24th September 2019

RESUME

Joachim Abraham Behar
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Haifa, Israel

Birthdate: 23 April 1988

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

2015-2018 Post-Doctoral Fellow, Technion Institute of Technology, 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, optimal state estimation, crowd sourcing, non-invasive foetal electrocardiography, fetal arrhythmias, obstructive sleep apnea diagnosis, heart rate variability analysis, mathematical modeling of the biochemical and bioenergetics signaling in the heart, detection of atrial fibrillation, sinoatrial node cell activity.

TEACHING EXPERIENCE

2015-2017 Teaching assistant and lecturer, undergraduate level, Bioelectricity, Technion-Israel Institute of Technology, Israel.

2015-2017 Biomedical Instrumentation Laboratory, undergraduate level, Technion-Israel Institute of Technology, Israel.

2012-2014 Teaching assistant and lecturer at the department of Biomedical Engineering, University Oxford. I taught 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.
- Mobile health workshop organizer.

PUBLIC PROFESSIONAL ACTIVITIES

Editorial member for archived journals

2016-2019 Editorial board member for IOP Physiological Measurement.

Participation in organizing conferences

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

2014-2019 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 at CinC conference 2013, Zaragoza, Spain.

Reviewer for archived journals

- IEEE: Transaction in Biomedical Engineering
- IEEE: Journal of Biomedical and Health Informatics
- 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

- IOP Physiological Measurement
- PLOS: Plos One.

Other activities

- 14-15th March 2019: mentor at the Digital Health Hackathon, Haifa, Israel.
- Organizer, Maths seminar series on signal processing and machine learning at the Institute of Biomedical Engineering.
- Co-founder of Oxford Engineering World Health, now Oxford Centre for Affordable Healthcare technology (http://oxcaht.org/).

MEMBERSHIP IN PROFESSIONAL SOCIETIES

- Member, Institute of Electrical and Electronics Engineers Society - 2019
- Member, European Sleep Research Society (ESRS) – 2019-2020
- Member, International Society of Heart Research (ISHR) – 2016-2018
- Member, Institute of Physics (IOP) – 2016-2019
- Member, The Institute of Engineering and Technology (IET) – 2013/2014.

FELLOWSHIPS, AWARDS AND HONORS

- 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.

Invited talks, seminars, workshops

1. Data-driven healthcare: redefining medicine. Opening talk, faculty retreat. Nahsholim, 23rd September 2019
2. Age-related pacemaker deterioration: Insights from numerical modeling. Israel Society for Physiology and Pharmacology. Jerusalem, 14th February 2019.
3. Intelligent Remote Patient Monitoring Using Mobile Health Systems. Bar Ilan University, The Azrieli Faculty of Medicine, Safed, Israel, 27th December 2018.
4. Intelligent Remote Patient Monitoring Using Mobile Health Systems. Tel Aviv University, Department of Biomedical Engineering, Tel Aviv, Israel, 21th October 2018.
5. 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.
6. Intelligent Remote Patient Monitoring Using Mobile Health Systems. Technion-IIT, Faculty of Biomedical Engineering, Haifa, Israel, 5th July 2018.
7. 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.
8. 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.
9. Physiologically informed diagnosis using cardiac mobile health systems. New York University, Langone Health, 2nd May 2018.
10. Age-related pacemaker deterioration: Insights from numerical modeling. Israel Society for Heart Research. Tel Aviv University, 28th February 2018.
11. PhysioZoo: Heart Rate Variability Analysis in Mammalian Electrophysiological Data. Technion-IIT, Medical School, 11th February 2018. Workshop.
12. The digital healthcare revolution. Technion-IIT, Medical School, 10th January 2018.
13. Non-Invasive Foetal Electrocardiography. Interventional and Diagnostic Adaptive Imaging Laboratory. French National Institute for Medical Research (INSERM), Nancy, France. 28th July 2017.
14. Internet of things (IoT) and wearables. Technion-IIT, BizTech entrepreneurship meeting, Haifa, Israel, 19th January 2017
15. Obstructive Sleep Apnoea Screening using Mobile Health Technology. BME conference, Haifa, Israel, 24th February 2016.

16. Biosignal Processing and Mathematical Modelling for Heart Rate Extraction, Interpretation and Analysis. Technion-IIT, Faculty of Biomedical Engineering, Haifa, Israel, 22nd November 2015.
17. Perinatal monitoring and Global Health: From theory to application driven projects. Technion-IIT, Faculty of Biomedical Engineering, Haifa, Israel, 21th September 2014.
18. Non Invasive FECG Extraction From a Set of Abdominal Sensors, IET Annual Healthcare lecture. London, UK, 21th November 2013.

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/

- **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/

- **PhysioZoo**: Project leader 2017-2018. 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 heart rate variability analysis from Human and mammalian electrophysiological data. The project involves two engineers and three graduate students who I have been directing for two years. The beta release will take place at the beginning of September 2018. http://physiozoo.com/

STUDENTS AND TRAINEES

I supervise/co-supervise the following students:

Ph.D.

1. Ido Weiser, MD-PhD student, Technion-IIT. Synchronization among sinoatrial node cells in the pacemaker tissue: from molecular mechanisms to non-invasive clinical tool.
   Principal advisor: Yael Yaniv.
2. Limor Arbel-Ganon, B.Sc. in Biomedical Engineering, Technion-IIT. 2017-2018 Mechano-electrical signal transduction in healthy and dysfunctional heart pacemaker tissue.
   Principal advisor: Yael Yaniv.

M.Sc.

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".
   Principal advisor: Joachim A. Behar.
4. Raphael Azeroual, B.Sc. Biomedical Engineering, Technion-IIT. "Detection of epileptic seizures from ECG in children at the intensive care unit".
   Principal advisor: Joachim A. Behar.
5. 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".
   Principal advisor: Joachim A. Behar.
6. Ori Shemla, B.Sc, Biomedical Engineering, Technion-IIT. "Beating rate variability of pacemaker cells."
   Principal advisor: Yael Yaniv.

I co-supervised the following students:

M.Sc.

1. Vadim Gliner, B.Sc. in Electrical Engineering and Physics, Technion-IIT. 2015-2018 "Early detection of atrial fibrillation by monitoring changes in heart rate variability". (Completed, March 2018.)
   Principal advisor: Yael Yaniv.

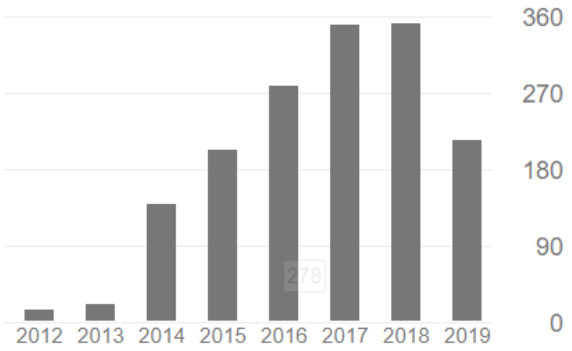
2. Aviv Rozenberg, B.Sc. in Electrical Engineering, Technion-IIT. 2015-2018 “Non-invasive in-vivo analysis of intrinsic clock-like pacemaker mechanisms: decoupling neural input from heart rate variability measurements”. (Completed, January 2018.)
   Principal advisor: Yael Yaniv

B.Sc.

1. Rahul Kumar Singh, Final Year B.Sc Student, Department of Electrical Engineering, IIT Kharagpur. “Non-contact electrocardiogram measurement for monitoring automotive drivers drowsiness”. (Completed, August 2017.)
   Principal advisor: Yael Yaniv.
2. Eran Zvuloni, B.Sc student in Biomedical Engineering, Technion-IIT. “Characterizing the spontaneous beating rate of Pacemaker cells using Optical Flow Method”. Advanced undergraduate laboratory. (Completed, June 2018.)
   Principal advisor: Yael Yaniv.
3. Eloul Yonatan, B.Sc student in Biomedical Engineering, Technion-IIT. “Software for annotating electrophysiological signals”. Summer project (Completed, October 2016).
   Principal advisor: Yael Yaniv.
4. Racheli Gordon, B.Sc student in Biomedical Engineering, Technion-IIT. “Automatic program to characterize the spontaneous beating rate of pacemaker cells. Advanced undergraduate laboratory” (Completed, October 2016).
   Principal advisor: Yael Yaniv.
5. Alvi Mohsan, PhD student, Department of Biomedical Engineering, Oxford, UK. fecgsyngui: “A GUI Interface to fecgsyn for Simulation of Maternal-Foetal Activity Mixtures on Abdominal Electrocardiogram Recordings”. (Completed, summer project. 2014).
   Principal advisor: Gari Clifford.
6. Pierre Gilfriche, MEng, Ecole des Mines ParisTech, France. “SmartCare”. Stage de 2e annee en business development, Oxford. (Completed, September, 2014).
   Principal advisor: Joachim Behar.

PUBLICATIONS

	All	Since 2014
Citations	1590	1543
h-index	19	19
i10-index	27	27



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

1. **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).
2. 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.
3. **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.
4. **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.

5. 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).
6. 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.
7. **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
8. 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.
9. 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.
10. **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.
11. **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.
12. **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.
13. 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.

14. 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.
15. **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.
16. 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.
17. 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.
18. 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.
19. **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).
20. **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.
21. **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.
22. 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.

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

Review papers

1. 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 (2019).
2. **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.
3. **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.
4. 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 (2013): R1-57.

Others publications (Editorial and letters to the editors)

5. 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.
6. 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.
7. Clifford Gari D., Silva Ikaro, **Behar Joachim**, Moody George. Editorial: Non-invasive fetal ECG analysis. Physiological Measurement. 35.8 (2014): 1521-36.

Patent applications

1. **Behar Joachim**, Yaniv Yael and Rosenberg Aviv. A novel software for beating rate variability analysis from mammalian electrophysiological and pulsatile data. *Pending.*
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.

Under review/preparation

1. **Behar Joachim** et al. Impact of counting overnight oxygen desaturations overlapping with wake periods in the context of obstructive sleep apnea screening. *Submitted.*
2. Arbel-Ganon Limor*, **Behar Joachim***, Gómez Ana María and Yaniv Yael. Mutation associated pacemaker dysfunction: insight from computational modeling. *In preparation.* * Equal contribution.

CONFERENCES

Presentation at scientific meetings

1. 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.
2. 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.
3. **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.
4. 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.
5. 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.
6. 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.**
7. 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.
8. **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.
9. **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.
10. **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.

11. 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.
12. **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.
13. **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.
14. 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.
15. **Behar Joachim**, Alistair Johnson, Julien Oster, Gari D. Clifford. An Echo State Neural Network for Foetal Electrocardiogram Extraction Optimised by Random Search. NIPS Lake Tahoe, Nevada, US, 5-10 December 2013.
16. **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.
17. **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.
18. **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.

Refereed papers in conference proceedings

1. **Behar Joachim**, Weiner Zeev and Warrick Philip. Special Session on Computational Fetal Monitoring. Computing in Cardiology, Singapore, 8-11th Spt 2019.
2. Roussel Benjamin, **Behar Joachim**, Oster Julien. Recurrent Neural Network for the Prediction of Vital Sign Evolution and Sepsis in ICU. Computing in Cardiology, Singapore, 8-11th Spt 2019.
3. **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.
4. **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.
5. **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.
6. 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.
7. 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.
8. 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.
9. 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.
10. Papastylianou Tasos, **Behar Joachim** et al. Smart Handpumps: Improving the reliability of rural water services. AHT2014, London, 17-18th Spt 2014.
11. 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.

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