Wanyi Fu | Curriculum Vitae

2424 Erwin Road, Durham, NC, 27705 612-516-0413 wanyi.fu@duke.edu

Education

Ph.D. of Electrical and Computer Engineering — Duke University, Durham, NC — Expected May 2020
Advisor: Ehsan Samei
Relevant Coursework: Pattern classification and recognition, Signal detection and extraction

Master of Science in Electrical and Computer Engineering — Duke University, Durham, NC — May 2016
Advisor: Ehsan Samei
Relevant Coursework: Machine learning, Computer vision, Algorithm, data structure in C++, Digital signal processing, Image and video processing

Bachelor of Electrical Engineering — University of Minnesota, Twin Cities, Minneapolis, MN — May 2014
Relevant Coursework: DSP design, Multi-rate signal processing, Integrated circuit design

Bachelor of Electronic and information Engineering — Beijing Jiaotong University, China — May 2014

Academic experiences

Research Assistant, Carl E. Ravin, Advanced Imaging Lab, Duke University — Dec 2014 - now
- Developed frameworks for patient-specific dosimetry and image quality for CT
- Performed automated organ segmentation and deformation
- Performed Monte Carlo based organ dosimetry for CT
- Designed and simulated a breast dose reduction device for chest CT
- Developed tools to display CT with improved image quality

Significant Course Projects, Duke University — Sep 2014 – May 2015
- Performed classification of whale vocalization using deep learning
- Performed microscopy images segmentation
- Applied compressed sensing image reconstruction algorithm to CT

Research Assistant, Center for Neuromodulation Research, University of Minnesota — July 2013 – May 2014
- Performed biomedical signal processing for deep brain stimulation
- Performed statistical analysis on EEG signal to recognize patterns

Refereed journal publications

J1. **Fu W**, Marin D, Ramirez-Giraldo JC, Choudhury KR, Solomon JB, Schabel C, Patel BN, Samei E. Optimizing window settings for improved presentation of virtual monoenergetic images in dual-energy computed tomography. *Medical Physics* 44(11), 5686-5696, 2017.

J2. **Fu W**, Sturgeon GM, Agasthya G, Segars WP, Kapadia AJ, Samei E. Breast dose reduction with organ-based, wide-angle tube current modulated CT. *Journal of Medical Imaging* 4(3), 031208-031208, (Featured on cover) 2017.

J3. **Fu W**, Tian X, Sturgeon G, Agasthya G, Segars WP, Goodsitt MM, Kazerooni EA, Samei E. CT breast dose reduction with the use of breast positioning and organ-based tube current modulation. *Medical Physics* 44(2), 665-678, 2017.

J4. Bellini D, Gupta S, Ramirez-Giraldo JC, **Fu W**, Stinnett SS, Patel B, Mileto A, Marin D, "Use of a noise optimized monoenergetic algorithm for patient-size independent selection of an optimal energy level during dual-energy CT of the pancreas." J Comput Assist Tomogr, 41(1), 39-47, (2016)

J5. Marin D, Ramirez-Giraldo JC, Gupta S, **Fu W**, Stinnett SS, Mileto A, Bellini D, Patel B, Samei E, Nelson RC. Effect of a noise-optimized second-generation monoenergetic algorithm on image noise and conspicuity of hypervascular liver tumors: an in vitro and in vivo study. *AJR* 206(6): 1222-1232, 2016.

Refereed full-length proceedings papers

P1. **Fu W**, Segars WP, Abadi E, Sharma S, Kapadia AJ, Samei E. From patient-informed to patient-specific organ dose estimation in clinical computed tomography. SPIE International Symposium on Medical Imaging, Huston, TX, February 2018, *Proc. SPIE Medical Imaging*, 2018.

P2. Sharma S, Kapadia AJ, Abadi E, **Fu W**, Segars WP, Samei E. A rapid GPU-based Monte-Carlo simulation tool for individualized dose estimations in CT. SPIE International Symposium on Medical Imaging, Huston, TX, February 2018, *Proc. SPIE Medical Imaging*, 2018.

P3. **Fu W**, Sturgeon GM, Agasthya G, Segars WP, Samei E. Estimation of breast dose reduction potential for organ-based tube current modulated CT with wide dose reduction arc. SPIE International Symposium on Medical Imaging, Orlando, FA, February 2017, *Proc. SPIE Medical Imaging*, 2017.

P4. **Fu W**, Tian X, Sahbaee P, Zhang Y, Segars WP, Samei E. Estimation of organ dose under tube current modulated CT for 58 patients across diverse protocols. SPIE International Symposium on Medical Imaging, San Diego, CA, February-March 2016, *Proc. SPIE Medical Imaging* 9783, 2016.

P5. **Fu W**, Tian X, Segars WP, Goodsitt M, Kazerooni E, Samei E. Evaluation of the dose reduction potential using a breast positioning technique for organ-based tube current modulated CT examinations. SPIE International Symposium on Medical Imaging, San Diego, CA, February-March 2016, *Proc. SPIE Medical Imaging* 9783, 2016.

Conference presentations

A1. **Fu W**, Segars WP, Choudhury K, Kapadia AJ, Ria F, Wilson J, Samei E. Comprehensive implementation of patient-informed organ dose estimation for adult, pediatric and pregnant patients in clinical computed tomography. Accepted for presentation (oral) at Annual Meeting of the American Association of Physicists in Medicine (AAPM), Nashville, TN, Aug. 2018.

A2. **Fu W**, Choudhury K, Kapadia AJ, Segars WP, Samei E. Uncertainties in convolution-based organ dose estimation in tube-current modulated CT. Presented (oral) at Annual Meeting of the American Association of Physicists in Medicine (AAPM), Denver, CO, Aug. 2017.

A3. **Fu W**, Segars WP, Kapadia AJ, Samei E. CT dose in pregnancy: organ dose and fetal dose under various gestational ages and maternal sizes. Presented (oral) at Annual Meeting of the American Association of Physicists in Medicine (AAPM), Denver, CO, Aug. 2017.

A4. Hoye J, Zhang Y, **Fu W**, Abad E, Ria F, Kapadia AJ, Segars WP, Samei E. Organ dose estimation for CT localizer images. Presented (oral) at Annual Meeting of the American Association of Physicists in Medicine (AAPM), Denver, CO, Aug. 2017.

A5. Hoye J, Zhang Y, **Fu W**, Sahbaee P, Kapadia AJ, Segars WP, Samei E. A smartphone application for organ dose estimation in CT, Tomosynthesis, and Radiography. Presented (oral) at Annual Meeting of the American Association of Physicists in Medicine (AAPM), Denver, CO, Aug. 2017.

A6. **Fu W**, Marin D, Ramirez-Giraldo J, Bellini D, Bashir MR, Samei E. Improving readers' perception of image quality at low keV virtual monoenergetic images using patient-specific optimized display window settings. Presented (oral) at Annual Meeting of the Radiological Society of North America, Chicago, IL, Nov. 2016.

A7. Marin D, Giraldo -Ramirez JC, Gupta S, Stinnett S, Nelson RC, Mileto A, **Fu W**, Samei E,. Patient Size-independent Monoenergetic Imaging for Detection Hypervascular Liver Tumors: Impact of a Second-generation Monoenergetic Algorithm. Presented (poster) at Annual Meeting of the Radiological Society of North America, Chicago, IL, Nov. 2015.

Skills

Computer
Python, C++, Fortran, C, Matlab, Java, Assembly, Linux

Language
Fluent in English and Mandarin Chinese

Activities and Awards

Teaching assistant, Random signals and noise, Duke University, Fall, 2017

Student research competition winner, Health Physics Society North Carolina Chapter, 2017

Member, PRATTically Speaking Toastmasters Club, Toastmasters, 2016 - Now

Electrical and Computer Engineering Department representative, GPSC, Duke University, 2016-2017

Career service committee, Duke Chinese Student and Scholar Association, 2016-2017

Tutor, Electrical and Computer Engineering graduate course, Duke University, Fall, 2015

Jebsen Scholarship, Jebsen Group, Hong Kong, 2007-2013