Or Perlman, PhD

Tel-Aviv University 6997801, Israel

orperlman@tauex.tau.ac.il \diamond +972-3-6409418

 $\label{eq:https://mri-ai.github.io} $$ \ ORCID: 0000-0002-3566-569X $$$

EDUCATION

PhD, Biomedical Engineering Technion - Israel Institute of Technology, Haifa, Israel Mentor: Prof. Haim Azhari	November 2013 - March 2018
MSc (Cum Laude), Biomedical Engineering Ben-Gurion University of the Negev, Beer-Sheva, Israel Mentors: Dr. Yaniv Zigel and Prof. Amos Katz	October 2011 - November 2013
BSc (Cum Laude), Biomedical Engineering Ben-Gurion University of the Negev, Beer-Sheva, Israel	November 2008 - October 2012
PROFESSIONAL EXPERIENCE	
Senior Lecturer (Assistant Professor) Department of Biomedical Engineering Sagol School of Neuroscience Tel Aviv University, Tel Aviv, Israel	July 2022 - Present
Postdoctoral Research Fellow Athinoula A. Martinos Center for Biomedical Imaging Harvard Medical School and Massachusetts General Hospital Mentors: Profs. Christian T. Farrar and Matthew S. Rosen	June 2018 - June 2022
Research Assistant Faculty of Biomedical Engineering Technion - Israel Institute of Technology	January 2018 - June 2018
Visiting Scholar (Graduate Student) Gorter Center for High Field MRI, Department of Radiology Leiden University Medical Center, The Netherlands Host: Prof. Andrew Webb	March 2015
Preclinical MRI Operator and Consultant Biomedical Core Facility Rappaport Faculty of Medicine Technion - Israel Institute of Technology	September 2014 - June 2018
HONORS AND AWARDS	
WMIC Ambassador Program Awardee	September 2024

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WMIC Ambassador Program Awardee	$September\ 2024$
Top-scoring country abstract	
World Molecular Imaging Congress (WMIC) 2024	
Distinguished Reviewer Award Magnetic Resonance in Medicine (MRM)	June 2023
Molecular & Cellular Study Group Competition, 1 st Place International Society for Magnetic Resonance in Medicine (ISMRM)	March 2022

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 November 2019 Marie Skłodowska-Curie Global Fellowship European Union's Horizon 2020 Research and Innovation Programme (See also in Funding) 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) October 2016 - September 2017 Russell Berrie Scholarship in Nanotechnology 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

- 1. A. Finkelstein, N. Vladimirov, M. Zaiss, **O. Perlman**, "Multi-Parameter Molecular MRI Quantification using Physics-Informed Self-Supervised Learning", *Communications Physics*, in press. Preprint: https://doi.org/10.48550/arXiv.2411.06447.
- N. Vladimirov, O. Cohen, H.Y. Heo, M. Zaiss, C.T. Farrar*, O. Perlman*, "Quantitative Molecular Imaging using Deep Magnetic Resonance Fingerprinting," Nature Protocols, 2025. https://doi.org/10.1038/s41596-025-01152-w. *Equal contribution.
- 3. I. Power, M. Rivlin, H. Shmuely, M. Zaiss, G. Navon, **O. Perlman**, "In Vivo Mapping of the Chemical Exchange Relayed Nuclear Overhauser Effect using Deep Magnetic Resonance Fingerprinting," *iScience*, Vol. 27, no. 111209, pp. 1-11, 2024.
- 4. Y. E. Brand, F. Kluge, L. Palmerini, A. Paraschiv-Ionescu, C. Becker, A. Cereatti, W. Maetzler, B. Sharrack, B. Vereijken, A. J. Yarnall, L. Rochester, S. Del Din, A. Muller, A. Buchman, J. M. Hausdorff, O. Perlman, "Self-Supervised Learning of Wrist-Worn Daily Living Accelerometer Data Improves the Automated Detection of Gait in Older Adults", *Scientific Reports*, Vol. 14, no. 20854, pp. 1-15, 2024. https://doi.org/10.1038/s41598-024-71491-3
- 5. F. Kluge, Y. Brand, EM. Amigo, S. Bertuletti, I. D'Ascanio, E Gazit, T. Bonci, C. Kirk, A. Küderle, L. Palmerini, A Paraschiv-Ionescu, F Salis, A Soltani, M Ullrich, L. Alcock, K. Aminian, C. Becker, P. Brown, J. Buekers, A. Carsin, M. Caruso, B. Caulfield, A. Cereatti, L. Chiari, C. Echevarria, B. Eskofier, J. Evers, Garcia-Aymerich, T. Hache, C. Hansen, J. Hausdorff, H. Hiden, E. Hume, A. Keogh, S. Koch, M. Maetzler, D. Megaritis Niessen, O. Perlman, Schwickert L, Scott K., Sharrack B., Singleton D., B. Vereijken B, I. Vogiatzis, A. Yarnall, L. Rocheste, C. Mazzà, S. Del Din, A. Mueller, "Real-world gait detection using a wrist-worn inertial sensor: Validation study," JMIR Formative Research, Vol. 8, pp. e50035, 2024.
- 6. D. Nagar, N. Vladimirov, C. T. Farrar, **O. Perlman**, "Dynamic and Rapid Deep Synthesis of Chemical Exchange Saturation Transfer and Semisolid Magnetization Transfer MRI Signals," *Scientific Reports*, Vol. 13, 18291, 2023. https://doi.org/10.1038/s41598-023-45548-8.
- 7. 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*, Vol. 89, pp. 1901-1914, 2023. *Equal contribution. Top 10% downloaded paper in MRM for 2023.
- 8. M. Rivlin, **O. Perlman**, G. Navon, "Metabolic Brain Imaging with Glucosamine CEST MRI: In Vivo Characterization and First Insights", *Scientific Reports*, Vol. 13, pp. 22030, 2023
- 9. A. Bricco, I. Miralavy, S. Bo, **O. Perlman**, D. Korenchan, C. T. Farrar, M. McMahon, W. Banzhaf, A. Gilad, "A Genetic Programming Approach to Engineering MRI Reporter Genes", *ACS Synthetic Biology*, Vol. 12, No. 4, pp. 1154–1163, 2023.
- 10. 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. **Top 10%** downloaded paper in MRM for 2023.
- 11. 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.
- 12. **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. Top 10 most-cited paper in the journal for 2022-2023.
- 13. 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.
- 14. 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.
- 15. **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.
- 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.
- 17. 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.
- 18. 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.
- 19. **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.
- 20. 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.
- 21. **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.
- 22. 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.
- 23. **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.
- 24. **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. R. Heckel, M. Jacob, A. Chaudhari, **O. Perlman**, Efrat Shimron, "Deep Learning for Accelerated and Robust MRI Reconstruction," *Magnetic Resonance Materials in Physics, Biology and Medicine*, 2024 https://doi.org/10.1007/s10334-024-01173-8.
- 2. 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.

3. O. Perlman, C. T. Farrar, and H. Y. Heo, "MR Fingerprinting for Semisolid Magnetization Transfer and Chemical Exchange Saturation Transfer Quantification," *NMR in Biomedicine*, Vol. 36, No. 6, e4710 pp. 1-22, 2023.

EDITORIAL AND VIEWPOINT PAPERS

- 1. M. Vinay, M. Sakovsky, A. Rizzo, Y. Ghasempour, R. Daw, C. Huang, S. Denholme, A. Behnood, WT. Chen, O. Perlman, A. Vasylchenkova, M. Mastrangeli, S. Rugonyi, J. Raney, "Editors' Choice 2024, "Communications Engineering, Vol. 4, No. 7, pp. 1-7, 2025.
- 2. M. Vinay, L. Sang, J. Tong, **O. Perlman**, R. Daw, C. Galasso, M. Su, L. Tian, A. Vascylchenkova, Y. Chen, C. Huang, "Editors' Choice 2023," *Communications Engineering*, Vol. 2, No. 96, pp. 1-7, 2023.
- 3. E. Shimron, **O. Perlman**, "AI in MRI: Computational Frameworks for a Faster, Optimized, and Automated Imaging Workflow," *Bioengineering*, Vol. 10, No. 4, pp. 492-500, 2023.

PAPERS UNDER REVIEW

- 1. N. Vladimirov, M. Zaiss, **O. Perlman**, "Optimization of pulsed saturation transfer MR fingerprinting (ST MRF) acquisition using the Cramér-Rao bound and sequential quadratic programming," *arXiv* 2025. https://doi.org/10.48550/arXiv.2504.03298.
- 2. E. Goren, B. Subramani, L. Avram, A. Falkovich, **O. Perlman**[#], A. Bar-Shir[#], "Harnessing Dynamic Supramolecular Interactions for Lanthanide Detection via Computational Pattern Recognition of Magnetic Resonance Fingerprints". #Co-corresponding authors.
- 3. D. Nagar, M. Zaiss, **O. Perlman**, "Decoding the human brain tissue response to radiofrequency excitation using a biophysical-model-free deep MRI on a chip framework," arXiv 2024. https://doi.org/10.48550/arXiv.2408.08376.

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. H. Shmuely, M. Rivlin, **O. Perlman**, "Quantification of Glutamate, Mobile Proteins, and Semisolid Macromolecules in a Mouse Parkinson's Model Using AI Boosted MR Fingerprinting", *European Molecular Imaging Meeting*, Bilbao, Spain, March, 2025. **Oral presentation. Short-listed for the Young Investigator Award**
- 2. I. Power, M. Rivlin, M. Zaiss, G. Navon, **O. Perlman**, "Deep Magnetic Resonance Fingerprinting of the Chemical Exchange Relayed Nuclear Overhauser Effect in the Mouse and Human Brain (rNOE-MRF)", CEST Workshop 2024, Nürnberg, Germany, September, 2024. **Oral presentation.**

- 3. D. Nagar, S. Weinmuller, M. Zaiss, **O. Perlman**, "Accelerated Imaging and Quantification of Molecular, Water, and Field Map Parameters using a Biophysical-Model-Free Molecular MRI aided by Transformers", World Molecular Imaging Congress (WMIC) 2024, Montreal Canada, September, 2024. **Oral presentation.**
- A. Finkelstein, N. Vladimirov, M. Zaiss, O. Perlman, "Neural Bloch-McConnell Fitting (NBMF): Physics-Informed Clinical CEST/MT MRF Quantification Network", CEST Workshop 2024, Nürnberg, Germany, September, 2024.
- 5. D. Nagar, M. Zaiss, **O. Perlman**, "Multi-contrast Generation and Quantitative Saturation Transfer, Water, and Field Mapping using a Biophysical-Model-Free Vision Transformer (CESTFormer)", CEST Workshop 2024, Nürnberg, Germany, September, 2024.
- 6. Y. E. Brand, F. Kluge, L. Palmerini, A. Paraschiv-Ionescu, C. Becker, A. Cereatti, W. Maetzler, B. Sharrack, B. Vereijken, A. J. Yarnall, L. Rochester, S. Del Din, A. Muller, A. Buchman, J. M. Hausdorff, O. Perlman, "Automated Gait Detection from a Wrist-Worn Accelerometer in Older Adults using Self-Supervised Learning" *International Conference on Ambulatory Monitoring of Physical Activity and Movement*, France, June, 2024.
- 7. I. Power, M. Rivlin, G. Navon, O. Perlman, "Magnetic Resonance Fingerprinting of the Chemical Exchange Relayed Nuclear Overhauser Effect In Vivo (rNOE-MRF)," *ISMRM Annual Meeting*, Singapore, May, 2024. Oral power pitch presentation. Adams Travel Grant awarded to lead student.
- 8. A. Finkelstein, N. Vladimirov, S. Weinmuller, M. Zaiss, O. Perlman, "Neural Bloch-McConnell Ft-ting (NBMF): unsupervised test-time learning of clinical semisolid MT/CEST MRF reconstruction," *ISMRM Annual Meeting*, Singapore, May, 2024.
- 9. N. Vladimirov, S. Weinmuller, M. Zaiss, O. Perlman, "Clinical Pulsed CEST MRF Optimization using the Cramer-Rao Bound and Sequential Quadratic Programming," *ISMRM Annual Meeting*, Singapore, May, 2024.
- 10. D. Korenchan, O. Perlman, C. T. Farrar, "High-Sensitivity Glutamate Quantification with CEST, Water-Resonant Spin-Locking, and MR Fingerprinting," *Experimental Nuclear Magnetic Resonance Conference (ENC)*, California, USA, April, 2024.
- 11. D. Nagar, N. Vladimirov, **O. Perlman**, "Accelerated and Deep Synthesis of Molecular CEST and Semisolid MT MRI Signals," *World Molecular Imaging Congress (WMIC)*, Prague, Czech Republic, September 2023. **Oral presenation. Adams Travel Grant awarded to lead student**.
- 12. E. goren, L. Avram, B. Subramani, O. Perlman, A. Bar-Shir, "Artificial Intelligence (AI)-based Lanthanide Sensing Utilizing 19 F-Paramagnetic Guest Exchange Saturation Transfer (19 F-ParaGEST) Fingerprinting," Experimental Nuclear Magnetic Resonance Conference (ENC), California, USA, April, 2023.
- 13. P. Schuenke, K. Herz, Z. Zu, N. Yadav, Q. Zeng, M. Heumer, R. Stollberger, J. Xu, K. Wang, G. Romdhane, D. Longo, **O. Perlman**, P. Van Zijl, M. Zaiss, "Validate Your CEST Simulation," *ISMRM Annual Meeting*, Toronto, Canada, USA, June, 2023. **Oral presentation.**
- 14. M. Rivlin, **O. Perlman**, G. Navon, "Towards Metabolic Brain Imaging with Glucosamine CEST MRI: In Vivo Characterization and First Insights," *ISMRM Annual Meeting*, Toronto, Canada, USA June, 2023.
- 15. 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.

- 16. 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.
- 17. 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.
- 18. 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.
- 19. A. R. Briccol, 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.
- 20. 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.
- 21. 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.
- 22. 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.
- 23. 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.
- 24. 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.
- 25. 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.
- 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.
- 27. 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.
- 28. **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.**
- 29. 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.
- 30. 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.
- 31. 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.
- 32. **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.
- 33. 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.
- 34. 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.
- 35. 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.
- 36. 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.
- 37. 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
- 38. 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.
- 39. 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.
- 40. **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.
- 41. **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.

- 42. 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.
- 43. 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.
- 44. **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.
- 45. **O. Perlman**, I. S. Weitz, and H. Azhari, "Potential medical applications of ultra small copper oxide nanoparticles," *NanoBio&Med*, Barcelona, Spain, 2017.
- 46. **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.
- 47. **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**.
- 48. **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.
- O. Perlman, D. Nagar, "Method and system for generating magnetic resonance images", U.S. Provisional Patent Application no. 63/682,812, 2024.

INVITED TALKS AT CONFERENCES

- 1. "AI-Based Interventions Along the Molecular MRI Pipeline: The Quest for Speed, Specificity, and Histological Fidelity", *Israeli MR Annual Meeting 2025*, Haifa, Israel, January, 2025. Invited by the organizing committee.
- 2. "AI-Based Interventions Along the MRI Pipeline: The Quest for Rapid and Quantitative Metabolic Brain Imaging", *The 4th Annual Conference of the Center for AI and Data Science*, Tel Aviv, Israel, March, 2025. Invited by the organizing committee.
- 3. "AI-Based Interventions Along the CEST MR-Fingerprinting Pipeline: The Quest for Speed, Specificity, and Histological Fidelity", CEST Workshop 2024, Nürnberg, Germany, September, 2024. Invited by the organizing committee. **Keynote presentation.**
- 4. "The molecular treasure hunt: Navigating MRI and AI with n=0 subjects on the trail," Moonshot-MED Kickoff Symposium, Clalit Innovation and Edmond Safra Center for Bionformatics", Tel Aviv, Israel. April 2024. Invited by Profs. Elhanan Borenstein and Rani Gilad-Bachrach.

- 5. "Machine-learning-based early intervention and automation of the imaging pipeline," World Molecular Imaging Congress (WMIC), AI Spotlight Session, Prague, Czech Republic, Sep. 2023. Invited by Prof. John D. Hazle.
- 6. "AI Boosted Molecular MRI", *Bioconvergence 2030*, Tel Aviv, Israel, Nov. 2022. Invited by Prof. Natan Shaked.
- 7. "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.
- 8. "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).
- 9. "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.

INVITED TALKS AT UNIVERSITIES

- 1. "AI-Based Interventions Along the Molecular MRI Pipeline: The Quest for Speed, Specificity, and Histological Fidelity," *Weizmann Institute of Science MR Seminar Series*, Rehovot, Israel. June 2024. Invited by Prof. Amnon Bar Shir.
- 2. "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.
- 3. "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.
- 4. "Deep CEST MR fingerprinting," Edmond & Lily Safra Center for Brain Sciences, Hebrew University of Jerusalem, Israel, Mar. 2020. Host: Assoc. Prof. Aviv Mezer.
- 5. "Deep CEST MR fingerprinting," *Tel-Aviv University*, Israel, Mar. 2020. Hosts: Profs. Gil Navon and Noam Ben-Eliezer.
- 6. "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.
- 7. "Nanoparticles for noninvasive imaging, diagnosis, and therapy," *Nanomedicine Seminar Series*, Northeastern University, Boston, MA, USA, Feb. 2020. Host: Prof. Srinivas Sridhar.

INVITED TALKS AT THE INDUSTRY

- 1. "AI Boosted Molecular MRI", Aspect Imaging, Shoham, Israel, July 2022. Host: Dr. Gil Farkash.
- 2. "AI boosted molecular MRI," *Insightec Research Division*, Israel, Oct. 2020. (Virtual). Host: Dr. Yoav Levy.

FUNDING

European Research Council (ERC) STG - 1,497,669 Euro

2024 - 2029

Horizon Europe, European Commission

Duration: 60 months

Role: Sole PI

United States - Israel Binational Science Foundation (BSF) - 300,00 Duration: 48 months Role: PI (with Dr. Moriel Vandsburger)	0 USD 2024 - 2028
Ministry of Innovation, Science, and Technology, Israel - 499,823 NI Duration: 36 months Role: Co-Investigator (PIs: Dr. Eli Karniel, Prof. Mickey Scheinowitz)	S 2024 - 2026
Moonshot-Med (TAU-Clalit) - 260,000 NIS Duration: 24 months Role: PI (with Dr. Rotem Sivan-Hoffman and Prof. Gil Navon)	2024 - 2026
Alrov Center for Digital Medicine - 100,000 NIS Duration: 12 months Role: PI (with Dr. Hadar Kolb)	2024 - 2025
Halperin-Bernstein Esther Fund - 35,000 NIS Duration: 18 months Role: Co-Investigator (PI: Prof. Dafna Ben-Bashat)	2024 - 2025
TAD Center for AI and Data Science Seed Grant - 10,000 NIS Duration: 12 months Role: PI (with Professor Jeffrey Haussdorf)	2024
Ministry of Innovation, Science, and Technology, Israel - 399,962 NI Duration: 36 months Role: Sole PI	S 2023 - 2025
The Blavatnik AI and Data Science fund - 200,000 NIS Duration: 24 months Role: PI (with Professor Gil Navon)	2023 - 2024
Marie Skłodowska-Curie Global Fellowship - 269,998 Euro European Union's Horizon 2020 Research and Innovation Programme Duration: 36 months Role: Sole PI	2019 - 2023
TEACHING EXPERIENCE	
Biomedical Engineering Department, Tel Aviv University, Israel	
Lecturer In Vivo Mol. Imaging: Selected Topics and Computational Analysis (graduate Introduction to Data Science (undergraduate) Systems & Methods for Physiological Signal Processing (undergrad and grad)	e) Nov 2024 - Present May 2024 - Present March 2023 - Present
Faculty of Biomedical Engineering, Technion - Israel Institute of Tec TA & Lab Instructor Principles of Magnetic Resonance Imaging (undergraduate and graduate) Monday Biomedical Engineering Lab (undergraduate) Novem	
Rappaport Faculty of Medicine, Technion – Israel Institute of Technin In Vivo Imaging (graduate)	oology September 2015
Biomedical Engineering Department, Ben-Gurion University of the	Negev, Israel
Medical Instrumentation (undergraduate) October	arch 2012 - August 2013 er 2012 - February 2013 er 2012 - February 2013

Lachman (Kidum) Company, Israel

Psychometric Entrance Test Teacher (Israel equivalent of the SAT)

July 2008 - August 2011

MENTORSHIP

Arie Shkolnikov (PhD Student)

July 2024 - Present

Department of Biomedical Engineering, Tel Aviv University With Prof. Jeffery M. Hausdorff (Tel Aviv Medical Center)

Prof. Nir Giladi Legacy Scholarship Awardee

Sahar Ifrah (MSc Student)

Nov. 2024 - Present

Department of Biomedical Engineering, Tel Aviv University

Ron Montea (MSc Student)

Nov. 2024 - Present

Sagol School of Neuroscience, Tel Aviv University

Ruth Beh Chaim (MSc Student)

Nov. 2024 - Present

Sagol School of Neuroscience, Tel Aviv University

Yaniv Yosha (MSc Student)

Oct. 2024 - Present

Department of Electrical Engineering, Tel Aviv University Cancer Biology Research Center Travel Grant Awardee, 2025

Hagar Shmuely (MSc Student)

Oct. 2023 - Present

Department of Biomedical Engineering, Tel Aviv University Aufzien Family Center for the Prevention and Treatment of Parkinson's Disease (APPD) Travel Award Recipient, 2025

Alex Finkelstein (PhD Student)

May 2023 - Present

Department of Biomedical Engineering, Tel Aviv University

Yonatan Brand (PhD Student)

Oct 2022 - Present

Department of Biomedical Engineering, Tel Aviv University With Prof. Jeffery M. Hausdorff (Tel Aviv Medical Center) Aufzien Family Center for the Prevention and Treatment of Parkinson's Disease (APPD) Scholarship Awardee, 2024-2025 Herczeg Institute of Aging Excellence Award Recipient, 2024

Nikita Vladimirov (PhD Student)

Oct 2022 - Present

Department of Biomedical Engineering, Tel Aviv University

Inbal Power (Direct Track MSc, Cum Laude)

Oct 2022 - Oct 2024

Department of Biomedical Engineering, Tel Aviv University

Adams Travel Grant Recipient, 2024

Thesis title: "In Vivo mapping of the chemical exchange relayed nuclear

Overhauser effect using deep magnetic resonance fingerprinting (rNOE MRF)"

Dinor Nagar (MSc, Summa Cum Laude)

Dec 2022 - Aug. 2024

School of Electrical Engineering, Tel Aviv University

Adams Travel Grant Recipient, 2023

Thesis title: "Development of Deep Learning-Based Methods

for Molecular Magnetic Resonance Imaging"

ORGANIZATION OF SCIENTIFIC SESSIONS AT INT. CONFERENCES

World Molecular Imaging Congress (WMIC) 2024, Montreal, Canada Session Co-Organizer: "Machine Learning: Developments & Applications".

September 2024

World Molecular Imaging Congress (WMIC) 2023, Prague, Czech Republic

September 2023

Session Co-Organizer: "Machine Learning: Basic Developments & Applications".

International Society of Magnetic Resonance in Medicine (ISMRM), Virtual

Aug. 2020

Member Initiated Synposium

Session Co-Organizer: "New innovations and alternatives to conventional contrast agents".

SCIENTIFIC SESSION CHAIR AT INT. CONFERENCES

World Molecular Imaging Congress (WMIC), Prague, Czech Republic

September 2023

Session: "Improved Images and Insights with Machine Learning".

EDITORIAL ACTIVITIES

Editorial Board Member

July 2023 - Present

Communications Engineering (Nature Portfolio)

Invited Guest Editor

April 2022 - February 2023

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
- · Journal of Gerontology: Medical Sciences
- · Neural Computing and Applications

GRANT COMMITTEE PANEL MEMBER

Israel Ministry of Science and Technology (MOST)

Sep. 2023 - Nov. 2023

GRANT REVIEW

Czech Health Research Council, Ministry of Health of the Czech Republic

October 2024

UK Research and Innovation (UKRI), Medical Research Council

May 2021

CONFERENCE REVIEW

World Molecular Imaging Congress (WMIC), Czech Republic, Prague

May 2023

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

CEST Study Group Quantification Committee Member
 International Society for Magnetic Resonance in Medicine (ISMRM)
 Diversity Equity and Inclusion (DEI) Working Group
 World Molecular Imaging Society (WMIS)
 Standard Operating Procedures for the Creation and Sharing of Phantoms
 Reproducible Research Study Group
 International Society for Magnetic Resonance in Medicine (ISMRM)

NATIONAL COMMITTEE SERVICE

Academic Committee Sep. 2023 - Present Israel Society for Medical and Biological Engineering (ISMBE)

INSTITUTIONAL/ACADEMIC RESPONSIBILITIES

· MSc Dissertation Examiner January 2025 Sagol School of Neuroscience Tel Aviv University · MSc Dissertation Examiner September 2024 Department of Industrial Engineering Tel Aviv University · PhD Dissertation Examiner April 2024 Department of Biomedical Engineering Tel Aviv University · PhD Dissertation Examiner May 2024 Department of Biomedical Engineering Technion - Israel Institute of Technology · MSc Dissertation Examiner September 2023 Department of Biomedical Engineering Tel Aviv University

MSc Dissertation Examiner
 Faculty of Biomedical Engineering
 Technion - Israel Institute of Technology
 Member, Graduate Student Award Committee
 Deptartment of Biomedical Engineering, Tel Aviv University
 MSc Dissertation Examiner
 Sagol School of Neuroscience, Tel Aviv University
 School of Electrical Engineering, 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

Technion - Israel Institute of Technology

· Engaging with and lecturing preschool children about science	August 2024
Gefen Preschool, Shomrat, Western Galilee, Israel	
· 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 &	z 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