Or Perlman, PhD (He/Him)

Tel-Aviv University 69978, Israel
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https://mri-ai.github.io ⋄ ORCID: 0000-0002-3566-569X

EDUCATION

PhD, Biomedical Engineering *November 2013 - March 2018*
Technion - Israel Institute of Technology, Haifa, Israel
Mentor: Prof. Haim Azhari

MSc (*Cum Laude*), Biomedical Engineering *October 2011 - November 2013*
Ben-Gurion University of the Negev, Beer-Sheva, Israel
Mentors: Dr. Yaniv Zigel and Prof. Amos Katz

BSc (*Cum Laude*), Biomedical Engineering *November 2008 - October 2012*
Ben-Gurion University of the Negev, Beer-Sheva, Israel

PROFESSIONAL EXPERIENCE

Senior Lecturer (Assistant Professor) *July 2022 - Present*
Department of Biomedical Engineering
Sagol School of Neuroscience
Tel Aviv University, Tel Aviv, Israel

Postdoctoral Research Fellow *June 2018 - June 2022*
Athinoula A. Martinos Center for Biomedical Imaging
Harvard Medical School and Massachusetts General Hospital
Mentors: Profs. Christian T. Farrar and Matthew S. Rosen

Research Assistant *January 2018 - June 2018*
Faculty of Biomedical Engineering
Technion - Israel Institute of Technology

Visiting Scholar (Graduate Student) *March 2015*
Gorter Center for High Field MRI, Department of Radiology
Leiden University Medical Center, The Netherlands
Host: Prof. Andrew Webb

Preclinical MRI Operator and Consultant *September 2014 - June 2018*
Biomedical Core Facility
Rappaport Faculty of Medicine
Technion - Israel Institute of Technology

HONORS AND AWARDS

Molecular & Cellular Study Group Competition, 1^{st} Place *March 2022*
International Society for Magnetic Resonance in Medicine (ISMRM)

Travel Award *January 2022*
Ministry of Aliyah and Integration, Israel

DAAD AI-Net Fellowship *September 2021*
German Academic Exchange Service

Educational Stipend Award *May 2021*
ISMRM Annual Meeting & Exhibition

Poster Award, 3rd Place *September 2020*
The 11th Scientific Symposium on Ultrahigh Field MR

***Magna Cum Laude* Award** *August 2020*
International Society for Magnetic Resonance in Medicine (ISMRM)

Trainee Abstract Award, 3rd Place *August 2020*
ISMRM MR in Drug Research Study Group Meeting

Educational Stipend Award *August 2020*
ISMRM Annual Meeting & Exhibition

Cloud Computing Grant *May 2020*
CERN openlab

Marie Skłodowska-Curie Global Fellowship *November 2019*
European Union's Horizon 2020 Research and Innovation Programme
Overall Budget (3 years): €269,998.08
https://cordis.europa.eu/project/id/836752

***Magna Cum Laude* Award** *May 2019*
International Society for Magnetic Resonance in Medicine (ISMRM)

Educational Stipend Award *May 2019*
ISMRM Annual Meeting & Exhibition

International Travel Award *December 2018*
The 7th International Workshop on CEST Imaging

Travel Scholarship *November 2017*
Ministry of Science, Technology & Space, Israel

Society Award for Excelling PhD Candidates *March 2017*
Israel Society for Medical and Biological Engineering (ISMBE)

Russell Berrie Scholarship in Nanotechnology *October 2016 - September 2017*
The Russell Berry Nanotechnology Institute

JSPS Hope Fellow *March 2016*
Japan Society for the Promotion of Science
Selected to participate in the 8th HOPE Meeting with Nobel Laureates

Travel Scholarship *February 2015*
Ministry of Science, Technology & Space, Israel

Russell Berrie Scholarship in Nanotechnology *October 2014 - September 2015*
The Russell Berry Nanotechnology Institute

Poster Award, 2nd Place *February 2013*
Israel Society for Medical and Biological Engineering (ISMBE) Annual Conference

Zlotowski Admission Award for Outstanding Students *November 2008*
Ben-Gurion University of the Negev, Israel

PEER-REVIEWED JOURNAL PAPERS

1. J. P. W. Weigand, M Sedykh, K. Herz, J. Coll-Font, A. N. Foster, E. Gerstner, C. Nguyen, M Zaiss, C. T. Farrar*, **O. Perlman***, "Accelerated and Quantitative Three-Dimensional Molecular MRI using a Generative Adversarial Network", *Magnetic Resonance in Medicine*, doi:10.1002/mrm.29574 (in press). *Equal contribution.

2. O. Cohen, V. Y. Yu, K. R. Tringale, R. Young, **O. Perlman**, C. T. Farrar, R. Otazo, "CEST MR Fingerprinting (CEST-MRF) for Brain Tumor Quantification Using EPI Readout and Deep Learning Reconstruction", *Magnetic Resonance in Medicine*, Vol. 89, pp. 233-249, 2023.

3. **O. Perlman**, H. Ito, K. Herz, N. Shono, H. Nakashima, M. Zaiss, E. A. Chiocca, O. Cohen, M. S. Rosen, C. T. Farrar, "Quantitative imaging of apoptosis following oncolytic virotherapy by magnetic-resonance fingerprinting aided by deep learning," *Nature Biomedical Engineering*, Vol. 6, pp. 648-657, 2022.

4. **O. Perlman***, B. Zhu*, M. Zaiss, M. S. Rosen, C. T. Farrar, "An End-to-End AI-Based Framework for Automated Discovery of Rapid CEST/MT MRI Acquisition Protocols and Molecular Parameter Quantification (AutoCEST)," *Magnetic Resonance in Medicine*, Vol. 87, pp. 2792-2810, 2022. *Equal contribution. **Highlighted by the journal - included in the Editor's Pick List.**

5. K. Herz, S. Mueller, **O. Perlman**, M. Zaitsev, L. Knutsson, P. Sun, J. Zhou, P. van Zijl, K. Heinecke, P. Schuenke, C. Farrar., M. Schmidt, K., A. Dorfler, K. Scheffler, and M. Zaiss, "Pulseq-CEST: Towards multi-site multi-vendor compatibility and reproducibility of CEST experiments using an open source sequence standard," *Magnetic Resonance in Medicine*, Vol. 86, No. 4, pp. 1845-1858, 2021. **Highlighted by the journal - included in the Editor's Pick List.**

6. I. S. Weitz, **O. Perlman**, H. Azhari, S. S. Sivan, "In vitro evaluation of copper release from MRI-visible, PLGA-based nanospheres," *Journal of Materials Science*, Vol. 56, pp. 718-730, 2021.

7. **O. Perlman**, H. Ito, A. A. Gilad, M. T. McMahon, E. A. Chiocca, E. H. Nakashima, C. T. Farrar, "Redesigned reporter gene for improved proton exchange-based molecular MRI contrast," *Scientific Reports*, Vol. 10, 20664, 2020. https://doi.org/10.1038/s41598-020-77576-z.

8. **O. Perlman**, K. Herz, M. Zaiss, O. Cohen, M. S. Rosen, C. T. Farrar, " CEST MR-fingerprinting: Practical considerations and insights for acquisition schedule design and improved reconstruction," *Magnetic Resonance in Medicine*, Vol. 83, pp. 462-478, 2020.

9. **O. Perlman**, A. Borodetsky, Y. Kauffmann, Y. Shamay, H. Azhar, I. S. Weitz, "Gold/copper@ polydopamine nanocomposite for contrast-enhanced dual modal computed tomography-magnetic resonance imaging," *ACS Applied Nano-Materials*, Vol. 2, No. 10, pp. 6124-6134, 2019.

10. M. Benguigui, I. S. Weitz, M. Timaner, T. Kan, D. Shechter, **O. Perlman**, S. Sivan, Z. Raviv, H. Azhari, Y. Shaked, "Copper oxide nanoparticles inhibit pancreatic tumor growth primarily by targeting tumor initiating cells," *Scientific Reports*, Vol. 9, No. 1, pp. 1-10, 2019.

11. **O. Perlman**, I. S. Weitz, and H. Azhari, "Target visualization and microwave hyperthermia monitoring using nanoparticle-enhanced transmission ultrasound (NETUS)," *International Journal of Hyperthermia*, Vol. 34, No. 8, pp. 773-785, 2018.

12. **O. Perlman**, I. S. Weitz, S. S. Sivan, H. Abu-Khalla, M. Benguigui, Y. Shaked, and H. Azhari, "Copper oxide loaded PLGA nanospheres: towards a multifunctional nanoscale platform for ultrasound based imaging and therapy," *Nanotechnology*, Vol. 29, No. 18, pp. 185102-185112, 2018.

13. **O. Perlman** and H. Azhari, "Ultrasonic computed tomography imaging of iron oxide nanoparticles," *Physics in Medicine and Biology*, Vol. 62, No. 3, pp. 825-842, 2017.

14. **O. Perlman**, A. Katz, G. Amit, and Y. Zigel ,"Supraventricular tachycardia classification in the 12-Lead ECG using atrial waves detection and a clinically based tree scheme," *IEEE Journal of Biomedical and Health Informatics*, Vol. 20, No. 6, pp. 1513-1520, 2016.

15. **O. Perlman**, I. S. Weitz, and H. Azhari, "Copper oxide nanoparticles as contrast agents for MRI and ultrasound dual-modality imaging," *Physics in Medicine and Biology*, Vol. 60, pp. 5767-5783, 2015.

16. **O. Perlman**, A. Katz, N. Weissman, G. Amit, and Y. Zigel , "Atrial electrical activity detection using linear combination of 12-lead ECG signal," *IEEE Transactions on Biomedical Engineering*, Vol. 61, No. 4, pp. 1034-1043, 2014.

REVIEW PAPERS

1. N. Vladimirov, **O. Perlman**, "Molecular MRI-Based Monitoring of Cancer Immunotherapy Treatment Response," *International Journal of Molecular Sciences*, Vol. 24, No. 4, pp. 3151-3175, 2023.
2. **O. Perlman**, C. T. Farrar, and H. Y. Heo, "MR Fingerprinting for Semisolid Magnetization Transfer and Chemical Exchange Saturation Transfer Quantification," *NMR in Biomedicine*, 2022, e4710. doi:10.1002/nbm.4710.

JOURNAL PAPERS UNDER REVIEW

1. A. N. Foster, **O. Perlman**, R. A. Eder, S. Chen, K. D. Nguyen, C. T. Farrar, J. Coll-Font, C. T. Nguyen, "Dynamic, High Temporal Resolution Intravoxel Incoherent Motion (IVIM) MRI of the Healthy Calf During Continuous Exercise".
2. A. Bricco, I. Miralavy, S. Bo, **O. Perlman**, C. T. Farrar, M. T. McMahon, W. Banzhaf, and A. A. Gilad. "Protein Optimization Evolving Tool (POET) based on Genetic Programming," *bioRxiv preprint*: https://doi.org/10.1101/2022.03.05.483103.

REFEREED PAPERS IN CONFERENCE PROCEEDINGS

1. **O. Perlman**, I. S. Weitz, and H. Azhari, "Preliminary study of copper oxide nanoparticles acoustic and magnetic properties for medical imaging," in *SPIE Medical Imaging, International Society for Optics and Photonics*, Orlando, Florida, 2015, pp. 9412041-9412046. **Oral presentation**.
2. **O. Perlman**, A. Katz, and Y. Zigel, "Noninvasive fetal QRS detection using linear combination of abdomen ECG signals," in *Computing in Cardiology*, Zaragoza, Spain, 2013, pp. 169-172. **Oral presentation**.
3. **O. Perlman**, A. Katz, N. Weissman, and Y. Zigel, "Atrial electrical activity detection in 12-lead ECG using synthetic atrial activity signal," in *Computing in Cardiology*, Krakow, Poland, 2012, pp. 665-668.
4. **O. Perlman**, A. Katz, G. Amit, and Y. Zigel , "Cardiac arrhythmia classification in 12-lead ECG using synthetic atrial activity signal," in *IEEI 27th Convention of Electrical Electronics Engineers*, Eilat, Israel, 2012, pp. 1-4. **Oral presentation.**

REFEREED CONFERENCE ABSTRACTS

1. J. P. W. Weigand, M Sedykh, K. Herz, J. Coll-Font, E. Gerstner, C. Nguyen, M Zaiss, C. T. Farrar, **O. Perlman**, "A Generative Adversarial Network for Accelerated and Quantitative 3D Molecular MRI: a Multi-Center Brain and Leg Human Study," *World Molecular Imaging Congress (WMIC)*, Miami, Florida, USA September, 2022. **Oral Presentation**
2. J. P. W. Weigand, M Sedykh, K. Herz, J. Coll-Font, E. Gerstner, C. Nguyen, M Zaiss, C. T. Farrar, **O. Perlman**, "A Generative Adversarial Network for Accelerated and Quantitative 3D Semisolid MT/CEST MRI: a Multi-Center Brain and Leg Human Study," *CEST Workshop*, Atlanta, GA, USA August, 2022. **Oral Presentation. Selected to receive NIH R13 support.**
3. **O. Perlman**, A. R. Bricco, E. A. Castellanos, I. Miralavy, S. B0, T. Gallagher, L. L. Cheng, M. T. McMahon, W. Banzhaf, H. Nakashima, A. Gilad, C. T. Farrar, "Optimization of CEST reporter genes with a genetic programming Protein Optimization Evolving Tool," *The Future of Molecular MR*, Pasadena, CA, USA, July, 2022. **Oral presentation.**

4. J. P. W. Weigand, M Sedykh, K. Herz, J. Coll-Font, C. Nguyen, M Zaiss, C. T. Farrar, **O. Perlman**, "Acceleration of Quantitative Semisolid MT/CEST Imaging using a Generative Adversarial Network (GAN-CEST)," *ISMRM Annual Meeting*, London, England, UK, May, 2022.

5. A. R. Bricco1, I. Miralavy, S. Bo, **O. Perlman**, C. Farrar, M. McMahon, W. Banzhaf, A. Gilad, "Generating MRI reporter genes using a Protein Optimizing Evolving Tool (POET)," *ISMRM Annual Meeting*, London, England, UK, May, 2022.

6. **O. Perlman**, J. Coll-Font, K. Herz, M. Zaiss, C. Nguyen, C. T. Farrar, "Quantitative 3D Mapping of Cr and PCr Concentrations at 3T using Snapshot AREX CEST MRI," *ISMRM Annual Meeting*, London, England, UK, May, 2022.

7. M. Sedykh, M. Fabian, K. Herz, **O. Perlman**, C. T. Farrar, A. Mennecke, M. Schmidt, A Dörfler, Moritz Zaiss, "Which CEST technique provides most insight into tumors – 3T APTw, 3T CEST-MRF or 7T multi-pool CEST?," *ISMRM Annual Meeting*, London, England, UK, May, 2022.

8. **O. Perlman**, B. Zhu, M. Zaiss, N. Shono, H. Nakashima, E. A. Chiocca, M. S. Rosen, C.T. Farrar, "Automatic Design of Quantitative and Rapid Molecular MRI Protocols using an AI-Based Approach," *World Molecular Imaging Congress (WMIC)*, Virtual, Oct., 2021. **Oral presentation.**

9. **O. Perlman**, B. Zhu, M. Zaiss, N. Shono, H. Nakashima, E. A. Chiocca, M. S. Rosen, C.T. Farrar, "AI-Based Automatic Design of Quantitative and Rapid CEST/MT Protocols at 7.0 T and 9.4 T," *12th Symposium on Ultrahigh Field MR*, Virtual, September, 2021.

10. **O. Perlman**, B. Zhu, M. Zaiss, N. Shono, H. Nakashima, E. A. Chiocca, M. S. Rosen, C.T. Farrar, "In-Vivo Sub-Minute rNOE Mapping Using AutoCEST: a Machine-Learning Approach for CEST/MT Protocol Invention and Quantitative Reconstruction," *ISMRM Annual Meeting*, Virtual, May, 2021.

11. J. Coll-Font, **O. Perlman**, S. Chen, R. Eder, C. T. Farrar, C. T. Nguyen, "Evaluating the Effects of Motion Compensation to IVIM Fitting in In-Vivo DW-MRI of the Muscle.," *ISMRM Annual Meeting*, Virtual, May, 2021.

12. O. Cohen, **O. Perlman**, C. T. Farrar, O. Ricardo, "Development of a Clinical CEST-MR Fingerprinting (CEST-MRF) Pulse Sequence and Reconstruction Methods," *ISMRM Annual Meeting*, Virtual, May, 2021.

13. **O. Perlman**, H. Ito, K. Herz, N. Shono, H. Nakashima, M. Zaiss, E. A. Chiocca, O. Cohen, M. S. Rosen, C.T. Farrar, "Deep CEST MR fingerprinting reveals tumor apoptotic response to oncolytic virotherapy in vivo," *The 8th International Workshop on Chemical Exchange Saturation Transfer Imaging*, Virtual, Nov. 2020. **Oral presentation.**

14. **O. Perlman**, B. Zhu, M. Zaiss, N. Shono, H. Nakashima, E. A. Chiocca, M. S. Rosen, C.T. Farrar, "Automated multi-pool CEST/MT optimal experiment design and deep quantitative mapping (AutoCEST)," *The 8th International Workshop on Chemical Exchange Saturation Transfer Imaging*, Virtual, Nov. 2020. **Oral presentation.**

15. **O. Perlman**, H. Ito, K. Herz, N. Shono, H. Nakashima, M. Zaiss, E. A. Chiocca, O. Cohen, M. S. Rosen, C. T. Farrar, "Deep CEST MR Fingerprinting Reveals Tumor Apoptotic Response to Oncolytic Virotherapy In Vivo," *World Molecular Imaging Congress (WMIC)*, Virtual, Oct., 2020. **Oral presentation.**

16. **O. Perlman**, H. Ito, A. A. Gilad, M. T. McMahon, E. A. Chiocca, E. H. Nakashima, C. T. Farrar, "Redesigned LRP reporter improves CEST MRI contrast in LRP-expressing mouse tumor," *World Molecular Imaging Congress (WMIC)*, Virtual, Oct., 2020.

17. **O. Perlman**, H. Ito, K. Herz, H. Nakashima, M. Zaiss, E. A. Chiocca, O. Cohen, M. S. Rosen, C. T. Farrar, "Deep CEST MR fingerprinting at 7T reveals tumor apoptotic response to oncolytic

virotherapy in vivo," *11th Symposium on Ultrahigh Field MR Virtual* , September, 2020. **Poster award, 3rd place.**

18. **O. Perlman**, B. Zhu, M. Zaiss, M. S. Rosen, C. T. Farrar, " AutoCEST: a machine-learning approach for optimal CEST-MRI experiment design and quantitative mapping," *ISMRM 28th Annual Meeting*, Virtual, August, 2020.

19. **O. Perlman**, C. T. Farrar, O. Cohen, " Deep learning global schedule optimization for chemical exchange saturation transfer MR fingerprinting (CEST-MRF)", *ISMRM 28th Annual Meeting*, Virtual, August, 2020.

20. **O. Perlman**, H. Ito, K. Herz, H. Nakashima, M. Zaiss, E. A. Chiocca, C. Nguyen, O. Cohen, M. S. Rosen, C. T. Farrar, "Early detection of tumor apoptotic response to oncolytic virotherapy using deep CEST MR fingerprinting," *ISMRM 28th Annual Meeting*", Virtual, August, 2020. **Oral presentation. *Magna Cum Laude* Award**.

21. K. Herz, S. Mueller, **O. Perlman**, R. Strinberg, T. Stoecker, K. Scheffler, C. T. Farrar, M. Zaiss, "Towards clinical CEST-MRF: whole brain snapshot CEST MR Fingerprinting at 3T using spin-lock saturation and a centric 3D-EPI readout," ISMRM 28th Annual Meeting," Virtual, August, 2020. ***Summa Cum Laude* Award.**

22. **O. Perlman**, H. Ito, K. Herz, H, Nakashima, M. Zaiss, E. A. Chiocca, O. Cohen, M. S. Rosen, C. T. Farrar, "Early detection of tumor apoptotic response to oncolytic virotherapy using deep learning based CEST molecular MRI," *BWH/Harvard Computational Neuroscience Outcomes Center Symposium*, Boston, MA, USA, Oct, 2019.

23. **O. Perlman**, O. Cohen, S. Huang, H. Ito, H, Nakashima, E. A. Chiocca, M. S. Rosen, C. T. Farrar, "Deep learning neural network for CEST magnetic resonance fingerprinting of GBM mouse tumor models," *The future of molecular MR*, Newfoundland, Canada, July, 2019

24. **O. Perlman**, O. Cohen, S. Huang, H. Ito, H, Nakashima, E. A. Chiocca, M. S. Rosen, C. T. Farrar, "Sequential and deep multi-pool CEST MR fingerprinting in in-vivo tumor bearing mice," ISMRM 27th Annual Meeting", Montreal, Canada, May, 2019. **Oral presentation. *Magna Cum Laude* Award**.

25. I. S. Weitz, S. S. Sivan, **O. Perlman**, and H. Azhari, "Preparation of PLGA nanospheres as carriers for copper oxide nanoparticles based imaging contrast agent," BioNanoMed, Graz, Austria, 2019.

26. **O. Perlman**, O. Cohen, S. Huang, I. Mulder, C. Ayata, T. W. Kimberly, M. S. Rosen., and C. T. Farrar, "Proton exchange rate, volume fraction, T1, and T2 MR fingerprinting using an optimized acquisition schedule and a deep reconstruction network (DRONE)," *The 7th International Workshop on Chemical Exchange Saturation Transfer Imaging*, Beijing, China, 2018.

27. **O. Perlman**, O. Cohen, S. Huang, I. Mulder, C. Ayata, T. W. Kimberly, M. T. McMahon, M. S. Rosen., and C. T. Farrar, "MR fingerprinting deep reconstruction network (DRONE) for stroke reperfusion quantitative imaging," *ISMRM Workshop on Machine Learning Part II*, Washington D.C., USA, 2018.

28. O. Cohen, **O. Perlman**, S. Huang, M. T. McMahon, Y. R. Kim, M. S. Rosen, C. T. Farrar, "Deep learning neural network for CEST fingerprinting of MCAO rat stroke models," *Imaging in 2020*, Wyoming, USA, 2018.

29. I. S. Weitz, **O. Perlman**, S. S. Sivan, and H. Azhari, "Synthesis and characterization of copper oxide based polymeric nano-systems for biomedical imaging," *8th Forum on New Materials (CIMTEC)*, Perugia, Italy, 2018.

30. **O. Perlman**, I. S. Weitz, and H. Azhari, "Microwave ablation planning and monitoring using

nanoparticle enhanced through-transmission ultrasound," *IEEE 39th Annual International Conference of the Engineering in Medicine and Biology Society (EMBC)*, Jeju Island, Korea, 2017.

31. **O. Perlman**, I. S. Weitz, and H. Azhari, "Potential medical applications of ultra small copper oxide nanoparticles," *NanoBio&Med*, Barcelona, Spain, 2017.

32. **O. Perlman**, I. S. Weitz, and H. Azhari, "Multimodal magnetic resonance and through-transmission ultrasound imaging of nanoparticles," *8th HOPE Meeting with Nobel Laureates*, Tsukuba, Japan, 2016.

33. **O. Perlman**, I. S. Weitz, and H. Azhari, "Copper oxide nanoparticles as contrast agents for medical imaging: a phantom study," *Technion RBNI Nanotechnology Fall Symposium*, Yad-Hanadiv, Israel, 2014. **Oral presentation.**

34. **O. Perlman**, A. Katz, G. Amit, and Y. Zigel, "A novel method for atrial electrical activity detection and arrhythmia classification in 12-lead ECG," *Annual Conference of the Israeli Society for Medical and Biological Engineering (ISMBE)*, Haifa, Israel, 2013. **Poster Award, 2nd place**.

35. **O. Perlman**, A. Katz, G. Amit, and Y. Zigel, "A method for atrial activity detection and arrhythmia classification in 12-lead ECG," *The 34th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, San-Diego, USA, 2012.

CHAPTERS IN BOOKS

O. Perlman and H. Azhari: "MRI and ultrasound imaging of nanoparticles for medical diagnosis," *In: Nanotechnology characterization tools for medical diagnosis*, Editor. Challa, SSR Kumar, Publisher: Springer, Berlin, Heidelberg. pp.333 – 365, 2018.

PATENTS

Y. Zigel, A. Katz, **O. Perlman**, N. Weissman, "Separating clinically relevant sources of electrical activity in ECG signals," U.S. Patent No. 9,597,001, 2017.

INVITED TALKS

1. "AI Boosted Molecular MRI", *Bio-Convergence 2030 Conference*, Tel Aviv University, Tel Aviv, Israel, Nov. 2022. Invited by Prof. Natan Shaked.

2. "AI Boosted Molecular MRI", *Aspect Imaging*, Shoham, Israel, July 2022. Host: Dr. Gil Farkash.

3. "Automatic Protocol Design, Acceleration, and Quantification of CEST/MT Imaging," *Stanford RSL Group Meeting*, Department of Radiology, Stanford University, Stanford, CA, USA, May 2022. Host: Prof. Daniel Ennis.

4. "AI Boosted CEST MRI," *Molecular Imaging Labs Meeting*, Martinos Center for Biomedical Imaging, Massachusetts General Hospital and Harvard Medical School, Boston, MA, USA, April 2022. Invited by Prof. Peter Caravan.

5. "Quantitative Imaging of Apoptosis using AI Boosted Molecular Magnetic Resonance Fingerprinting," *Medical Imaging and Case Reports (MICR) 2022*, Virtual, March 2022. Invited by the organizing team.

6. "Machine learning-driven design and acceleration of quantitative molecular imaging methods," *World Molecular Imaging Congress (WMIC)*, Virtual, Oct. 2021. Invited by the organizing committee (Dr. Iris Zhou).

7. "AI boosted molecular MRI," *Insightec Research Division*, Israel, Oct. 2020. (Virtual). Host: Dr. Yoav Levy.

8. "Early detection of tumor apoptotic response to oncolytic virotherapy using deep CEST MR fingerprinting", *ISMRM MR in Drug Research Study Group Meeting*, Aug. 2020. Host: Dr. Rob Janiczek.

9. "Deep CEST MR fingerprinting," *Edmond & Lily Safra Center for Brain Sciences*, Hebrew University of Jerusalem, Israel, Mar. 2020. Host: Assoc. Prof. Aviv Mezer.

10. "Deep CEST MR fingerprinting," *Tel-Aviv University*, Israel, Mar. 2020. Hosts: Prof. Gil Navon & Assis. Prof. Noam Ben-Eliezer.

11. "Deep CEST MR fingerprinting," *Cardiovascular Bioengineering and Biomedical Imaging (CABBI) Seminar Series*, Martinos Center for Biomedical Imaging, Massachusetts General Hospital and Harvard Medical School, Boston, MA, USA, Feb. 2020. Host: Assoc. Prof. David Sosnovik.

12. "Nanoparticles for noninvasive imaging, diagnosis, and therapy," *Nanomedicine Seminar Series*, Northeastern University, Boston, MA, USA, Feb. 2020. Host: Prof. Srinivas Sridhar.

FUNDING

Ministry of Innovation, Science, and Technology, Israel - 117,148 USD 2023-2025
Role: Sole PI

TEACHING EXPERIENCE

Faculty of Biomedical Engineering, Technion - Israel Institute of Technology
TA & Lab Instructor
Principles of Magnetic Resonance Imaging (undergraduate and graduate) *March 2014 - August 2017*
Biomedical Engineering Lab (undergraduate) *November 2013 - August 2017*

Rappaport Faculty of Medicine, Technion – Israel Institute of Technology
In Vivo Imaging (graduate) *September 2015*

Biomedical Engineering Department, Ben-Gurion University of the Negev, Israel
TA & Lab Instructor
Introduction to Signal Processing (undergraduate) *March 2012 - August 2013*
Medical Instrumentation (undergraduate) *October 2012 - February 2013*
Physiological Signal Processing Lab (undergraduate) *October 2012 - February 2013*

Lachman (Kidum) Company, Israel
Psychometric Entrance Test Teacher (Israel equivalent of the SAT) *July 2008 - August 2011*

MENTORSHIP

Dinor Nagar (MSc Student) *Dec 2022 - Present*
Tel Aviv University, School of Electrical Engineering

Yonatan Brand (PhD Student) *Oct 2022 - Present*
Tel Aviv University, Department of Biomedical Engineering
With Prof. Jeffery M. Hausdorff (Tel Aviv Medical Center)

Nikita Vladimirov (PhD Student) *Oct 2022 - Present*
Tel Aviv University, Department of Biomedical Engineering

Inbal Power (MSc Student, Direct Track) *Oct 2022 - Present*
Tel Aviv University, Department of Biomedical Engineering

Jonah Weigand-Whittier (Research Technician, BSc in Physics) *April 2020 - June 2022*
Massachusetts General Hospital
"Generative adversarial networks (GAN) for rapid CEST-MRI analysis"

Rohith Maraka (High School Research Intern) *October 2020 - February 2021*
Massachusetts General Hospital
"Exploring machine-learning-based methods for accelerating molecular MRI"

Venkata Macha (MD Student) *April 2020 - October 2020*
Massachusetts General Hospital
"Deep neural networks for multi-metabolite CEST imaging"

ORGANIZATION OF SCIENTIFIC SESSIONS AT INT. CONFERENCES

O. Perlman *World Molecular Imaging Congress (WMIC)*, Prague, Czech Republic, September 2023. Session Co-Organizer and Sub-Chair, Machine Learning: Basic Developments & Applications.

P. R. Delgado, N. Nystrom, and **O. Perlman** (Session Organizers), "New innovations and alternatives to conventional contrast agents," Member Initiated Symposium, *International Society of Magnetic Resonance in Medicine (ISMRM)*, Virutal, August. 2020.

EDITORIAL ACTIVITIES

Invited Guest Editor *April 2022 - Present*
Bioengineering
Special Issue entitled "AI in MRI: Frontiers and Applications"

Student Editor *January 2016 - March 2018*
IEEE Journal of Translational Engineering in Health and Medicine

JOURNAL PAPERS REVIEW

Public reviewer profile (Publons): https://publons.com/researcher/1378058/or-perlman/

- NeuroImage
- Scientific Reports
- Magnetic Resonance in Medicine
- Journal of Magnetic Resonance Imaging (JMRI)
- NMR in Biomedicine
- Tomography
- IEEE Reviews in Biomedical Engineering
- IEEE Transactions on Biomedical Engineering (TBME)
- IEEE Journal of Biomedical and Health Informatics (J-BHI)
- IEEE Transactions on Automation Science and Engineering (T-ASE)
- Journal of Nanobiotechnology
- Journal of Biomedical Informatics (JBI)
- SN Applied Sciences (Springer)
- Neural Computing and Applications (Springer)

GRANT REVIEW

UK Research and Innovation, Medical Research Council *May 2021*

CONFERENCE REVIEW

Int. Soc. for Magnetic Resonance in Medicine (ISMRM) Annual Meeting *Nov. 2021 - Dec. 2021*

World Molecular Imaging Congress (WMIC), Miami, Florida *May 2021 - August 2021*

MEMBERSHIP IN PROFESSIONAL SOCIETIES

- World Molecular Imaging Society (WMIS), Member
- Institute of Electrical and Electronics Engineers (IEEE), Member
- International Society for Magnetic Resonance in Medicine (ISMRM), Member
- Japan Society for the Promotion of Science (JSPS), HOPE Fellow

INTERNATIONAL WORKING GROUPS

- Standard Operating Procedures for the Creation and Sharing of Phantoms — *February 2022 - Present*
  Reproducible Research Study Group
  International Society for Magnetic Resonance in Medicine (ISMRM)
- Diversity Equity and Inclusion (DEI) Working Group — *July 2022 - Present*
  World Molecular Imaging Society (WMIS)

INSTITUTIONAL RESPONSIBILITIES

- Member, Graduate Student Award Committee — *November 2022*
  Deptartment of Biomedical Engineering, Tel Aviv University
- MSc Dissertation Examiner — *July 2022*
  Sagol School of Neuroscience, Tel Aviv University
- BrainMap Seminar Series Organizer — *Aug. 2020 - June 2022*
  Athinoula A. Martinos Center for Biomedical Imaging
  Massachusetts General Hospital and Harvard Medical School

OUTREACH ACTIVITIES

- Lecturing about molecular imaging for cancer treatment monitoring — *February 2022*
  Beacon Hills Seminars, Beacon Hill, MA, USA
- Engaging with and lecturing preschool children about science, magnets & MRI — *August 2020*
  Cambridge, MA, USA
- Lecturing senior citizens on the physics behind ultrasound, MRI & CT — *July 2018*
  Shomrat, Israel
- Lecturing high school students on medical imaging — *January 2015 - January 2018*
  Technion - Israel Institute of Technology