CURRICULUM VITAE
University of Alabama at Birmingham
School of Medicine Faculty

Date: July 28, 2023

PERSONAL INFORMATION:

Name:	**Yu-Hua "Dean" Fang, Ph.D.**
Citizenship:	Taiwan
Foreign Language(s):	Chinese, Mandarin
Home Address:	2132 Woodhue Circle Vestavia Hills, AL 35216
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RANK/TITLE:	**Associate Professor, tenure earning** **Division of Advanced Medical Imaging and Research**
Department:	Radiology
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HOSPITAL AND OTHER (NON-ACADEMIC) APPOINTMENTS:

UAB School of Medicine, Birmingham AL	2019 - present

EDUCATION:

Institution	**Degree**	**Year**
Case Western Reserve University	Ph.D.	2009
National Yang Ming University, Taiwan	M.Sc.	2002
National Chiao Tung University	B.Sc.	2000

BOARD CERTIFICATION:

POSTDOCTORAL TRAINING:

Year	**Degree**	**Institution**
2009-2011	Fellowship, Division of Nuclear Medicine and Molecular Imaging	Massachusetts General Hospital and Harvard Medical School, Boston, MA , USA

ACADEMIC APPOINTMENTS:

Year	**Rank/Title**	**Institution**
2019 - present	Associate Professor of Radiology	UAB, School of Medicine Birmingham, AL
2018- 2019	Associate Professor, Department of Biomedical Engineering	National Cheng Kung University Tainan, Taiwan
2015 - 2018	Assistant Professor, Department of Biomedical Engineering	National Cheng Kung University Tainan, Taiwan

2013 - 2015	Assistant Professor, Department of Electrical Engineering	Chang Gung University Taoyuan City, Taiwan
2011 - 2013	Research Fellow (Assistant Professor Level), Molecular Imaging Center	Chang Gung Memorial Hospital Taoyuan City, Taiwan

AWARDS/HONORS:

Graduate Dean's Instructional Excellence Award, Case Western Reserve University	2007
Faculty Award for Excellence in Student Mentoring and Counseling, National Cheng Kung University	2016
Best Oral Presentation Award, International Forum on Medical Imaging in Asia (IFMIA)	2017
Silver Medal, IFMBE-sponsored Student Design Competition, World Congress on Medical Physics and Biomedical Engineering, Prague (as faculty advisor)	2018
Faculty Award for Teaching Excellence, National Cheng Kung University	2018
Best Paper Award, International Forum on Medical Imaging in Asia (IFMIA)	2019
Bronze Medal, Student Design Competition, Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) 2019 Annual conference (as faculty advisor)	2019

PROFESSIONAL SOCIETIES:

Associate Editor, *Journal of Medical and Biological Engineering*	2015 - present
Board Member, Taiwanese Society of Biomedical Engineering	2018 - 2019
Member, Taiwanese Society of Biomedical Engineering	2017 - present
Member, American Association of Medical Physicists	2020 - present

MAJOR RESEARCH INTEREST:

- Imaging informatics for precision medicine and translational research
- Kinetic modeling analysis
- Medical image quantification and feature extraction
- Machine learning and deep learning in imaging informatics
- Computer-assisted diagnosis, image interpretation and outcome prediction
- Multi-modality medical image processing, mainly in PET, SPECT, CT, and MR
- GPU- and cloud-based computing
- Molecular imaging in pre-clinical and clinical applications

TEACHING EXPERIENCE:

Courses offered in Biomedical Engineering, National Cheng Kung University in 4 years:

- Introduction to Computer Science (undergraduate, 4 semesters)
- Programming Languages (undergraduate, 4 semesters)
- Digital Image Processing (undergraduate, 3 semesters)
- Electronics I (undergraduate, 1 semester), Electronics II (undergraduate, 1 semester)
- Introduction to Biomedical Engineering and Laboratory (jointly offered, undergraduate, 6 semesters)

Courses offered in Electrical Engineering, Chang Gung University in 1.5 years:

- Data Structure (undergraduate, 1 semester)
- Numerical Methods (undergraduate, 2 semesters)
- Programming Languages (undergraduate, 1 semester)
- Digital Image Processing (jointly offered, graduate, 1 semester)
- Scientific Writing (PhD, 1 semester)

OTHER:

GRANT SUPPORT: (PAST AND CURRENT):

National Institute of Health (NIH), USA 1/4/2004 – 3/31/2007
R33: COMKAT:COMPARTMENT MODEL KINETIC ANALYSIS/IMAGING
(Role: Graduate research assistant. Assistance in data analysis, proposal preparation)

National Institute of Health (NIH), USA 1/9/2009–8/31/2011
R01: Quantitative Dual Isotope ECT
(Role: Post-doctoral research fellow. Assistance in data analysis, proposal preparation)

Chang Gung Medical Foundation, Taiwan 1/2/2012 – 12/31/2013
Treatment of the myocardial infarction with Baculovirus-transduced, VEGF-expressing adipose-derived stem cell sheets
(Role: PI)

Chang Gung Medical Foundation, Taiwan 1/6/2012 – 5/31/2015
Measuring the coronary flow reserve with a single-scan rest/stress study under CZT SPECT cameras
(Role: PI)

Ministry of Science and Technology, Taiwan 1/8/2012 – 2/31/2014
Evaluation of reperfusion injury and its therapeutic strategies with molecular imaging techniques
(Role: PI)

Ministry of Science and Technology, Taiwan 1/8/2013 – 7/31/2015
Quantification of intra-tumoral heterogeneity with molecular imaging: software development, optimization and evaluation for clinical impacts
(Role: PI)

Chang Gung Medical Foundation, Taiwan 1/1/2014 – 12/31/2016
Program proposal: Establishment of a translational research platform for the integrated, whole-body and simultaneous PET/MR scanner (as co-PI)
Sub-project IV: Software development of novel and advanced image analysis for simultaneous PET/MR data
(Role: PI)

Ministry of Science and Technology, Taiwan 1/8/2015 – 7/31/2017
An open-source software package for fully automatic processing of SPECT images with advanced image processing technologies
(Role: PI)

Ministry of Science and Technology, Taiwan 1/8/2015 – 7/31/2016
A model to prediction the patient outcome for the oropharyngeal cancer: information integration of FDG-PET, immunoassays and clinical factors.
(Role: Co-PI)

National Cheng Kung University Hospital, Taiwan 1/1/2017 – 12/31/2017
Microstructural analysis for the vertebral endplate and its canal network
(Role: Co-PI)

Ministry of Science and Technology, Taiwan 1/8/2017 – 7/31/2018
Development of a cloud- and GPU-based image reconstruction system for cone-beam computed tomography
(Role: PI)

Ministry of Science and Technology, Taiwan 1/8/2018 – 7/31/2020
Fully automatic reconstruction for the vertebral body structures of the spine with ultra-low-angle image reconstruction using generative adversarial networks
(Role: PI)

Recent Funding:

Radiology Research Imaging Pilot Award
Department of Radiology, University of Alaba 7/1/2022 – 6/30/2023
PET imaging of neuroinflammation in patients with neurological dysfunction after SARS-CoV-2
(Role: PI)

Inventions:n/a

Scientific Journal Reviewer:

Reviewer, Journal of Nuclear Medicine	2011-present
Reviewer, IEEE Transactions on Medical Imaging	2013-present
Reviewer, PLOS ONE	2014-present
Reviewer, Physics in Medicine and Biology	2011-present
Reviewer, Computers in Medicine and Biology	2017-present
Reviewer, Journal of Applied Clinical Medical Physics	2018-present
Reviewer, Computational and Mathematical Methods in Medicine	2018-present

BIBLIOGRAPHY:

Manuscripts already published:

1. **Fang YH**, Perucho JU, Chiu SC, Lin YC, McConathy J. Prediction of MCI-to-AD progression with atrophy-weighted standard uptake value ratios of 18F-Florbetapir PET. *medRxiv*, 2023-03. [Link]
2. Yacoubian TA, **Fang YH**, Gerstenecker A, Amara A, Stover N, Ruffrage L., ... & Standaert DG. Brain and systemic inflammation in de novo PARKINSON'S Disease. Movement Disorders, 38(5): 743-754, 2023. [Link]
3. **Fang YH**, McConathy JE, Yacoubian TA, Zhang Y, Kennedy RE, Standaert, DG. Image Quantification for TSPO PET with a Novel Image-Derived Input Function Method. Diagnostics, 12(5), 1161, 2022. [Link]
4. Yang CJ, Lin CL, Wang CK, Wang JY, Chen CC, Su FC, Lee YJ, Lui CC, Yeh LR, **Fang YH** (corresponding author). Generative Adversarial Network (GAN) for Automatic Reconstruction of the 3D Spine Structure by Using Simulated Bi-Planar X-ray Images. *Diagnostics*, *12*(5), 1121, 2022. [Link]
5. Lin CY, Yen YT, Huang LT, Chen T, Liu YS, Tang SY, Huang WL, Chen YY, Lai CH, **Fang YH,** Chang CC, Tseng YL. An MRI-Based Clinical-Perfusion Model Predicts Pathological Subtypes of Prevascular Mediastinal Tumors. *Diagnostics*, *12*(4), 889, 2022. [Link]
6. Yang CJ, Wang CK, **Fang YH**, Wang JY, Su FC, Tsai HM, Lin YJ, Tsai HW, Yeh L R. Clinical application of mask region-based convolutional neural network for the automatic detection and segmentation of abnormal liver density based on hepatocellular carcinoma computed tomography datasets. *Plos one*, *16*(8), e0255605, 2021. [Link]
7. Raman F, **Fang YH**, Grandhi S, Murchison CF, Kennedy RE, Morris JC, Massoumzadeh P, Benzinger T, Roberson E, McConathy J. Dynamic Amyloid PET: Relationships to Flortaucipir Tau PET Measures. *Journal of Nuclear Medicine*, 2021. [Link]
8. Cheng NM, Hsieh CE, **Fang YH**, Liao CT, Ng SH, Wang HM, Chou WC, Lin CY , Yen TC. Development and validation of a prognostic model incorporating [18 F] FDG PET/CT radiomics for patients with minor salivary gland carcinoma. *EJNMMI research*, *10*(1), 1-12, 2020. [Link]
9. Cheng NM, Hsieh CE, Liao CT, Ng SH, Wang HM, **Fang YH**, Chou WC, Lin CY, Yen TC. Prognostic Value of Tumor Heterogeneity and SUVmax of Pretreatment 18F-FDG PET/CT for Salivary Gland Carcinoma with High-Risk Histology, 44(5): 351-358, 2019. [Link]
10. Wang CK, **Fang YH**, Lin LC, Lin CF, Kuo LC, Chiu FM, Chen CH. Magnetic Resonance Elastography in the Assessment of Acute Effects of Kinesio Taping on Lumbar Paraspinal Muscles. *Journal of Magnetic Resonance Imaging*, 49(4): 1039-1045, 2019. [Link]
11. Lin Y, **Fang YH (co-first author)**, Wu G, Jones S, Prayson R, Moosa A, Overmyer M, Bena J, Gingaman W, Gonzalez-Martinez J, Najm I, Alexopoulos A, Wang, Z. Quantitative-PET-guided MRI Post-processing in MRI-negative Epilepsies. Elipesia, 59(8):1583-1594, 2018. [Link]
12. Ho KC, **Fang YH**, Lin G, Ueng SH, Wu TI, Lai CH, Chueh HY, Chao A, Chang TC, Yen TC. Presurgical identification of uterine smooth muscle malignancies through the characteristic FDG uptake pattern on PET scans. Contrast Media & Molecular Imaging, Volume 2018, Article ID 7890241, 10 pages, 2018. [Link]
13. Cheng NM, **Fang YH (co-first author)**, Tsan DL, Lee LY, Chang J, Wang HM, Ng SH, Liao CT, Yang LY, Yen TC. Heterogeneity and irregularity of pretreatment 18f-fluorodeoxyglucose positron emission tomography improved prognostic stratification of p16-negative high-risk squamous cell carcinoma of the oropharynx. Oral Oncology, Vol. 78, 156-162, 2018. [Link]
14. **Fang YH**, Su TP, Chang CJ, Ho KC, Su M, Yen TC. Detecting triple-vessel disease with cadmium zinc telluride-based single photon emission computed tomography using the intensity signal-to-noise ratio between rest and stress studies. Contrast Media & Molecular Imaging, Vol. 2017, Article ID 4945680, 8 pages, 2017. doi:10.1155/2017/4945680. [Link]

15. **Fang YH**, Liu YC, Ho KC, Kuo FC, Yang CF, Yen TC, Hsieh IC. Single-scan rest/stress imaging with ^{99m}Tc-Sestamibi and cadmium zinc telluride-based SPECT for hyperemic flow quantification: A feasibility study evaluated with cardiac magnetic resonance imaging. PLoS ONE. 12(8): e0183402, 2017. https://doi.org/10.1371/journal.pone.0183402. [Link]
16. Chan SC, Chang KP, **Fang YH**, Tsang NM, Ng SH, Hsu CL, Liao CT, Yen TC. Tumor heterogeneity measured on F-18 fluorodeoxyglucose positron emission tomography/computed tomography combined with plasma Epstein-Barr virus load predicts prognosis in patients with primary nasopharyngeal carcinoma. The Laryngoscope. 127:E22–E28, 2017. [Link]
17. Ho KC, **Fang YH**, Chung HW, Yen TC, Ho TY, Chou HH, Hong JH, Huang YT, Wang CC, Lai CH. A preliminary investigation into textural features of intratumoral metabolic heterogeneity in 18F-FDG PET for overall survival prognosis in patients with bulky cervical cancer treated with definitive concurrent chemoradiotherapy. American Journal of Nuclear Medicine and Molecular Imaging. 6(3): 166–175, 2016. [Link]
18. Ho KC, **Fang YH**, Chung HW, Liu YC, Chang WC, Hou MM, Yang CT, Cheng NM, Su TP, Yen TC. TLG-S criteria are superior to both EORTC and PERCIST for predicting outcomes in patients with metastatic lung adenocarcinoma treated with erlotinib. European Journal of Nuclear Medicine and Molecular Imaging. Nov; 43:2155:2165, 2016. [Link]
19. Nguyen DH, Chou PY, Hsieh YH, Momeni A, **Fang YH**, Patel KM, Yang CY, Cheng MH. Quantity of lymph nodes correlates with improvement in lymphatic drainage in treatment of hind limb lymphedema with lymph node flap transfer in rats. Microsurgery. Mar; 36(3):236-245, 2016. [Link]
20. Cheng NM, **Fang YH**, Tsan DL, Hsu CH, Yen TC. Respiration-Averaged CT for Attenuation Correction of PET Images - Impact on PET Texture Features in Non-Small Cell Lung Cancer Patients. PLoS ONE. Mar 1;11(3):e0150509, 2016. [Link]
21. Wang HM, Cheng NM, Lee LY, **Fang YH**, Chang JT, Tsan DL, Ng SH, Liao CT, Yang LY, Yen TC. Heterogeneity of 18F-FDG PET combined with expression of EGFR may improve the prognostic stratification of advanced oropharyngeal carcinoma. International Journal of Cancer. Feb; 138(3): 731-738, 2016. [Link]
22. **Fang YH**, Chiu SC, Lu CS, Yen TC, Weng YH. Fully automated quantification of the striatal uptake ratio of [^{99m}Tc]-TRODAT with SPECT imaging: Evaluation of the diagnostic performance in Parkinson's Disease and the temporal regression of striatal tracer uptake. Biomed Research International, Vol. 2015, Article ID 461625, 11 pages, 2015. [Link]
23. Cheng NM, **Fang YH**, Lee LY, Chang JT, Tsan DL, Ng SH, Wang HM, Liao CT, Yang LY, Hsu CH, Yen TC. Zone-size nonuniformity of 18F-FDG PET regional textural features predicts survival in patients with oropharyngeal cancer. European Journal of Nuclear Medicine and Molecular Imaging. Mar; 42(3): 419-428, 2015. [Link]
24. Tsai YJ, Huang HM, **Fang YH**, Chang SI, Hsiao IT. Acceleration of MAP-EM algorithm via over-relaxation. Computerized Medical Imaging and Graphics. Mar; 40: 100-107, 2015. [Link]
25. Yen TC, Visvikis D, Pan T, **Fang YH**. Biomedical Imaging: Role and Opportunities of Medical Imaging in the "-omics" Era (Editorial). BioMed Research International. Vol. 2014, Article ID 930213, 2 pages, 2014. [Link]
26. Yang CY, Nguyen DH, Wu CW, **Fang YH**, Chao KT, Patel KM, Cheng MH. Developing a Lower Limb Lymphedema Animal Model with Combined Lymphadenectomy and Low-dose Radiation. Mar; 2(3): e121, 6 pages, 2014. PRS Global Open. [Link]
27. **Fang YH**, Lin CY, Shih MJ, Wang HM, Ho TY, Liao CT, and Yen TC. Development and evaluation of an open-source software package for quantifying tumor heterogeneity with

molecular images. BioMed Research International, vol. 2014, Article ID 248505, 9 pages, 2014. doi:10.1155/2014/248505 [Link]

28. Yeh TS, **Fang YH (co-first author)**, Lu CH, Chiu SC, Yeh CL, Yen TC, Parfyonova Y and Hu YC. Baculovirus-transduced, VEGF-expressing Adipose-derived Stem Cell Sheet for the Treatment of Myocardium Infarction. Biomaterials. Jan; 35: 174-184, 2014 [Link]
29. Lu CH, Yeh TS, Yeh CL, **Fang YH**, Sung LY, Lin SY, Yen TC, Chang YH and Hu YC. Regenerating Cartilages by Engineered ASCs: Prolonged TGF-β3/BMP-6 Expression Improved Articular Cartilage Formation and Restored Zonal Structure. Molecular Therapy. Jan; 22(1): 186-195, 2014 [Link]
30. Su KH, Yen TC, **Fang YH (corresponding author)**. A novel approach for direct reconstruction of parametric images for myocardial blood flow from PET imaging. Medical Physics. Oct; 40(10):102505-1 - 102505-12, 2013. [Link]
31. Cheng NM, **Fang YH (co-first author)**, Chang JT, Huang CG, Tsan DL, Ng SH, Wang HM, Lin CY, Liao CT and Yen TC. Texture features of pretreatment 18F FDG PET/CT images: prognostic significance in patients with advanced T-stage oropharyngeal squamous cell carcinoma. Journal of Nuclear Medicine. Oct; 54(10):1703-9, 2013. [Link]
32. Cheng NM, **Fang YH** and Yen TC. The Promise and Limits of PET Texture Analysis. Annals of Nuclear Medicine. Nov; 27(9):867-9, 2013. [Link]
33. Alpert NM, **Fang YH (co-first author)**, El Fakhri G. Single-scan rest/stress imaging 18F-labeled flow tracers. Medical Physics. Nov; 39(11):6609-6620, 2012. [Link]
34. **Fang YH**, Becker A, El Fakhri G, Alper NM. Variance reduction of parametric images with Bayesian estimation: validation studies with 11C-Altropane PET studies. Neuroimage. May; 61(1):131-138, 2012. [Link]
35. **Fang YH**, Asthana P, Salinas C, Huang HM, Muzic RF Jr. Integrated software environment based on COMKAT for analyzing tracer pharmacokinetics with molecular imaging. Journal of Nuclear Medicine. Jan;51(1):77-84, 2010. [Link]
36. **Fang YH**, Muzic RF Jr. Spillover and partial-volume correction for image-derived input functions for small-animal 18F-FDG PET studies. Journal of Nuclear Medicine. Apr;49(4):606-14, 2008. [Link]
37. Hsiao CH, Kao T, **Fang YH**, Wang JK, Guo WY, Chao LH, Yen SH. System integration and DICOM image creation for PET-MR fusion. Journal of Digital Imaging. Mar;18(1):28-36, 2005. [Link]
38. **Fang YH**, Kao T, Liu RS, Wu LC. Estimating the input function non-invasively for FDG-PET quantification with multiple linear regression analysis: simulation and verification with in vivo data. European Journal of Nuclear Medicine and Molecular Imaging. May;31(5):692-702, 2004. [Link]
39. **Fang YH**, Kao T, Wu LC, Liu RS. Quantitative Analysis of 11C-acetate in Nasopharyngeal Carcinoma with Positron Emission Tomography. Journal of Medical and Biological Engineering. 23(3): 97-102, 2004. [Link]
40. Wu LC, Kao T, **Fang YH**, Liu RS. Development of FDG-PET quantitative procedures without blood sampling. International Congress Series. 1265: 85-92, 2004. [Link]