

Kai Yang, Ph.D.

Clinical Interests

My focus of research is on advanced imaging technology for cancer detection, diagnosis, and surgical guidance. I have spent the past 8 years working in Dr. John M. Boone's research lab where we have been engaged in the design, development, and evaluation of flat-panel based cone beam computed tomography (CT) for dedicated breast imaging applications in order to improve the early detection of breast cancer.

I have also been closely involved in the on-going clinical trials related to breast cancer imaging, involving various imaging modalities such as breast CT, breast PET/CT, breast tomosynthesis, and multiple imaging tasks such as early detection of breast cancer, staging of breast cancer, response study of breast cancer from neoadjuvant treatment.

Recently, I have been focusing on using an advanced 3D imaging technique, micro-CT, for surgical guidance. Currently a two-dimensional x-ray radiograph of a lumpectomy specimen is routinely used to intra-operatively evaluate the completeness of tumor removal by visual analysis. This limited technology is the primary cause of a 20 to 40 percent incidence of second lumpectomy surgeries nationwide. We propose to develop a high resolution three dimensional CT system to image breast tumor specimens during a lumpectomy surgery. We hypothesize that prompt, high resolution, and three dimensional image data will provide breast surgeons and radiologists the ability to more accurately delineate margins of excised breast lesions thereby reducing the lumpectomy re-excision rate.

Title Assistant Adjunct Professor

Specialty [Cancer](#), Medical Physics, Radiology Physics

Department Radiology

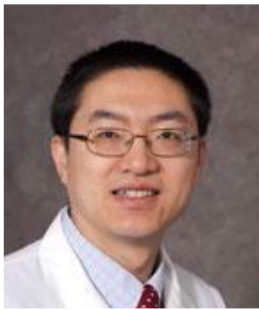
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Languages Chinese (Mandarin)



Kai Yang, Ph.D.

Education Ph.D., UC Davis, Davis, California, 2007

B.Sc., Tsinghua University, Beijing, China, 2000

Professional Memberships Early Career Professional Member, The International Society for Optics and Photonics (SPIE)

Junior Member, American Association of Physicists in Medicine (AAPM)

Select Recent Publications

McKenney, A. Nosratieh, D.E. Gelskey, K. Yang, S.-Y. Huang, L. Chen, and J.M. Boone, Experimental validation of a method characterizing bow tie filters in CT scanners using a real-time dose probe, *Med. Phys.* 38, 1406-1415

J.M. Boone, K. Yang, G.W. Burkett, N.J. Packard, S.Y. Huang, S. Bowen, R.D. Badawi, and K.K. Lindfors, An X-Ray computed tomography/positron emission tomography system designed specifically for breast imaging, *Technol Cancer Res Treat.* 2010 Feb; 9(1):29-44

K. Yang, S.-Y. Huang, N.J. Packard, and J.M. Boone, Noise variance analysis using a flat panel x-ray detector: A method for additive noise assessment with application to breast CT applications, *Med. Phys.* 37, 3527-3537

S. L. Bowen, Y. Wu, A. J. Chaudhari, L. Fu, N. J. Packard, G. W. Burkett, K. Yang, K. K. Lindfors, D. K. Shelton, R. Hagge, A. D. Borowsky, S.R. Martinez, J. Qi, J. M. Boone, S. R. Cherry and R. D Badawi, Initial characterization of a dedicated breast PET/CT scanner during human imaging, *Journal of Nuclear Medicine* 50, 1401-1408 (Front cover paper for September issue)

Y. Wu, S. L. Bowen, K. Yang, N. Packard, L. Fu, G. Burkett Jr, J. Qi, J. M. Boone, S. R. Cherry and R. D Badawi, PET characteristics of a dedicated breast PET/CT scanner prototype, *Phys. Med. Biol.* 54, 4273-4287

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