

Danyal F. Bhutto

PATENT AGENT

Patents and
Innovations
Boston

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FOCUS AREAS

Artificial Intelligence and
Machine Learning
Biotech
Diagnostics, Life Science
Tools, and Deep Tech
Digital Health
Intellectual Property
Patents and Innovations
Software

EXPERIENCE

Dr. Danyal Bhutto is a patent agent in the Boston office of Wilson Sonsini Goodrich & Rosati and a member of the firm's patents and innovations practice group. His work focuses on patent prosecution across the fields of artificial intelligence, medical devices, medical imaging, diagnostics, software, and digital health.

Prior to joining the firm, Danyal was a postdoctoral research fellow at Harvard Medical School, where he developed machine learning-driven tools for real-time neuro-navigation and functional mapping using transcranial magnetic stimulation, with clinical applications in stroke and bipolar disorder, under the supervision of Aapo Nummenmaa. Danyal earned his Ph.D. in biomedical engineering from Boston University and was awarded the National Science Foundation Graduate Research Fellowship. He completed his doctoral work at Massachusetts General Hospital and the Athinoula A. Martinos Center for Biomedical Imaging under the supervision of Matthew S. Rosen. His research focused on deployable AI for solving inverse problems in physics and biomedical imaging applications, including the development of uncertainty estimation methods for deep learning-based MRI and CT image reconstruction. Earlier in his career, Danyal was a research scientist at Johns Hopkins University Applied Physics Laboratory, where he conducted artificial intelligence and imaging research.

CREDENTIALS

Education

- Postdoctoral Research Fellow, Harvard Medical School, 2026
- Ph.D., Biomedical Engineering, Boston University, 2024
- B.S., Bioengineering, University of Louisville, 2018

Admissions

- U.S. Patent and Trademark Office

INSIGHTS

Select Publications

- Co-author with N.R. Reed, M.J. Turner, D.M. Daly, S.M. Oliver, J. Tang, K.S. Olsson, N. Langellier, M.J.H. Ku, M.S. Rosen, and R.L. Walsworth, "Machine learning for improved current-density reconstruction from two-dimensional vector magnetic images," *23(3) Physical Review Applied* 034035, 2025
- Co-author with B. Zhu, J.Z. Liu, N. Koonjoo, H.B. Li, B.R. Rosen, and M.S. Rosen, "Uncertainty estimation and out-of-distribution detection for deep learning-based image reconstruction using the local Lipschitz," *28(9) IEEE Journal of Biomedical and Health Informatics* 5422-5434, 2024
- Co-author with D.E.J. Waddington, N. Hindley, N. Koonjoo, C. Chiu, T. Reynolds, P.Z.Y. Liu, B. Zhu, C. Paganelli, P.J. Keall, and M.S. Rosen, "Real-time radial reconstruction with domain transform manifold learning for MRI-guided radiotherapy," *50(4) Medical Physics* 1962-1974, 2023

- Co-author with N. Koonjoo, B. Zhu, G.C. Bagnall, and M.S. Rosen, “Boosting the signal-to-noise of low-field MRI with deep learning image reconstruction,” 11(1) *Scientific Reports* 8248, 2021
- Co-author with E.M. Murphy, M.C. Priddy, C.C. Centner, J.B. Moore IV, R. Bolli, and J.A. Kopechek, “Effect of molecular weight on sonoporation-mediated uptake in human cells,” 44(12) *Ultrasound in Medicine & Biology* 2662-2672, 2018

TECHNICAL FLUENCY

Engineering and Technology

- AI
- Computer science
- Machine learning
- Statistics

Diagnostics and Medical Devices

- Bioinformatics
- Biomedical devices
- Biomedical engineering
- Brain stimulation
- Diagnostics
- Digital pathology
- Medical devices
- Medical imaging
- Neuroimaging

Miscellaneous

- Physics
- Psychology