

Exponent®
Engineering & Scientific Consulting

Michael Levine, Ph.D.

Managing Scientist | User Sciences
Natick
+1-508-652-8550 | mlevine@exponent.com

Professional Profile

Dr. Michael A. Levine is an Imaging Scientist with over 9 years of experience, specializing in clinical applications. Integrating the fields of Healthcare, Mathematics, and Software Development, Dr. Levine works to craft and deliver analytical solutions to human-centered problems.

Prior to joining Exponent, Dr. Levine was a Research Fellow at Harvard University and Massachusetts General Hospital in the Athinoula A. Martinos Center for Biomedical Imaging, where he developed tools to process and analyze data from simultaneous Positron Emission Tomography and Magnetic Resonance Imaging systems. His research focused on the use of mathematical modeling to track neurotransmitter release in the human brain. He used both acquired data and simulations to quantify sources of measurement bias and reduced them using novel compartmental modeling approaches. He also developed methods for unifying PET- and MR-based estimates of head motion, crafted large multifaceted pipelines for image data analysis, and implemented specialized methods for PET image reconstruction and transmission mode acquisition. Dr. Levine has software development experience working with MATLAB, Python, R, Bash, and Git.

Prior to his graduate work, Dr. Levine held a Research Assistantship at Massachusetts General Hospital where he analyzed dynamic contrast MRI in support of clinical trials in neuro-oncology. He also held an Internship in Biomedical Engineering at Children's Hospital Boston where he gained hands-on experience determining the failure mechanisms of a variety of clinical devices.

Dr. Levine received his Ph.D. in Biophysics from Harvard University in 2020 and his B.S. in Bioengineering from Clemson University in 2012.

Academic Credentials & Professional Honors

Ph.D., Biophysics, Harvard University, 2020

B.S., Bioengineering, Clemson University, 2012

Prior Experience

Postdoctoral Research Fellow, Massachusetts General Hospital 2020-2022

Predoctoral Research Fellow, Harvard University, 2013-2020

Research Assistant, Massachusetts General Hospital 2010-2013

Biomechanical Equipment Technician, Children’s Hospital Boston, 2010

© 2026 Exponent, Inc. All Rights Reserved

Publications

Levine, M. A., Mandeville, J.B., Calabro, F., Izquierdo-Garcia, D., Chonde, D.B., Chen, K.T., Hong, I., Price, J.C., Luna, B. Catana, C. (2022). Assessment of Motion and Model Bias on the Detection of Dopamine Response to Behavioral Challenge. Journal of Cerebral Blood Flow and Metabolism.

Mandeville J.B., Levine, M.A., Arsenault, J.T., Vanduffel, W., Rosen, B.R., Sander, C.Y. (2021) A reference tissue forward model for improved PET accuracy using dynamic displacement studies. Journal of Cerebral Blood Flow and Metabolism.

Catana, C., Laforest, R. et al. (2021). A Path to Qualification of PET/MR Scanners for Multicenter Brain Imagaing Studies: Evaluation of MR-based Attenuation Correction Methods Using a Patient Phantom. Journal of Nuclear Medicine.

Veronese, M et al. (2021). Reproducibility of findings in modern PET neuroimaging: insight from the NRM2018 Grand Challenge. Journal of Cerebral Blood Flow and Metabolism.

Levine, M. A. (2020). Characterization and Mitigation of Bias in Parametric Mapping of Reward-Induced Dopamine Release Using Simultaneous Positron Emission Tomography and Magnetic Resonance Imaging. Harvard University.

Chen K.T., Salcedo S., Chonde D.B., Izquierdo-Garcia, D., Levine, M. A., Price, J. C., Dickerson, B. C., Catana, C. (2018). MR-assisted PET motion correction in simultaneous PET/MRI studies of dementia subjects. J Magn Reson Imaging.

Bowen, S. L., Fuin, N., Levine, M. A., & Catana, C. (2016). Transmission imaging for integrated PET-MR systems. Physics in Medicine and Biology 61(15), 5547.

Prentice-Mott, H. V., Meroz, Y., Carlson, A., Levine, M. A., Davidson, M. W., Irimia, D., . . . Shah, J. V. (2016). Directional memory arises from long-lived cytoskeletal asymmetries in polarized chemotactic cells. Proceedings of the National Academy of Sciences 113(5), 1267-1272

Gerstner, E. R., Ye, X., Duda, D. G., Levine, M. A., Mikkelsen, T., Kaley, T. J., . . . Grossman, S. (2015). A phase I study of cediranib in combination with cilengitide in patients with recurrent glioblastoma. Neuro Oncol, 17(10), 1386-1392.

Presentations

Levine, M.A., Mandeville, J.B., Calabro, F.J., Price, J.C., Luna, B., Catana, C. (2021) Reducing Model Bias in Mesurement of Dopamine Response to Behavioral Challenge. Paper presented at Neuroreceptor Mapping, Montreal

Levine, M.A., Mandeville, J.B., Calabro, F.J., Price, J.C., Luna, B., Catana, C. (2020) Assessment of Model Bias Upon Detection of Dopamine Response to Challenge. Paper presented at Neuroreceptor Mapping, Montreal.

Levine, M.A., Mandeville, J.B., Price, J.C., Catana, C. (2019). Assessment of Model Bias Upon Detection of Dopamine Response to Challenge. Paper presented at ISMRM-SNMMI co-provided workshop on PET/MRI. New York.

Levine, M.A., Chonde, D.B., Chen, K.T., Izquierdo-Garcia, D., Catana, C. (2017). Unification of PET and MR-based Head Motion Estimates for PET Motion Correction. Paper presented at ISMRM-SNMMI co-provided workshop on PET/MRI. Chicago.

Levine, M. A., Polaskova, P., Sprinkhuizen, S. M., Stufflebeam, S. M., Rosen, B. R., Kalpathy-Cramer, J.,

& Gerstner, E. R. (2013). Inter-Vendor Variability in Apparent Diffusion Coefficient Values. Paper presented at the International Society of Magnetic Resonance in Medicine, Salt Lake City.

Additional Education & Training

Certificate in Applied Biostatistics, Harvard Catalyst, 2020

Peer Reviews

NeuroImage