHIP IN PROFESSIONAL SOCIETIES

- Member, Israeli Medical Association (IMA) for Sleep Research 2022- to date.
- Member, European Laboratory for Learning and Intelligent Systems (ELLIS)- 2021-to date.
- Member, Technion Machine Learning & Intelligent Systems (MLIS)- 2021-to date.
- Member, Institute of Electrical and Electronics Engineers (IEEE) Society – 2019-to date.
- Member, Institute of Physics (IOP) – 2016-to date.
- Member, European Sleep Research Society (ESRS) – 2019-2020.
- Member, International Society of Heart Research (ISHR) – 2016-2018.
- Member, The Institute of Engineering and Technology (IET) – 2013/2014.

FELLOWSHIPS, AWARDS AND HONORS

- IEEE Senior Member. 2022.
- EuroTech collaboration-fellowship for a PhD co-supervision with l'Ecole Polytechnique (France): 26,000 NIS, 2021-2022.
- Technion Aly Kaufman Fellowship (10,150 NIS/month for two years), 2015-2017, Israel
- Winner ISHR Israel, Rena Yarom Young Investigator Competition, 2015, Israel
- Winner Wolfson Innovate Competition, Oxford worth k£5, 2015, UK
- Engineering and Physical Sciences Research Council (EPSRC) scholarship, UK
- Balliol French Anderson scholarship, £22,500, 2011-2014, UK
- MindChild Medical scholarship, £15,000, 2012-2014, UK
- Winner SparkVale Business competition, Oxford worth k£20 in kind, UK
- Winner MIT-Physionet/Computing in Cardiology competition 2014, Robust Detection of Heart Beats in Multimodal Data, 2014
- IET William James Award, 2013, UK
- Co-organizer and unofficial winner for Event 1-2 of the MIT-Physionet/Computing in Cardiology competition 2013 on the topic of Noninvasive Fetal ECG. Session chair at the Computing in Cardiology conference 2013, Zaragoza, Spain
- Finalist at the MEC 2013 Dragon's Den competition (SleepAp project), 2013, UK
- *Mention Très bien* (Distinction) - *Diplôme Ingénieur Civil des Mines* (French MEng diploma), 2011
- Distinction - MSc in Biomedical Engineering, Oxford University, 2011, UK
- College Senior Science Scholarship - St Hilda's College, Oxford, 2011, UK
- Foundation i3M laureate, 2010, France
- Prize Ernst and Young for Project Management, 2009, France
- Scientific Baccalaureate with honors, 2005, France.

OTHER EXPERIENCE

- **SmartCare**: Cofounder. Focus on my earlier research on obstructive sleep apnea (OSA) screening resulted in the establishment of a mobile health startup (SmartCare Analytics Ltd, London, UK), which is creating a smartphone application for sleep apnea screening by harnessing the information contained in the oximetry signal. http://www.smartcaresleep.com/

- **PhysioZoo**: Project leader 2017-2021. The project aims at creating a reference platform for computational physiology research. The platforms first aim is to provide a reference software

for the analysis of physiological time series analysis from Human and mammalian electrophysiological data. http://physiozoo.com/

- **SmartWater**: Lead developer 2011-2013. For two years, I led a team of five software engineers (also university students) in developing a system for monitoring the water consumption (represented by a time series) of water pumps in developing countries. The system was successfully trialed on 300 hand water pumps in rural Kenya and the project secured M£1.9 in 2014, when I left the UK for Israel.

- **Cardiocity**: Consultant. Cardiocity is a start-up company in the field of digital health that uses cutting Edge non-contact ECG sensors for atrial fibrillation screening. I have been doing consultancy work for the period 2012-2015 for the company on digital signal processing filters for the processing of biomedical time series. The filter are now running on their commercial hardware. The company is now trading. http://www.cardiocity.com/

GRADUATE STUDENTS

Completed MSc thesis

1. Raphael Azeroual, B.Sc. Biomedical Engineering, Technion-IIT. "Detection of epileptic seizures from ECG in children at the intensive care unit". Co-advised with Dr. (MD) Danny Eytan. (Completed 2022.)
2. Kevin Kotzen, B.Sc. Biomedical Engineering and Electrical Engineering, Witwatersrand University, South Africa. "Deep Learning for Sleep Staging from Portable Photoplethysmography in the Context of Remote Monitoring of Sleep Disordered Breathing". Co-advised with Prof. Amir Landesberg. (Completed 2022.)
3. Armand Chocron, B.Sc. in Electrical Engineering, Technion-IIT. Machine Learning for the Detection of Overnight Atrial Fibrillation Events in the Context of Remote Monitoring of Sleep Disordered Breathing. Co-advised with Prof. Yehoshua Zeevi. (Completed 2021.)
4. Ori Shemla, B.Sc, Biomedical Engineering, Technion-IIT. "Beating rate variability of pacemaker cells." Co-advised with Prof. Yael Yaniv. (Completed 2021.)

PhD thesis in progress

5. Eran Zvuloni, MSc in Biomedical engineering, Technion-IIT. Machine learning for 12-lead ECG classification. Co-advised with Prof. Jesse Read through EuroTech agreement.
6. Jonathan Fhima, MSc in Machine learning, Ecole Normale Supérieure Paris. Co-advised with Dr. Moti Freiman.
7. Jeremy Levy, B.Sc. Electrical Engineering, Technion-IIT. "A data-driven approach to chronic obstructive pulmonary disease diagnosis from demographics and oximetry biomarkers". Co-advised with Prof. Yehoshua Zeevi.

8. Moran Davoodi, B.Sc. in Biomedical Engineering, Technion-IIT. Aged related beat interval biometric identification using machine learning methods. Co-advised with Prof. Yael Yaniv.
9. Or Abramovich, B.Sc. Computer Science, Technion-IIT. "Deep learning for robust glaucoma diagnosis". Co-advised with Prof (MD) Eytan Blumenthal.
10. Shany Biton, B.Sc. Biomedical Engineering, Technion-IIT. "Diagnosis and risk prediction of atrial fibrillation from beat-to-beat time series". Co-advised with Prof (MD) Mahmoud Suleiman.

MSc thesis in progress

11. Yuval Ben Sason, B.Sc. Biomedical Engineering, Technion-IIT. "Personalized Sleep Medicine for the Diagnosis and Therapy of Positional Sleep Apnea using Big Data and Reinforcement Learning".
12. Sheina Gendelman, B.Sc. Electrical Engineering, Technion-IIT. "Data augmentation techniques for physiological time series machine learning."
13. Noam Ben Moshe, B.Sc. Electrical Engineering, Technion-IIT. "Diagnosis and risk prediction of atrial fibrillation from raw continuous electrocardiogram recordings".
14. Shirel Attia, B.Sc. Computer Science, Technion-IIT. Artificial Intelligence and Digital Health for the Nocturnal Diagnosis of Cardiovascular and Respiratory Diseases – "SleepAI".
15. Yevgeni Man, B.Sc. Electrical Engineering, Technion-IIT. "Deep Learning for Fundus Image Analysis".
16. Sharon Haimov, B.Sc. Biomedical Engineering, Technion-IIT. "Transfer Learning from Adults to Children for the Analysis of Physiological Time Series".

SPONSORED LONG-TERM VISITORS AND POST-DOCTORAL ASSOCIATES

Postdoctoral Fellows

1. Dr. Jonathan Sobel, PhD from EPFL, Switzerland. Machine learning for COVID-19 intensive care unit analysis. Principal advisor: Joachim A. Behar. (Completed fellowship March 2022).
2. Dr. Márton Áron Goda, PhD from Pázmány Péter Catholic University - Faculty of Information Technology and Bionics, Budapest, Hungary. (Ongoing fellowship).

RESEARCH GRANTS

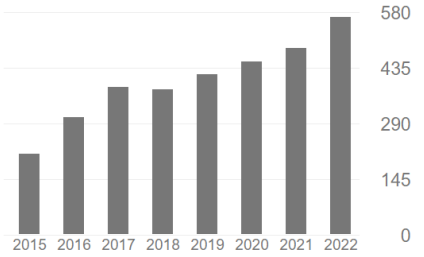
Year	Investigator	Granted by	Amount
2019-2021	co-PI	ERA-Net for Cardiovascular Diseases- Joint Transnational Call 2019 (Ministry of health).	89,370€ (with all co-PIs 627,189€).
2020-2023	Collaborator	ERA-Net for Cardiovascular Diseases- Joint Transnational Call 2020 (Ministry of health).	152,000€ (with all PIs 785,449€).
2020-2022	PI	Maimonides-Israel (MOST)	300,000NIS
2021	PI	BioSig Technologies, Inc.	$12,000
2022-2024	PI	Technion Human Health initiative (THHI) entitled.	$1,000,000
2022-2024	Co-PI	Ingham Institute – Technion Australia Competitive Grant Program	220,000NIS
2022-2024	PI	Israel Innovation Authority (IIA) – Kamin.	746,060NIS
2021-2023	Co-PI	MIT - Israel Zuckerman STEM Fund	$29,700

Other sources

- Technion start-up grant: $275,000.
- Hittman Family Foundation Biomedical Innovation Fund: $30,000 as PI.
- MLIS Technion award on “Data augmentation in deep learning for physiological time series analysis” – 40,000NIS.
- MLIS Technion machine learning center (MLIS): $22,000
- 2022-2024: FINE award to support a postdoctoral fellow.

PUBLICATIONS

	All	Since 2017
Citations	3427	2696
h-index	28	26
i10-index	44	41



Theses

1. **Behar Joachim** supervised by Clifford Gari D. and Oster Julien. Extraction of Clinical Information from the Non-Invasive Fetal Electrocardiogram. PhD. Thesis, University of Oxford. Michaelmas 2014.
2. **Behar Joachim** supervised by Clifford Gari D. Analysis of accelerometer data for apnea screening. MSc. Thesis, University of Oxford. Submitted August 2011.

Refereed papers in professional journals

In addition to the publications listed below, I have an additional 7 journal papers under review.

1. Sobel Jonathan, Levy Jeremy, Almog Ronit, Reiner-Benaim Anat, Miller Asaf, Eytan Danny, and **Behar Joachim**. Descriptive characteristics of continuous oximetry measurement in moderate to severe COVID-19 patients. Accepted for publication in Scientific reports.
2. Kevin Kotzen, Charlton Peter H., Salabi Sharon, Landesberg Amir, and **Behar Joachim**. SleepPPG-Net: a deep learning algorithm for robust sleep staging from continuous photoplethysmography. Accepted for publication in IEEE Journal of Biomedical and Health Informatics.
3. Sason Yuval Ben, Oksenberg Arie, Sobel Jonathan Aryeh, and **Behar Joachim**. Characteristics of patients with positional OSA according to ethnicity and the identification of a novel phenotype-Lateral Positional Patients (Lateral PP): A MESA study. Accepted for publication in the Journal of Clinical Sleep Medicine (2022).
4. Keenan Emerson, Karmakar Chandan, Udhayakumar Radhagayathri, Brownfoot Fiona, Lakhno Igor, Shulgin Vyacheslav, **Behar Joachim** and Palaniswami Marimuthu.

Detection of fetal arrhythmias in non-invasive fetal ECG recordings using data-driven entropy profiling. Physiological Measurement 43.2 (2022): 025008.

5. Azriel Raphael, Hahn Cecil D, De Cooman Thomas, Van Huffel Sabine, Payne Eric T, McBain Kristin L, Eytan Danny* and **Behar Joachim***. Machine learning to support triage of children at risk for epileptic seizures in the pediatric intensive care unit. Physiological Measurement. 43, (2022): 095003. *Equal senior authorship.
6. Charlton Peter H., Kevin Kotzen, Elisa Mejía-Mejía, Philip J. Aston, Karthik Budidha, Jonathan Mant, Callum Pettit, **Joachim Behar**, and Panayiotis A. Kyriacou. Detecting beats in the photoplethysmogram: benchmarking open-source algorithms. Physiological Measurement 43.8, (2022): 085007.
7. Aublin Pierre Gabriel, Ben Ammar Mouin, Fix Jérémy, Barret Michel, **Behar Joachim**, and Oster Julien. Predict alone, decide together: cardiac abnormality detection based on single lead classifier voting. Physiological Measurement 43.5 (2022): 054001.
8. Itzhak Sagi Ben, Sharony Ricon Shir, Biton Shany, **Behar Joachim**, and Sobel Jonathan A. Effect of temporal resolution on the detection of cardiac arrhythmias using HRV features and machine learning. Physiological Measurement 43, no. 4 (2022): 045002.
9. Biton Shany, Gendelman Sheina, Ribeiro Antônio H., Miana Gabriela, Moreira Carla, Ribeiro Antonio Luiz P, and **Behar Joachim**. Atrial fibrillation risk prediction from the 12-lead ECG using digital biomarkers and deep representation learning. European Heart Journal-Digital Health 2.4 (2021): 576-585.
10. Benaim Reiner Anat, Sobel Jonathan, Almog Ronit, Lugassy Snir, Shabbat Tsviel Ben-Shabbat, Johnson Alistair, Eytan Danny, **Behar Joachim**. Comparing COVID-19 and influenza presentation and trajectory. Frontiers in Medicine 8, (2021): 656405.
11. Levy Jeremy, Alvarez Daniel, del Campo Felix and **Behar Joachim**. Machine learning for nocturnal diagnosis of chronic obstructive pulmonary disease using digital oximetry biomarkers. Physiological Measurement 42(5), (2021): 054001.
12. Levy Jeremy, Álvarez Daniel, Rosenberg Aviv A., Alexandrovich Alexandra, del Campo Felix, and **Behar Joachim**. Digital oximetry biomarkers for assessing respiratory function: standards of measurement, physiological interpretation, and clinical use. NPJ Digital Medicine 4 (2021): 1-14.

    Source code: https://physiozoo.com/
13. Chocron Armand, Oster Julien, Biton Shany, Mendel Franck, Elbaz Meyer, Zeevi Yehoshua, **Behar Joachim**. Remote atrial fibrillation burden estimation using deep recurrent neural network. IEEE Transactions on Bio-medical Engineering 68(8), (2020): 2447-2455.

14. Shemla Ori, Tsutsui Kenta, **Behar Joachim***, Yaniv Yael*. Beating rate variability of isolated mammal sinoatrial node tissue: insight into its contribution to heart rate variability. Beating rate variability of isolated SAN. Frontiers in Neuroscience 14 (2020): 614141. * equal senior authorship.
15. Chocron Armand, Efraim Roi, Mandel Franck, Rueschman Michael, Palmius Niclas, Penzel Thomas, Elbaz Meyer, and **Behar Joachim**. Machine learning for nocturnal mass diagnosis of atrial fibrillation in a population at risk of sleep-disordered breathing. Physiological Measurement 41(10), (2020): 104001.
16. **Behar Joachim***, Palmius Niclas*, Zacharie Sroussi, Chocron Armand, Penzel Thomas, Bittencourt Lia, and Tufik Sergio. Single-channel oximetry monitor versus in-lab polysomnography oximetry analysis: does it make a difference? Physiological Measurement 41(4), (2020): 044007. * equal contribution
17. Arbel-Ganon Limor, **Behar Joachim**, Gómez Ana María and Yaniv Yael. Distinct mechanisms mediate pacemaker dysfunction associated with catecholaminergic polymorphic ventricular tachycardia mutations: Insights from computational modeling. Journal of Molecular and Cellular Cardiology. 143 (2020):85-95.
18. **Behar Joachim*,** Niclas Palmius*, Qiao Li, Silverio Garbuio, Fabìola PG Rizzatti, Lia Bittencourt, Sergio Tufik, and Gari D. Clifford. Feasibility of Single Channel Oximetry for Mass Screening of Obstructive Sleep Apnea. EClinicalMedicine 11 (2019): 81-88. *Equal contribution.

    OxyDOSA applet: https://aim-lab.github.io/oxydosa.html
19. **Behar Joachim,** Bonnemains Laurent, Oster Julien, Shulgin Vyacheslav, Ostras Oleksii and Lakhno Igor. Non-invasive fetal electrocardiography for the detection of fetal arrhythmias. Prenatal diagnosis 39.3 (2019): 178-187.
20. Kamoun David, **Behar Joachim**, Leichner Joseph M., and Yaniv Yael. Bioenergetic feedback between heart cell contractile machinery and mitochondrial 3D deformations. Biophysical Journal 115.8 (2018): 1603-1613.
21. **Behar Joachim***, Rosenberg Aviv*, Alexandrovich Alexandra, Shemlas Ori, Weiser Ido, Yaniv Yael. PhysioZoo: a novel open access software and databases for heart rate variability analysis in mammals. *Equal contribution. Frontiers in Physiology 9 (2018): 1390.

    Source code: https://physiozoo.com/
22. **Behar Joachim***, Rosenberg Aviv*, Yaniv Yael. A universal scaling relation for defining power spectral bands in mammalian heart rate variability analysis. *Equal contribution. Frontiers in Physiology 9 (2018): 1001.

23. Gliner Vadim, **Behar Joachim**, Yaniv Yael. Novel Method to Efficiently Create an mHealth App: Implementation of a Real-Time Electrocardiogram R Peak Detector. JMIR mHealth and uHealth 6.5 (2018).
24. Lyashkov Alexey, **Behar Joachim**, Lakatta Edward, Yaniv Yael*, Maltsev Victor*. Positive feedback mechanisms among local Ca releases, NCX, & ICaL ignite pacemaker action potentials. *Equal contribution. Biophysical Journal 114.13 (2018): 1176–1189.
25. **Behar Joachim** and Yaniv Yael. Age-related pacemaker deterioration is due to impaired intracellular and membrane mechanisms: insights from numerical modeling. The Journal of General Physiology 149.10 (2017): 935-49.
    Cover: http://jgp.rupress.org/content/149/10/891
26. Shiraz Haron-Khun, Weisbrod David, Bueno Hanna, Yadin Dor, **Behar Joachim**, Peretz Asher, Binah Ofer, Hochhauser Edith, Eldar Michael, Yaniv Yael, Arad Michael, Attali Bernard. SK4 K+ channels are therapeutic targets for the treatment of cardiac arrhythmias. EMBO Molecular Medicine. 9.4 (2017): 415-29.
27. Lakhno Igor V.*, **Behar Joachim***, Oster Julien, Shulgin Vyacheslav, Ostras Oleksii, Andreotti Fernando. The use of non-invasive fetal electrocardiography in diagnosing second degree fetal atrioventricular block. Maternal Health, Neonatology and Perinatology. 3.1 (2017):14. * Equal contribution.
28. **Behar Joachim**, Ganesan Ambhighainath, Zhang Jin, Yaniv Yael. The Autonomic Nervous System Regulates the Heart Rate through cAMP-PKA Dependent and Independent Coupled-Clock Pacemaker Cell Mechanisms. Frontiers in Physiology. 7 (2016): 419.
29. **Behar Joachim**, Zhu Tingting, Oster Julien, Niksch Alisa, Mah Douglas Y., Chun Terrence, Greenberg James, Tanner Cassandre, Harrop Jessica, Sameni Reza, Ward Jay, Wolfberg Adam J, Clifford Gari D. Evaluation of the fetal QT interval using non-invasive fetal ECG technology. Physiological Measurement. 37.9 (2016): 1392-403.
30. **Behar Joachim** and Yaniv Yael. Dynamics of PKA phosphorylation and gain-of-function in cardiac pacemaker cells: a computational model analysis. American Journal of Physiology-Heart and Circulatory Physiology. 310.9 (2016): H1259-66.
31. Yaniv Yael, Ahmet Ismayil, Tsutsui Kenta, **Behar Joachim**, Moen Jack M., Okamoto Yosuke, Guiriba Toni-Rose, Liu Jie, Bychkov Rostislav, Lakatta Edward G. Deterioration of both autonomic neuronal receptor signaling and mechanisms intrinsic to heart pacemaker cells contribute to age-associated alterations in the basal heart rate and heart rate variability in vivo. Aging Cell. 15.4 (2016): 716-24.

32. Andreotti Fernando, **Behar Joachim**, Zaunseder Sebastian, Oster Julien, Clifford Gari D. An open-source framework for stress-testing non-invasive foetal ECG extraction algorithms. Physiological Measurement. 37.5 (2016): 627-48.
33. **Behar Joachim**, Roebuck Aoife, Shahid Mohammed, Daly Jonathan, Miranda Pureza Andre Hallack, Niclas Palmius, Stradling John, Clifford Gari D. SleepAp: An Automated Obstructive Sleep Apnoea Screening Application for Smartphones. IEEE Journal of Biomedical Health Informatics. 19.1 (2015): 325-31.
34. Zhu Tingting, Dunkley Nic, **Behar Joachim**, Clifton David A., Clifford Gari D. Fusing Continuous-valued Medical Labels using a Bayesian Model. Annals of Biomedical Engineering. 43.12 (2015): 2892-902.
35. Johnson Alistair E. W., **Behar Joachim**, Clifford Gari D., Oster Julien. Multimodal heart beat detection using signal quality indices. Physiological Measurement. 36.8 (2015): 1665-77.
    Winning entry of the MIT-Physionet Challenge 2014.
36. Oster Julien, **Behar Joachim**, Johnson Alistair, Sayadi Omid, Nemati Shamim, Clifford Gari D. Semisupervised ECG ventricular beat classification with novelty detection based on switching Kalman filters. IEEE Transactions on Biomedical Engineering 62.9 (2015): 2125-34.
37. **Behar Joachim**, Oster Julien, Clifford Gari D. Combining and benchmarking methods of foetal ECG extraction without maternal or scalp electrode data. Physiological Measurement. 35.8 (2014): 1569-89.
    Winning entry of the MIT-Physionet Challenge 2013 (non-official).
38. **Behar Joachim**, Andreotti Fernando, Zaunseder Sebastian, Li Qiao, Oster Julien, Clifford Gari D. An ECG simulator for generating maternal-foetal activity mixtures on abdominal ECG recordings. Physiological Measurement. 35.8 (2014): 1537-50.
    Source code: http://fecgsyn.com/
39. **Behar Joachim**, Johnson Alistair, Clifford Gari D., Oster Julien. A Comparison of Single Channel Foetal ECG Extraction Methods. Annals of Biomedical Engineering. 42.6 (2014): 1340-53.
40. Zhu Tingting, Johnson Alistair E. W., **Behar Joachim**, Clifford Gari D. Crowd-Sourced Annotation of ECG Signals Using Contextual Information. Annals of Biomedical Engineering. 42.4 (2014): 871-84.

41. **Behar Joachim**, Oster Julien, Qiao Li, Clifford Gari D. ECG Signal Quality During Arrhythmia and its Application to False Alarm Reduction. IEEE Transaction on Biomedical Engineering. 60.6 (2013): 1660-6.
42. Clifford Gari D, **Behar Joachim**, Li Qiao, Iead Rezek. Signal Quality Indices and Data Fusion for Determining Clinical Acceptability of Electrocardiograms Collected in Noisy Ambulatory Environments. Physiological Measurement. 33.9 (2012): 1419-33.

Review papers

43. Bar Nitai, Sobel Jonathan A., Penzel Thomas, Shamay Yosef, **Behar Joachim**. From sleep medicine to medicine during sleep – a clinical perspective. Physiological Measurement 42(4), (2021): 044006.
44. **Behar Joachim**, Chengyu Liu, Kevin Kotzen, Kenta Tsutsui, Valentina DA Corino, Janmajay Singh, Marco AF Pimentel et al. "Remote health diagnosis and monitoring in the time of COVID-19." Physiological measurement 41(10), (2020): 10TR01.
45. Radana Kahankova, Martinek Radek, Jaros Rene, Behbehani Khosrow, Matonia Adam, Jezewski Michal, and **Behar Joachim**. A Review of Signal Processing Techniques for Non-Invasive Fetal Electrocardiography. IEEE reviews in biomedical engineering 13 (2019): 51-73.
46. **Behar Joachim**, Andreotti Fernando, Zaunseder Sebastian, Oster Julien, Clifford. Gari D. A practical guide to non-invasive foetal electrocardiogram extraction and analysis. Physiological Measurement. 37.5 (2016): R1-35.
47. **Behar Joachim**, Roebuck Aoife, Gederi Elnaz, Domingos Joao, Clifford Gari D. A Review of Current Sleep Screening Applications for Smartphones. Physiological Measurement. 34.7 (2013): R29-46.
48. Roebuck Aoife, Monasterio Violeta, Gederi Elnaz, Osipov Maxim, **Behar Joachim**, Malhotra Atul, Penzel Thomas, Clifford Gari D. A review of signals used in sleep analysis. Physiological Measurement. 35(1), (2014): R1-57.

Editorials and letters to the editors

49. **Behar Joachim,** Shamay Yosi, Alvarez Daniel, del Campo Matías Felix, and Penzel Thomas. From Sleep Medicine to Medicine During Sleep. Physiological Measurement. 42(12), (2021):120301.

50. **Behar Joachim**, Liu Chengyu, Zigel Yaniv, Laguna Pablo and Clifford Gari D., 2020. Editorial on Remote Health Monitoring: from chronic diseases to pandemics. Physiological Measurement, 41(10), (2020) p.100401.
51. **Behar Joachim**. From sleep medicine to medicine during sleep: a new paradigm. Sleep 43.1 (2019): zsz279.
52. **Behar Joachim**, Julien Oster, Maarten De Vos, and Gari D. Clifford. Wearables and mHealth in mental health and neurological disorders. Physiological Measurement 40 (2019):070401.
53. Yaniv Yael and **Behar Joachim**. Mutation in one Molecule Induces Beating Rate Changes by Affecting the Coupled Clock Pacemaker. Journal of Cardiology & Cardiovascular Therapy. 6.4 (2017): 1-3.
54. Silva Ikaro, Moody Benjamin, **Behar Joachim**, Johnson Alistair, Oster Julien and Clifford Gari D. Editorial: Robust detection of heart beats in multimodal data. Physiological Measurement. 36.8 (2015): 1629-44.
55. Clifford Gari D., Silva Ikaro, **Behar Joachim**, Moody George. Editorial: Non-invasive fetal ECG analysis. Physiological Measurement. 35.8 (2014): 1521-36.

Refereed papers in conference proceedings

56. Fhima Jonathan, Van Eijgen Jan, Stalmans Ingeborg, Men Yevgeniy, Freiman Moti, and **Behar Joachim**. PVBM: A Python Vasculature Biomarker Toolbox Based On Retinal Blood Vessel Segmentation. Accepted for publication in ECCV workshop on medical computer vision, Tel Aviv, Israel, 23th October 2022.
57. Zvuloni Eran, Gendelman Sheina, Mohanty Sanghamitra, Lewen Jason, Natale Andrea, **Behar Joachim**. Atrial Fibrillation Recurrence Risk Prediction from 12-lead ECG Recorded Pre-and Post-Ablation Procedure. Computing in Cardiology. Tempere, Finland, 4-7th September 2022.
58. Fhima Jonathan, Van Eijgen Jan, Freiman Moti, Stalmans Ingeborg, **Behar Joachim**. Lirot. ai: A Novel Platform for Crowd-Sourcing Retinal Image Segmentations. Computing in Cardiology. Tempere, Finland, 4-7th September 2022.
59. Ben Moshe Noam, Shany Biton and **Behar Joachim**. ArNet-ECG: Deep Learning for the Detection of Atrial Fibrillation from the Raw Electrocardiogram. Computing in Cardiology. Tempere, Finland, 4-7th September 2022.

60. Shany Biton, Suleiman Mahmoud, Ben Moshe Noam, Sörnmo Leif, and **Behar Joachim**. Estimation of f-wave Dominant Frequency Using a Voting Scheme. Computing in Cardiology. Tempere, Finland, 4-7th September 2022.
61. Kotzen Kevin, Charlton Peter H, Landesberg Amir and **Behar Joachim**. Benchmarking Photoplethysmography Peak Detection Algorithms Using the Electrocardiogram Signal as a Reference. Computing in Cardiology. Brno, Czech Republic, 12-15th September 2021 (hybrid event). Vol. 48. IEEE, 2021.
62. Gendelman Sheina, Biton Shany, Raphael Derman, Lugassy Snir, Alexandrovich Alexandra and **Behar Joachim**. PhysioZoo ECG: Digital electrocardiography biomarkersto assess cardiac conduction. Computing in Cardiology. Brno, Czech Republic, 12-15th September 2021 (hybrid event). Vol. 48. IEEE, 2021.
63. Assaraf David, Levy Jeremy, Singh Janmajay, Chocron Armand, **Behar Joachim**. Classification of 12-lead ECGs using digital biomarkers and representation learning. Computing in Cardiology, Rimini, 13-16th Spt 2020. **Best oral presentation award**.
64. Roussel Benjamin, **Behar Joachim**, Oster Julien. A Recurrent Neural Network for the Prediction of Vital Sign Evolution and Sepsis in ICU. Computing in Cardiology, Singapore, 8-11th Spt 2019.
65. **Behar Joachim**, Shemla Ori, Weiser-Bitoun Ido, Rosenberg Aviv A. and Yaniv Yael. Adding two dimensions to heart rate variability research. Computing in Cardiology, Maastricht, Netherland, 23-26th Spt 2018.
66. **Behar Joachim**, Rosenberg Aviv, Yaniv Yael, Oster Julien. Rhythm and Quality Classification from Short ECGs Recorded Using a Mobile Device. Computing in Cardiology, Rennes, France, 24-27th Spt 2017.
67. **Behar Joachim**, Palmius Niclas, Daly Jonathan, Li Qiao, Rizzatti Fabiola, Bittencourt Lia, Clifford Gari D. Sleep Questionnaires in Screening for Obstructive Sleep Apnoea. Computing in Cardiology, Rennes, France, 24-27th Spt 2017.
68. Andreotti Fernando, **Behar Joachim**, Oster Julien, Clifford Gari D., Malberg Hagen and Zaunseder Sebastian. Optimized Modelling of Maternal ECG Beats using the Stationary Wavelet Transform. Computing in Cardiology, Boston (MA), USA, 7-10th Spt, 2014. Poster award at Computing in Cardiology 2014.
69. Andreotti Fernando, **Behar Joachim**, Zaunseder Sebastian, Clifford Gari D., Oster Julien. Evaluation of Foetal ECG extraction Methods in the Presence of Non-Stationary Abdominal Mixtures. bi-annual Brazilian Biomed. Eng. Congress, Oct 2014.

70. Clifford Gari D., Arteta Carlos, Zhu Tingting, Pimentel Marco, Santos Mauro, Domingos Joao, Maraci Mohammad A., **Behar Joachim** and Oster Julien. A scalable mHealth system for non-communicable disease management. IEEE GHTC, 10-13th Oct 2014, Silicon Valley, San Jose, California USA.
71. Papastylianou Tasos, **Behar Joachim** et al. Smart Handpumps: Improving the reliability of rural water services. AHT2014, London, 17-18th Spt 2014.
72. Johnson Alistair E W, **Behar Joachim**, Clifford Gari D. and Oster Julien. R-Peak Estimation using Multimodal Lead Switching. Computing in Cardiology, Boston (MA), USA, 7-10th Spt, 2014. Winning entry of the MIT-Physionet Challenge 2014.
73. **Behar Joachim**, Oster Julien and Clifford Gari D. A Bayesian Filtering Framework for Accurate Extracting of the Non Invasive FECG Morphology. Computing in Cardiology, Boston (MA), USA, 7-10th Spt, 2014.
74. Alvi Mohsan, Andreotti Fernando, Oster Julien, Clifford Gari D., **Behar Joachim**. fecgsyngui: A GUI Interface to fecgsyn for Simulation of Maternal-Foetal Activity Mixtures on Abdominal Electrocardiogram Recordings. Computing in Cardiology, Boston (MA), USA, 7-10th Spt, 2014.
75. Tingting Zhu, **Behar Joachim**, Papastylianou Tasos, Clifford Gari D. CrowdLabel: A Crowdsourcing Platform for Electrophysiology. Computing in Cardiology, Boston (MA), USA, 7-10th Spt, 2014.
76. **Behar Joachim**, Alistair Johnson, Julien Oster, Gari D. Clifford. An Echo State Neural Network for Foetal Electrocardiogram Extraction Optimised by Random Search. NIPS workshop Lake Tahoe, Nevada, US, 5-10 December 2013.
77. **Behar Joachim**, Roebuck Aoife, Shahid Mohammed, Daly Jonathan, Andre Hallack, Niclas Palmius, Stradling John, Clifford Gari D. An Evidence Based Android OSA Screening Application. Computing in Cardiology, 40:257-260, Zaragoza, Spain, 22-25th Spt, 2013.
78. **Behar Joachim**, Oster Julien and Clifford Gari D. Non Invasive FECG extraction from a set of abdominal sensors. Computing in Cardiology, Zaragoza, 40:297-300, Spain, 22-25th Spt, 2013. Winning entry of the MIT-Physionet Challenge 2013 (non-official).
79. Silva Ikaro, **Behar Joachim**, Zhu Tingting, Oster Julien, Clifford Gari D., Moody George B. Noninvasive Fetal ECG: the PhysioNet/Computing in Cardiology Challenge 2013. Computing in Cardiology, 40:149-152, Zaragoza, Spain, 22-25th Spt, 2013.

80. Oster Julien, **Behar Joachim**, Colloca Roberta, Qiao Li, Clifford Gari D. Open source Java-based ECG analysis software and Android app for atrial fibrillation screening. Computing in Cardiology, 40:731-734, Zaragoza, Spain, 22-25th Spt, 2013.
81. Zhu Tingting, Jonhson Alistair, **Behar Joachim**, Clifford Gari D. Bayesian Voting of Multiple Annotators for Improved QT Interval Estimation. Computing in Cardiology, 40:659-662, Zaragoza, Spain, 22-25th Spt, 2013.
82. **Behar Joachim,** Guazzi Alessandro, Jorge Joao, Maraci Mohamad A., Laranjeira Simao, Papastylianou Tasos, Thomson Patrick, Clifford Gari D., Hope Robert A. Software Architecture to Monitor Handpump Performance in Rural Kenya. WG 9.4: 12th International Conference on Social Implications of Computers in Developing Countries, Ocho Rios Jamaica, 19-22th May, 2013.
83. **Behar Joachim**, Oster Julien, Li Qiao, Clifford Gari. A single channel ECG quality metric. Computing in Cardiology. Krakow, Poland, 9-12th Spt, 2012
84. Dafoulas George E., Koutsias Stylianos, **Behar Joachim**, Osorio Juan, Malley Brian, Gruentzig Alexander, Celi Leo A., Angelidis Pantelis, Theodorou Kyriaki, Giannoukas Athanasios. Development of an mHealth Open Source Platform for Diabetic Foot Ulcers Tele-consultations, 2nd International ICST Conference on Wireless Mobile Communication and Healthcare - MobileHealth 2011, Kos Island, Greece, October 2011.

Patent applications

1. Yaniv, Yael, **Behar Joachim**, and Aviv Rosenberg. "Heart rate variability analysis in mammalians." U.S. Patent Application No. 17/259,172.
2. Clifford Gari D., Gederi Elnaz, Osipov Maxim, Monasterio Violetta, Roebuck Aoife, **Behar Joachim**. Systems and methods for determining mental and physical health using multi-scale metrics. 2012. WO Patent 2013106700.
3. **Behar Joachim**. Parasol device for collecting and restoring solar energy. 2006. FR2904686A1.

CONFERENCES AND INVITED TALKS

Plenary, keynote or invited talks

1. Artificial Intelligence - Based Solutions to Support AF Diagnosis and Management. ICI4All 4-6th December 2022. David Intercontinental Hotel, Tel-Aviv, Israel. **Invited.**
2. Deep learning for retinal fundus image analysis. Technion-Rambam Initiative in Medical AI (TERA). 23rd November 2022. Faculty of Biomedical Engineering, Haifa, Israel. **Invited.**

3. Artificial Intelligence and Digital Health for the Nocturnal Diagnosis of Obstructive Sleep Apnea. Franco Israeli Congress on Sleep. 30 October-3rd November 2022, Dan Hotel, Tel Aviv. **Invited.**
4. Digital Biomarkers and Deep Learning for Physiological Time Series Analysis. Symposium on the Future of Medicine, Meet in Galilee, Zichron Yaakov, Israel. 24th July 2022. **Invited.**
5. Digital Biomarkers and Deep Learning for Physiological Time Series Analysis. Faculty seminar, Biomedical Engineering, Ben-Gurion University of the Negev, Beersheba, Israel. 11th May 2022. **Invited.**
6. Closing the Loop: Technion-Rambam Center for Artificial Intelligence in Healthcare. Presentation on behalf of the Technion to Björn Thümler, Minister for Science and Culture of the German State of Lower Saxony. Technion-IIT, Haifa. 1th May 2022. **Invited.**
7. Digital Biomarkers and Deep Learning for Physiological Time Series Analysis. Technion-Rambam Hack: Machine Learning in Healthcare, Rambam Health Care Campus, Haifa, Israel. 7-9th Mach 2022. **Organizer.**
8. Digital biomarkers and deep learning for physiological time series analysis. 35th Umbrella Symposium, Aachen, Life Science and Engineering: Data Analytics, Neuroscience and Multiscale Biomedical Engineering, Aachen, Germany, 16-18 May 2022. **Invited.**
9. Atrial fibrillation risk prediction from the 12-lead ECG using digital biomarkers and deep representation learning. International Congress of Electrocardiology. ICE 2021, Online conference, 15-17th April 2021. **Invited.**
10. Digital biomarkers and machine learning for physiological time series analysis. IEEE International Conference on Microwaves, Antennas, Communications and Electronic Systems (COMCAS). 1th October 2021, David Intercontinental, Tel Aviv. **Invited.**
11. Artificial intelligence in medicine. Agora de La Fabrique du Futur. Session on TELEMEDECINE. 5-6 Juillet 2021 (France). Via video conference. **Invited.**
12. Digital Biomarkers and Machine Learning for Intelligent Patient Monitoring. AI in precision medicine and future health-tech solutions. Workshop organized by the Bio-Convergence and Technion Human Health Initiatives. Technion, Haifa, Israel 2nd March 2021. **Invited.**
13. Blind source separation theory and practice for fetal ECG analysis. Second International Summer School on Technologies and Signal Processing in Perinatal Medicine – TSPPM. 16-23 July, 2021, Via Zoom. **Invited.**
14. Feasibility of Single Channel Oximetry for Mass Screening of Obstructive Sleep Apnea. Franco Israeli Congress on Sleep. 27-31th 2019, Dan Hotel, Tel Aviv. **Invited.**

15. **Behar Joachim**, Weiner Zeev and Warrick Philip. Special Session on Computational Fetal Monitoring. Computing in Cardiology. Singapore, 8-11th Spt 2019. **Invited.**
16. **Behar Joachim** and Yaniv Yael. Age-related pacemaker deterioration: Insights from numerical modeling. Israel Society for Physiology and Pharmacology. Jerusalem, 14th February 2019. **Invited**.

Contributed Talks and Posters

17. Weiser-Bitoun Ido, Shemla Ori, Rosenberg Aviv A., Yaniv Yael and **Behar Joachim**. The PhysioZoo world: integrating in vivo and in vitro data from different mammals. ISPP. Jerusalem, 14th February 2019.
18. Arbel-Ganon Limor, **Behar Joachim**, Maria Gomez and Yaniv Yael. Mechano signal transduction by Ca2+ and phosphorylation signaling in health and dysfunctional heart pacemaker tissue. ISPP. Jerusalem, 14th February 2019.
19. **Behar Joachim**, Laurent Bonnemains, Vyacheslav Shulgin, Julien Oster, Oleksii Ostras, and Igor Lakhno. Non-invasive fetal electrocardiography for the detection of fetal arrhythmias: Toward a fetal Holter. Archives of Cardiovascular Diseases Supplements 10.3-4 (2018): 281.
20. Victor Maltsev, Lyashkov Alexey E., **Behar Joachim**, Lakatta Edward G. and Yaniv Yael. Positive Feedback Mechanisms among Local Ca Releases, NCX, and ICaL Ignite Pacemaker Action Potentials. Biophysical journal 114.5 (2018): 1176-1189.
21. Rosenberg Aviv, **Behar Joachim**, Shemlas Ori, Yaniv Yael. Non-invasive in-vivo analysis of intrinsic clock-like pacemaker mechanisms: decoupling neural input from heart rate variability measurements. ISHR-Israel section, Tel-Aviv, Israel, 28th March 2018.
22. Weiser-Bitoun Ido, Rosenberg Aviv, Shemla Ori, Alexandrovich Alexandra, **Behar Joachim A.*** and Yaniv Yael*. Accurate Heart rate Estimation in Mammalians Electrocardiographic Data. ISHR-Israel section, Tel-Aviv, Israel, 28th March 2018. * Equal contribution.
23. Maltsev Victor, Lyashkov Alex, **Behar Joachim**, Lakatta Edward G, and Yaniv Yael. Positive Feedback Mechanisms among Local Ca Releases, NCX, & ICAL Ignite Pacemaker Action Potentials. Biophysical Society Annual Meeting, San Francisco, California, 17-21 February 2018. 114(3), 622a-623a.
24. **Behar Joachim**, and Yaniv Y. A novel mouse pacemaker cell mathematical model to study autonomic nervous system regulation of the beating rate and aging impairment. 42nd FEBS congress, Jerusalem, Israel. 10-14 September 2017. Vol. 284.

25. **Behar Joachim**, Rosenberg Aviv, Alexandrovich Alexandra, Elul Yonatan, Shemlas Ori, Yaniv Yael. PhysioZoo: Open source software for heart rate variability analysis of mammal's electrophysiological data. ISHR European conference, Hamburg, 24-27 July 2017.
26. **Behar Joachim**, Racheli Gordon, Sofi Segal and Yael Yaniv. Non-additive sympathetic-parasympathetic brain stimulation interaction in single sinoatrial node cells. ISHR-Israel section, Beersheba, Israel, 28 December 2016.
27. Elul Yonatan, Rosenberg Aviv, **Behar Joachim** and Yaniv Yael. PhysioZoo database: a Software for annotating animal electrophysiological data. ISHR-Israel section, Beersheba, Israel, 28 Dec 2016.
28. **Behar Joachim** and Yaniv Yael. Internal Pacemaker Cell Mechanisms Mediating Autonomic Nervous Regulation of the Heart Rate. XXII ISHR World Congress, Buenos Aires, Argentina, 18-21April 2016.
29. **Behar Joachim** and Yaniv Yael. The Regulation of the Heart Beat by the Crosstalk between Brain Signaling Receptor Stimulation and Pacemaker Cell Internal Mechanisms. ISHR-Israel section, Haifa, Israel, 10 Dec 2015. Winner Rena Yarom Young Investigator Competition.
30. Palmius Niclas, Daly Jonathan, Roebuck Aoife, Morys Megan, **Behar Joachim**. SmartCare: A centralised hub for medical apps. Connected Life 2015 conference, Balliol college, Oxford 4th June 2015.
31. Daly Jonathan, Roebuck Aoife, Morys Megan, Palmius Niclas, **Behar Joachim**, Clifford Gari D. SleepCare: a Smartphone Application for Obstructive Sleep Apnoea Monitoring. AHT2014, London, 17-18th Spt 2014.
32. **Behar Joachim**, Wolfberg Adam, Zhu Tingting, Oster Julien, Niksch Alisa, Mah Douglas, Chun Terrence, Greenberg James, Tanner Cassandre, Harrop Jessica, Esbroeck Alexander Van, Alexander Amy, McCarroll Michele, Drake Timothy, Silber Angela, Sameni Reza, Ward Jay, Clifford Gari D. Evaluation of the fetal QT interval using non-invasive foetal ECG technology. SMFM - 34th Annual Meeting- The Pregnancy Meeting. New Orleans, LA, 8th February, 2014.
33. **Behar Joachim**, Newton Alice, Dafoulas George, Chigurupati Radhika, Naik Shreesh, Paik Kenneth, Celi Leo Anthony. Sana: Democratizing Access to Quality Healthcare using an Open mHealth Architecture. ICTT 2012. London, 6 March.
34. **Behar Joachim**, Milandri Giovanni, Raghu Arvind, Fathima Sana, Dr Clifford Gari D. Global Health Initiative through EWH-Oxford Student Organization. PGBiomed, Glasgow, 14-16 August, 2011.

INVITED SEMINARS

1. Panelist in the "Panel discussion on Innovation". The 2022 Rambam & Stanford Medicine Symposium, Rambam HCC, Haifa, Israel, June 28-29, 2022.
2. Artificial Intelligence for Remote Patient Monitoring Connecting the dots between Australia and Israel. Technion Australian Society. 31th May 2022.
3. AI challenges in cardiovascular signal processing: the PhysioNet/Computing in Cardiology Challenge for Physiological Time Series Analysis. Guest lecture delivered at Politecnico di Milano, Italy (Via Zoom), 2nd of February 2022.
4. Machine learning and digital health for improved diagnosis, risk prediction and personalized management of cardiac diseases. Rambam Health Care Campus, Cardiology department. 27th October 2021.
5. Digital biomarkers and machine learning for continuous remote patient monitoring. HealthIL satellite event "Engineering the future of Health". 9th November 2020.
6. Machine learning in COVID-19 research. Technion Brazilian Society. 24th September 2020.
7. Machine learning in COVID-19 research. Technion French Society. 4th September 2020.
8. A data-driven approach for obstructive sleep apnea mass screening from single channel oximetry. KU Leuven, Belgium. 12th February 2020.
9. Machine learning in medicine: AI for fundamental medical research and AI powered-wearables. Intel faculty meeting at the Technion, Haifa, Israel, 2rd January 2020.
10. Feasibility of single channel oximetry for mass screening of obstructive sleep apnea. Google Health, London, UK. 12th December 2019.
11. Using AI to assess changes in physiological function with ageing: from single cell to organism. King's college London, London, UK. 11th December 2019.
12. Data-driven healthcare: redefining medicine. Opening talk, faculty retreat. Nahsholim, 23rd September 2019.
13. PhysioZoo: Heart Rate Variability Analysis in Mammalian Electrophysiological Data. Technion-IIT, Medical School, 11th February 2018. Workshop.
14. Intelligent Remote Patient Monitoring Using Mobile Health Systems. Bar Ilan University, The Azrieli Faculty of Medicine, Safed, Israel, 27th December 2018.
15. Intelligent Remote Patient Monitoring Using Mobile Health Systems. Tel Aviv University, Department of Biomedical Engineering, Tel Aviv, Israel, 21th October 2018.
16. PhysioZoo: a novel software for beating rate variability analysis from mammalian electrophysiological and pulsatile data. French National Institute for Medical Research (INSERM), Pharmacy faculty, Paris Sud University, Paris, France, 28th September 2018.

17. Intelligent Remote Patient Monitoring Using Mobile Health Systems. Technion-IIT, Faculty of Biomedical Engineering, Haifa, Israel, 5th July 2018.
18. PhysioZoo: a novel software for beating rate variability analysis from mammalian electrophysiological and pulsatile data. Center for Dynamical Biomarkers (DBIOM) at Beth Israel Deaconess Medical Center and Harvard Medical School, 7th May 2018.
19. PhysioZoo: a novel software for beating rate variability analysis from mammalian electrophysiological and pulsatile data. Laboratory for Computational Physiology at the Massachusetts Institute of Technology, 8th May 2018.
20. Physiologically informed diagnosis using cardiac mobile health systems. New York University, Langone Health, 2nd May 2018.
21. Age-related pacemaker deterioration: Insights from numerical modeling. Israel Society for Heart Research. Tel Aviv University, 28th February 2018.
22. The digital healthcare revolution. Technion-IIT, Medical School, 10th January 2018.
23. Non-Invasive Foetal Electrocardiography. Interventional and Diagnostic Adaptive Imaging Laboratory. French National Institute for Medical Research (INSERM), Nancy, France. 28th July 2017.
24. Internet of things (IoT) and wearables. Technion-IIT, BizTech entrepreneurship meeting, Haifa, Israel, 19th January 2017
25. Obstructive Sleep Apnoea Screening using Mobile Health Technology. BME conference, Haifa, Israel, 24th February 2016.
26. Biosignal Processing and Mathematical Modelling for Heart Rate Extraction, Interpretation and Analysis. Technion-IIT, Faculty of Biomedical Engineering, Haifa, Israel, 22nd November 2015.
27. Perinatal monitoring and Global Health: From theory to application driven projects. Technion-IIT, Faculty of Biomedical Engineering, Haifa, Israel, 21th September 2014.
28. Non-Invasive FECG Extraction From a Set of Abdominal Sensors, IET Annual Healthcare lecture. London, UK, 21th November 2013.

TECHNION AND DEPARTMENTAL ACTIVITIES

- 2022-ongoing:
    - Director of the Technion-Rambam Initiative in Medical AI (TERA).
    - Undergraduate committee.
    - Presentation of the new Technion-Rambam center in medical AI to Mr. Björn Thümler, Minister for Science and Culture of the German State of Lower Saxony on Sunday, May 1st, 2022.
    - Roundtable discussion, Minister from Austria, 29th of March, Technion.
    - High school teachers outreach. This included lecturing high school teachers on the advances and potential of artificial intelligence in healthcare.
- 2021-2022:
    - Leading the effort to create a Technion-Rambam center for excellence in AI in medicine.
    - Member of the BME graduate committee.
    - Scientific organizer of the TECHNION-RAMBAM HACK: Machine Learning In Healthcare that will take place in March 2022 at Rambam & BME.
    - Design and proposal of a new faculty specialization in medical data science.
- 2020-2021:
    - Member of the BME committee for the development of the new graduate program with the Einstein hospital, Brazil.
    - Member of the Technion-Rambam Human Health initiative committee for the development of a new Technion-Rambam Center.
    - Proposal writing for a joint Technion-Cornell Tech philanthropic fundraising proposal – submitted to the Rothchild foundation.
- 2019-2021: Mentor in course for 4th year projects.
- June 2020: High school teachers outreach. This included lecturing high school teachers on the advances and potential of artificial intelligence in healthcare.
- 2019-2020: Portable Biomedicine Innovation Laboratory co-PI.
- 14-15th March 2019: mentor at the Digital Health Hackathon, Haifa, Israel.
- 19th December 2019: Judge BME Hack.