



John M. Boone, Ph.D.

Research/Academic Interests

John M Boone PhD is professor of radiology at the University of California, Davis, and holds an appointment in the department of biomedical engineering as well. He received his undergraduate degree in biophysics at UC Berkeley and finished his graduate work in medical physics at the University of California Irvine. He is board-certified by the American Board of Radiology in diagnostic radiological physics.

Dr. Boone has many research interests including computed tomography dosimetry, quantitative metrics for image quality assessment, cone beam CT system design, multi-x-ray source imaging systems, and computer modeling of imaging systems. He has focused recently on breast dosimetry and on the development of breast computed tomography (bCT) for breast cancer screening and diagnostic evaluation. His lab has designed, fabricated and tested four prototype breast CT scanners, and over 1000 breast scans have been performed on these systems. His research on breast CT has focused on technical development, clinical assessment, observer performance and clinical translation.

Dr. Boone is co-author of the medical imaging textbook, the Essential Physics of Medical Imaging, and is a commissioner of the International Commission on Radiation Units (ICRU). He is a fellow of the American Association of Physicists in Medicine (AAPM), the American College of Radiology (ACR), the Society of Breast Imaging (SBI), the American Institute for Medical and Biological Engineering (AIMBE), and the Society of Photo-optical Instrumentation Engineering (SPIE). He served as President of the American Association of Physicists in Medicine in 2016, and chaired this organization's Board of Directors in 2016.

Title	Professor
Specialty	Mammography
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Division	Radiology Physics
Center/Program Affiliation	UC Davis Comprehensive Cancer Center
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Education M.S., UC Irvine, Irvine CA 1981
Ph.D., Philosophy, UC Irvine, Irvine CA 1985
B.A., UC Berkeley, Berkeley CA 1979

Fellowships Research, Health Care Affiliates, Inc., Laguna Hills CA 1983-1985

Board Certifications American Board of Medical Physics - Diagnostic Radiology - Diplomate, 1991
American Board of Radiology - Diagnostic Radiological Physics - Diplomate, 1988

Professional Memberships American Association of Physicists in Medicine (Fellow)
American College of Radiology (Fellow)
American Institute for Medical and Biological Engineering (Fellow)
American Institute of Physics
International Society of Photo Optical Engineers (Fellow)
Radiologic Society of North America
Sigma Xi
Society of Breast Imaging (Fellow)

Honors and Awards AAPM Coolidge Gold Medal Award, 2019
Fellow, Society of Photo-optical Instrumentation Engineers (SPIE), 2017
Fellow, American Institute for Medical and Biological Engineering (AIMBE), 2016
Journal Club selection, American Journal of Roentgenology (Corwin, et al.), 2016
Best Paper of the Year, Medical Physics (Hernandez A, et al.), 2015
Distinguished Investigator Award, Academy of Radiology Research, 2015
Deans TEAM Award for Collaborative Research, 2015
Best Paper of the Year, Medical Physics (Chen L, et al.), 2012

Select Recent Publications Abbey CK, Samuelson FW, Zeng R, Boone JM, Eckstein MP, Myers K. Template models for forced-localization tasks. Medical Imaging 2019: Image Perception, Observer Performance, and Technology Assessment; 2019: International Society for Optics and Photonics: 1095206.

Boone JM, Becker AE, Hernandez AM, Dobbins III JT, Schwoebel P. Multi-x-ray source array for stationary tomosynthesis or multi-cone angle cone beam CT. Medical Imaging 2019: Physics of Medical Imaging; 2019: International Society for Optics and Photonics: 109480U.



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Daskalov S, Okkalidis N, Boone JM, et al. Anthropomorphic Physical Breast Phantom Based on Patient Breast CT Data: Preliminary Results. Mediterranean Conference on Medical and Biological Engineering and Computing; 2019: Springer, Cham: 367-374.

Partain L, Benedict S, Kim N, et al. Comparisons of 6 fps volume-rendered x-ray digital tomosynthesis TumoTrak-guided to 2D-MRI-guided radiotherapy of lung cancer. Medical Imaging 2019: Physics of Medical Imaging; 2019: International Society for Optics and Photonics: 109483L.

Abbey C, Samuelson F, Zeng R, Boone J, Eckstein M, Myers K. Observer adaptation to unnatural CT-like noise textures. Journal of Vision. 2019;19:121-121.

Abbey CK, Bakic PR, Pokrajac DD, Maidment AD, Eckstein MP, Boone JM. Evaluation of non-Gaussian statistical properties in virtual breast phantoms. Journal of Medical Imaging. 2019;6:025502.

Aminololama-Shakeri S, Abbey CK, López JE, et al. Conspicuity of suspicious breast lesions on contrast enhanced breast CT compared to digital breast tomosynthesis and mammography. The British Journal of Radiology. 2019;92:20181034.

Ghazi P, Hernandez AM, Abbey C, Yang K, Boone JM. Shading artifact correction in breast CT using an interleaved deep learning segmentation and maximum likelihood polynomial fitting approach. Medical Physics. 2019.

Hardy AJ, Bostani M, Hernandez AM, et al. Estimating a size-specific dose for helical head CT examinations using Monte Carlo simulation methods. Medical Physics. 2019;46:902-912.

He Y, Liu Y, Dyer BA, et al. 3D-printed breast phantom for multi-purpose and multi-modality imaging. Quantitative Imaging in Medicine and Surgery. 2019;9:63.



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