Kuang Gong, Ph.D.

1275 Center Drive, Biomedical Sciences Building J393, Gainesville, FL 32610
Office Phone: (352)-294-5344 Email: kgong@bme.ufl.edu
Google scholar: https://scholar.google.com/citations?user=zc6kc4kAAAAJ&hl=en

WORK EXPERIENCE

Assistant Professor, Aug. 2023- present
J. Crayton Pruitt Family Department of Biomedical Engineering
University of Florida

Affiliated faculty, Department of Radiology, Aug. 2023- present
Massachusetts General Hospital, Harvard Medical School

Assistant Professor, Department of Radiology, Jun. 2022- Aug. 2023
Massachusetts General Hospital, Harvard Medical School

Instructor, Department of Radiology, Sep. 2019- May 2022
Massachusetts General Hospital, Harvard Medical School

Postdoctoral Fellow, Department of Radiology, Sep. 2018-Aug. 2019
Massachusetts General Hospital, Harvard Medical School

EDUCATION

Ph.D., Biomedical Engineering Sep. 2018
University of California at Davis, Davis, CA
Advisor: Prof. Jinyi Qi

M.S., Statistics Dec. 2015
University of California at Davis, Davis, CA

B.E., Information Science & Electrical Engineering Jun. 2011
Zhejiang University, Hangzhou, China

RESEARCH AWARDS AND HONORS

2021	Bruce H. Hasegawa Young Investigator Medical Imaging Science Award	The IEEE Nuclear & Plasma Sciences Society
2020	Summa Cum Laude Merit Award (first author)	The International Society for Magnetic Resonance in Medicine
2019	HAI2020 Young Investigator Travel Scholarship	2020 Human Amyloid Imaging Conference
2019	2nd place PIDSC Young Investigator Award	Society of Nuclear Medicine and Molecular Imaging
2017	Featured article (first author)	IEEE Transactions on Medical Imaging
2016	Featured article (first author)	Physics in Medicine and Biology

2016	Summer Graduate Student Researcher Award	University of California Davis
2013	Fully 3D Image Reconstruction Conference Travel Award	Fully 3D Conference Committee
2014, 2015	IEEE NSS/MIC Conference Travel Award	IEEE NSS/MIC Committee
2011	UC Davis Earle C Anthony Fellowship	University of California Davis

FUNDING INFORMATION

Current

2022-2027 Optimization of Tau PET Imaging for Alzheimer's Disease through Deep Learning-Based Image Reconstruction
NIH: R01 AG078250
*Role: **Principal Investigator** (Direct costs: $1,422,565)*
The goal of this project is to develop deep learning-based image reconstruction for static, longitudinal, and dynamic tau PET imaging to enable better diagnosis and treatment monitoring of Alzheimer's Disease (AD).

Completed

2020-2023 Correction of Partial Volume Effects in PET for Alzheimer's Disease Using Unsupervised Deep Learning
NIH: R21AG067422
*Role: **Principal Investigator** (Direct costs: $275,000)*
The goal of this project is to develop deep learning-based partial volume correction method for tau PET imaging, to enable better diagnosis of AD.

2020-2023 Optimization of PET Image Reconstruction for Lesion Detection
NIH: R03EB030280
*Role: **Principal Investigator** (Direct costs: $100,000)*
The goal of this project is to develop deep learning-based PET image reconstruction for ^{68}Ga-DOTATATE PET imaging to enable better patient management of neuroendocrine tumors (NETs).

2022-2023 Center for Molecular Imaging Technology and Translation (CMITT)
NIH: P41 EB022544
*Role: **Co-Investigator** (PI: Georges El Fakhri)*
This P41 center grant aims to develop advanced PET and MR imaging methods to improve disease diagnosis and treatment monitoring.

2022-2023 Methods for Quantitative Neuroimaging of Tau Burden in Pre-symptomatic AD
NIH : R01AG076153
*Role: **Co-Investigator** (PI: Georges El Fakhri & Marc D. Normandin)*
This goal of this grant aims to utilize deep learning strategies to gain new insights into the spreading of tau and to predict this progression in individual subjects.

TEACHING ACTIVITIES

Spring 2024 (scheduled)	Undergraduate Course BME4531*: Medical Imagining* University of Florida *Role:* ***Instructor***
2023 (scheduled)	*Short course* "Medical image reconstruction - from foundations to AI IEEE Nuclear Science Symposium & Medical Imaging Conference, Vancouver, Canada *Role:* ***Instructor***
2022	Graduate-level Course HST 565*: Medical Imaging Sciences and Applications* Massachusetts Institute of Technology/Harvard Medical School *Role:* ***Guest lecturer***
2020	*Short course on Artificial Intelligence in Medical Imaging* IEEE Nuclear Science Symposium & Medical Imaging Conference, Boston MA *Role:* ***Instructor***
2020	*PET/MRI Continuing Education Webinar*, Society of Nuclear Medicine and Molecular Imaging *Role:* ***Instructor***
2013	Graduate-level Course BIM 281: *Acquisition and Analysis of Biomedical Signals* Department of Biomedical Engineering, UC Davis *Role:* ***Teaching Assistant***

JOURNAL PAPERS

1. **Gong K**, Johnson AK, El Fakhri G, Li Q, Pan T, PET image denoising based on denoising diffusion probabilistic models, *European journal of nuclear medicine and molecular imaging, 2023, accepted.*
2. Li G, Chen J, Jang S, **Gong K**, Q Li, *SwinCross: Cross-modal Swin Transformer for Head-and-Neck Tumor Segmentation in PET/CT Images, Medical Physics, 2023, accepted.*
3. Tiss A, Marin T, Chemli Y, **Gong K**, Lois C, Petibon Y, Landes V, Grogg K, Normandin M, Spangler-Bickell M, Becker A, Thibault E, Johnson K, El Fakhri G, Ouyang J, Impact of motion correction on [18F]-MK6240 tau PET imaging, *Physics in medicine & biology, 2023, in press*.
4. Li S, **Gong K**, Badawi R, Kim E, Qi J, Wang G. Neural KEM: A Kernel Method with Deep Coefficient Prior for PET Image Reconstruction. *IEEE Transactions on Medical Imaging, 2022, in press.*
5. Cui J*, **Gong K***, N Guo, K Kim, Liu H, Li Q. Unsupervised PET Logan Parametric Image Estimation Using Conditional Deep Image Prior. *Medical Image Analysis, 2022 Aug 1;80:102519.*
6. Cui J*, **Gong K***, Han P, Liu H, Li Q. Unsupervised Arterial Spin Labeling Image Super-Resolution via Multi-Scale Generative Adversarial Network. *Medical Physics, 2022 Apr;49(4):2373-85.*
7. **Gong K**, Catana C, Qi J, Li Q. Direct Reconstruction of Linear Parametric Images from Dynamic PET Using Nonlocal Deep Image Prior, *IEEE Transactions on Medical Imaging, 2021 Oct 15;41(3):680-9.*
8. **Gong K**, K Kim, J Cui, D Wu and Q Li, The Evolution of Image Reconstruction in PET: From Filtered Back-Projection to Artificial Intelligence. *PET clinics. 2021 Oct 1;16(4):533-42.*
    - Invited review paper.

9. Xie N*, **Gong K*,** Guo N, Qin Z, Wu Z, Liu H, Li Q. Rapid High-Quality PET Patlak Parametric Image Generation based on Direct Reconstruction and Temporal Nonlocal Neural Network, *NeuroImage. 2021 Oct 15;240:118380.*
10. Cui J*, **Gong K***, Guo N, Wu C, Kim K, Liu H, Li Q. Populational and individual information based PET image denoising using conditional unsupervised learning. *Physics in Medicine & Biology. 2021 Jul 19;66(15):155001.*
11. **Gong K***, Wu D*, Arru C, et al, A Multi-Center Study of COVID-19 Patient Prognosis Using Deep Learning-based CT Image Analysis and Electronic Health Records, *European Journal of Radiology, 2021 Jun 1;139:109583.*
    - Reported in auntminnie.
12. Xie N*, **Gong K*,** Guo N, Qin Z, Wu Z, Liu H, Li Q. Penalized-likelihood PET Image Reconstruction Using 3D Structural Convolutional Sparse Coding, *IEEE Transactions on Biomedical Engineering, 2020, in press*
13. **Gong K***, Han P*, Johnson K, El Fakhri G, Ma C, Li Q. Attenuation Correction Using Deep Learning and Integrated UTE/Multi-Echo Dixon Sequence: Evaluation in Amyloid and Tau PET Imaging. *European journal of nuclear medicine and molecular imaging. 2021 May;48(5):1351-61.*
14. Wu D*, **Gong K***, Arru C, et al. Severity and Consolidation Quantification of COVID-19 from CT Images Using Deep Learning Based on Hybrid Weak Labels. *IEEE Journal of Biomedical and Health Informatics. 2020 Oct 12;24(12):3529-38.*
15. Kim K, **Gong K**, Moon S, El Fakhri G, Normandin M, Li Q. Penalized Parametric PET Image Estimation using Local Linear Fitting. *IEEE Transactions on Radiation and Plasma Medical Sciences. 2020 Sep 15;4(6):750-8.*
16. **Gong K**, Yang J, Larson P, Behr S, Hope T, Seo Y, and Li Q. MR-based Attenuation Correction for Brain PET Using 3D Cycle-Consistent Adversarial Network. *IEEE Transactions on Radiation and Plasma Medical Sciences. 2020 Jul 3;5(2):185-92.*
17. Xie Z, Baikejiang B, Li T, Zhang X, **Gong K**, Zhang M, Qi W, Asma E, and Qi J. Generative adversarial network based regularized image reconstruction for PET. *Physics in Medicine & Biology. 2020 Jun 19;65(12):125016.*
18. Han P, Horng D, **Gong K**, Petibon Y, Kim K, Li Q, Johnson K, El Fakhri G, Ouyang J, Ma C. MR-Based PET Attenuation Correction using Ultrashort Echo Time/Multi-Echo Dixon Acquisitions. *Medical Physics. 2020 Jul;47(7):3064-77.*
    - Chosen as **Editor's Choice**.
19. **Gong K***, Han P*, El Fakhri G, Ma C, Li Q. Arterial Spin Labeling MR Image Denoising and Reconstruction Using Unsupervised Deep Learning, *NMR in Biomedicine. 2019 Dec 22:e4224.*
20. Guo Z, Guo N, **Gong K**, Zhong S, Li Q. Gross Tumor Volume Segmentation for Head and Neck Cancer Radiotherapy using Deep Dense Multi-Modality Network. *Physics in Medicine & Biology*. 2019 Oct 16;64(20):205015.
21. **Gong K***, Berg E*, Cherry S and Qi J. Machine Learning in PET: from Photon Detection to Quantitative Image Reconstruction. *Proceedings of the IEEE. 2019 Sep 19;108(1):51-68.*
    - Invited review paper.
22. Cui J*, **Gong K***, Guo N, Meng X, Kim K, Zheng K, Wu Z, Fu L, Xu B, Zhu Z, Tian J, Liu H, Li Q, PET image denoising using unsupervised deep learning. *European journal of nuclear medicine and molecular imaging*. 2019 Dec 1;46(13):2780-9.
23. Stolin A, Jaliparthi G, Raylman RR, Brefczynski-Lewis J, Majewski S, Qi J, **Gong K**, Dolinsky S. Evaluation of Hamamatsu PET imaging modules for dedicated TOF-capable scanners. *IEEE Transactions on Radiation and Plasma Medical Sciences*. 2019 Nov;3(6):634-39.
24. **Gong K**, Catana C, Qi J, Li Q. PET Image Reconstruction Using Deep Image Prior. *IEEE transactions on medical imaging*. 2019 July; 38(7):1655-65.
25. **Gong K**, Guan J, Liu CC, Qi J. PET Image Denoising Using a Deep Neural Network Through Fine Tuning. *IEEE Transactions on Radiation and Plasma Medical Sciences.* 2018 Oct 23;3(2):153-61.

26. **Gong K**, Guan J, Kim K, Zhang X, Yang J, Seo Y, El Fakhri G, Qi J, Li Q. Iterative PET image reconstruction using convolutional neural network representation. *IEEE transactions on medical imaging*. 2018 Sep 12; 38(3):675-85.
27. Chen KT, Salcedo S, **Gong K**, Chonde DB, Izquierdo-Garcia D, Drzezga AE, Rosen B, Qi J, Dickerson BC, Catana C. An Efficient Approach to Perform MR-assisted PET Data Optimization in Simultaneous PET/MR Neuroimaging Studies. *Journal of Nuclear Medicine*. 2019 Feb 1;60(2), pp.272-278.
28. **Gong K**, Yang J, Kim K, El Fakhri G, Seo Y, Li Q. Attenuation Correction for Brain PET imaging using Deep Neural Network based on Dixon and ZTE MR images. *Physics in Medicine & Biology*. 2018 Jun 13; 63(12), p.125011.
29. Kim K, Wu D, **Gong K**, Dutta J, Kim JH, Son YD, Kim HK, El Fakhri G, Li Q. Penalized PET Reconstruction Using Deep Learning Prior and Local Linear Fitting. *IEEE transactions on medical imaging.* 2018 Jun;37(6):1478-87.
30. Godinez F, **Gong K**, Zhou J, Judenhofer MS, Chaudhari AJ, Badawi RD. Development of an Ultra High Resolution PET Scanner for Imaging Rodent Paws: PawPET. *IEEE Transactions on Radiation and Plasma Medical Sciences*. 2018 Jan;2(1):7-16.
31. **Gong K**, Cheng-Liao J, Wang G, Chen KT, Catana C, Qi J. Direct Patlak reconstruction from dynamic PET data using kernel method with MRI information based on structural similarity. *IEEE transactions on medical imaging*. 2018 Apr 1;37(4):955-65.
32. **Gong K**, Zhou J, Tohme M, Judenhofer M, Yang Y, Qi J. Sinogram Blurring Matrix Estimation From Point Sources Measurements With Rank-One Approximation for Fully 3-D PET. *IEEE transactions on medical imaging.* 2017 Oct;36(10):2179-88.
    - Chosen as **Featured Article**.
33. Kyme AZ, Judenhofer MS, **Gong K**, Bec J, Selfridge A, Du J, Qi J, Cherry SR, Meikle SR. Open-field mouse brain PET: design optimisation and detector characterisation. *Physics in Medicine & Biology*. 2017 Jul 13;62(15):6207.
34. **Gong K**, Majewski S, Kinahan PE, Harrison RL, Elston BF, Manjeshwar R, Dolinsky S, Stolin AV, Brefczynski-Lewis JA, Qi J. Designing a compact high performance brain PET scanner—simulation study. *Physics in Medicine & Biology*. 2016 Apr 19;61(10):3681.
    - Chosen as **Featured Article**.
    - Reported in medicalphysicsweb and healthimaging.
    - #4 among PMB top 10 most downloaded papers in 2016.
35. **Gong K**, Cherry SR, Qi J. On the assessment of spatial resolution of PET systems with iterative image reconstruction. *Physics in Medicine & Biology*. 2016 Feb 11;61(5):N193.

* *indicates co-first author.*

BOOK CHAPTERS

1. Jang SI, **Gong K**. Attenuation Correction for Quantitative PET/MR Imaging. *Medical Image Synthesis 2023 Jul 11 (pp. 121-133). CRC Press.*

CONFERENCE PAPERS

1. **Gong K**. MR guided PET image denoising based on denoising diffusion probabilistic model and data consistency constraint. *Medical Imaging 2023: Physics of Medical Imaging 12463, 297-300*
2. Cui J, Xie Y, Joshi A, **Gong K**, K Kim, Son Y, Kim J, Leaky R, Liu H, Li Q. PET denoising and uncertainty estimation based on NVAE model using quantile regression loss. *International Conference on Medical Image Computing and Computer-Assisted Intervention 2022.*

3. Y Li, Cui J, Chen J, Zeng G, Wollenweber S, Jansen F, Jang S, Kim K, **Gong K**, Li Q. A Noise-level-aware Framework for PET Image Denoising. *International Workshop on Machine Learning for Medical Image Reconstruction 2022.*
4. Xie N*, **Gong K***, Guo N, Qin Z, Wu Z, Liu H, Li Q. Improved Patlak Reconstruction from Low-dose Dynamic PET Using Temporal Non-local Neural Network. In *2020 IEEE Nuclear Science Symposium and Medical Imaging Conference Proceedings (NSS/MIC)* (pp. 1-3).
5. Cui J*, **Gong K***, Han P, Liu H, Li Q. Super Resolution of Arterial Spin Labeling MR Imaging Using Unsupervised Multi-Scale Generative Adversarial Network. *In International Workshop on Machine Learning in Medical Imaging*, pp. 50-59. Springer, Cham, 2020.
6. Xie N*, **Gong K***, Guo N, Qin Z, Z Wu, Cui J, Liu H and Li Q. Clinically Translatable Direct Patlak Reconstruction from Dynamic PET with Motion Correction Using Convolutional Neural Network". In *International Conference on Medical Image Computing and Computer-Assisted Intervention*, pp. 793-802. Springer, Cham,2020
7. **Gong K**, Kim K, Wu D, Kalra M, Li Q, "Low-dose dual energy CT image reconstruction using non-local deep image prior", In *2019 IEEE Nuclear Science Symposium and Medical Imaging Conference Proceedings (NSS/MIC)* 2019 Nov 2 (pp. 1-2). IEEE. (**Oral** presentation)
8. Wu D, **Gong K**, Kim K, Li Q, Consensus Neural Network for Medical Imaging Denoising with Only Noisy Training Samples, In *International Conference on Medical Image Computing and Computer-Assisted Intervention*, pp. 741-749. Springer, Cham, 2019.
9. Xie Z, Reheman B, **Gong K**, Zhang X, Qi J. Generative adversarial networks based regularized image reconstruction for PET. In *15th International Meeting on Fully Three-Dimensional Image Reconstruction in Radiology and Nuclear Medicine* 2019 May 28 (Vol. 11072, p. 110720P). International Society for Optics and Photonics. (**Oral** presentation)
10. **Gong K**, Catana C, Qi J, Li Q. Direct Patlak Reconstruction from Dynamic PET Using Unsupervised Deep Learning. In *15th International Meeting on Fully Three-Dimensional Image Reconstruction in Radiology and Nuclear Medicine* 2019 May 28 (Vol. 11072, p. 110720R). International Society for Optics and Photonics. (**Oral** presentation)
11. **Gong K**, Wu D, Kim K, Yang J, El Fakhri G, Seo Y, Li Q. MAPEM-Net: An Unrolled Neural Network for Fully 3D PET Image Reconstruction. In *15th International Meeting on Fully Three-Dimensional Image Reconstruction in Radiology and Nuclear Medicine* 2019 May 28 (Vol. 11072, p. 110720O). International Society for Optics and Photonics. (**Oral** presentation)
12. Cui J*, **Gong K***, Guo N, Kim K, Liu H, Li Q. Population and Individual Information Guided PET Image Denoising Using Deep Neural Network. In *15th International Meeting on Fully Three-Dimensional Image Reconstruction in Radiology and Nuclear Medicine* 2019 May 28 (Vol. 11072, p. 110721E). International Society for Optics and Photonics. (**Oral** presentation)
13. Guo Z, Guo N, **Gong K**, Li Q. Automatic multi-modality segmentation of gross tumor volume for head and neck cancer radiotherapy using 3D U-Net. In *Medical Imaging 2019: Computer-Aided Diagnosis* (Vol. 10950, p. 1095009). (**Oral** presentation)
14. Yuan N, Zhou J, **Gong K**, Qi J. Low-dose CT count-domain denoising via convolutional neural network with filter loss. In *Medical Imaging 2019: Physics of Medical Imaging 2019* Mar 1 (Vol. 10948, p. 109480R). (**Oral** presentation)
15. **Gong K**, Wu D, Kim K, Yang J, El Fakhri G, Seo Y, Li Q. EMnet: an unrolled deep neural network for PET image reconstruction. In *Medical Imaging 2019: Physics of Medical Imaging* 2019 Mar 1 (Vol. 10948, p. 1094853).
16. Cui J*, **Gong K***, Guo N, Kim K, Liu H, Li Q. CT-guided PET parametric image reconstruction using deep neural network without prior training data. In *Medical Imaging 2019: Physics of Medical Imaging* 2019 Mar 1 (Vol. 10948, p. 109480Z). (**Oral** presentation)
17. Song TA, Chowdhury SR, Kim K, **Gong K**, El Fakhri G, Li Q, Dutta J. Super-Resolution PET Using A Very Deep Convolutional Neural Network. In *2018 IEEE Nuclear Science Symposium and Medical Imaging Conference Proceedings (NSS/MIC)* 2018 Nov 10 (pp. 1-2). IEEE. (**Oral** presentation)

18. Cui J*, **Gong K***, Guo N, Kim K, Liu H, Li Q. CT-guided PET Image Denoising using Deep Neural Network without Prior Training Data. In *2018 IEEE Nuclear Science Symposium and Medical Imaging Conference Proceedings (NSS/MIC)* 2018 Nov 10 (pp. 1-2). IEEE. (**Oral** presentation)
19. **Gong K**, Guan J, Liu CC, Qi J. PET image denoising using deep neural network. In *2017 IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC)* (pp. 1-2). IEEE. (**Oral** presentation)
20. Kim K, Wu D, **Gong K**, Kimb JH, Son YD, Kim HK, El Fakhria G, Li Q. Penalized PET reconstruction using CNN prior. In *2017 IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC)* (pp. 1-4). IEEE.
21. **Gong K**, Wang G, Chen KT, Catana C, Qi J. Nonlinear PET parametric image reconstruction with MRI information using kernel method. In *Medical Imaging 2017: Physics of Medical Imaging* 2017 Mar 9 (Vol. 10132, p. 101321G). (**Oral** presentation)
22. Kyme AZ, **Gong K**, Judenhofer MS, Bec J, Du J, Qi J, Cherry SR, Meikle SR. Open-field mouse brain PET: Design considerations and detector development. In *2015 IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC)* (pp. 1-3). IEEE. (**Oral** presentation)
23. **Gong K**, Majewski S, Kinahan PE, Harrison RL, Elston BF, Manjeshwar R, Dolinsky S, Stolin AV, Brefczynski-Lewis JA, Qi J. Simulation study for designing a compact brain PET scanner. In *2015 IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC)* (pp. 1-3). IEEE. (**Oral** presentation)
24. **Gong K**, Wu Y, Daghighian F, Qi J, Study of a novel-geometry PET scanner. In *Proceedings of International Meeting on Fully Three-Dimensional Image Reconstruction in Radiology and Nuclear Medicine*, 2015 (pp. 562-5).

SELECTED CONFERENCE ABSTRACTS

1. Y Li, Chen J, Jang S, **K Gong**, Li Q. Investigation of Network Architecture for Multimodal Head-and-Neck Tumor Segmentation. *2022 IEEE Nuclear Science Symposium and Medical Imaging Conference Proceedings (NSS/MIC)* (**Oral** presentation)
2. Jang S, Pan T, Li G, Chen J, Li Q, **Gong K**. PET image denoising based on transformer: evaluations on datasets of multiple tracers. 2022 *Annual Meeting of the Society of Nuclear Medicine and Molecular Imaging (SNMMI)*. (**Oral** presentation)
3. **Gong K**, Li Q, Pan T. PET Physics-enabled transfer learning for improved 68Ga-DOTATATE imaging. *2021 IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC)*. (**Oral** presentation)
4. Li S, **Gong K**, Qi J, Wang G. Neural KEM for PET image reconstruction. *2021 IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC)*. (**Oral** presentation)
5. Cui J, Xie Y, **Gong K**, Kim K, Yang J, Larson P, Hope T, Behr S, Seo Y, Liu H, Li Q. PET denoising and uncertainty estimation based on NVAE model. *2021 IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC)*. (**Oral** presentation)
6. Kim K, Xu P, Koh J, Wu D, **Gong K**, Han Y, Yang J, Larson P, Hope T, Behr S, Son D, Kim J, Seo Y, Q Li. Efficient domain adaptation few-shot learning for PET image denoising. *2021 IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC)*. (**Oral** presentation)
7. Cui J, **Gong K**, Guo N, Wollenweber, Jansen, Liu H, Li Q. SURE-based stop strategy for fine-tunable supervised PET image denoising. *2021 IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC)*.
8. Cui J, **Gong K**, Pan T, Li Q. [68Ga]-DOTATATE PET Image Denoising using Unsupervised Deep Learning Can Improve CNR in A Wide Range. 2020 *Annual Meeting of the Society of Nuclear Medicine and Molecular Imaging (SNMMI)*. (**Oral** presentation)

9. Kim K, Guehl N, **Gong K**, El Fakhri G, Normandin M, Li Q. Penalized parametric image estimation using local linear fitting with image-driven input function. 2020 *Annual Meeting of the Society of Nuclear Medicine and Molecular Imaging (SNMMI)*.
10. Wu D, **Gong K**, Kim K, Zhang X, Ouyang J, Li Q. Deep Denoising of O-15 Water Dynamic PET Images without Training Data. 2020 *Annual Meeting of the Society of Nuclear Medicine and Molecular Imaging (SNMMI)*. (**Oral** presentation)
11. Xie N, **Gong K**, Guo N, Qin Z, Wu Z, Liu H, Li Q. 3D Structural Convolutional Sparse Coding for PET Image Reconstruction. 2020 *Annual Meeting of the Society of Nuclear Medicine and Molecular Imaging (SNMMI)*. (**Oral** presentation)
12. **Gong K**, Han P, Johnson K, El Fakhri G, Ma C, Li Q. Attenuation Correction for Amyloid PET Imaging Using Deep Learning Based on 3D UTE/Multi-Echo Dixon MR images, 2020 *Annual Meeting of the Society of Nuclear Medicine and Molecular Imaging (SNMMI)*. (**Oral** presentation)
13. **Gong K**, Han P, Marin T, El Fakhri G, Li Q, Ma C. Arterial spin labeling (ASL) image reconstruction using deep image prior. *The Annual Meeting of the International Society for Magnetic Resonance in Medicine*, Paris, France, 2020. (**Oral** presentation)
14. **Gong K**, Han P, Cui J, Guehl N, Johnson K, Li Q, El Fakhri G. Correction of partial volume effects for tau PET imaging using the kernel method. Human Amyloid Imaging 2020. (**Oral** presentation)
15. **Gong K**, Kim K, Wu D, Kalra MK, Li Q. Low dose dual energy CT image reconstruction using nonlocal deep image prior. *2019 IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC)*. (**Oral** presentation)
16. **Gong K**, Catana C, Qi J, Li Q. Direct Patlak Reconstruction for Low-Dose Dynamic PET Using Unsupervised Deep Learning. *2019 Annual Meeting of the Society of Nuclear Medicine and Molecular Imaging (SNMMI)*. (**Oral** presentation)
17. Han P, Horng D, **Gong K**, Petibon Y, Johnson K, Ouyang J, El Fakhri G, Ma C. MR-Based PET Attenuation Correction using 3D UTE/Multi-Echo Dixon: In Vivo Results. *2019 Annual Meeting of the Society of Nuclear Medicine and Molecular Imaging (SNMMI)*. (**Oral** presentation)
18. **Gong K**, Yang J, Kim K, El Fakhri G, Seo Y, Li Q. Attenuation correction of PET/MR using cycle-consistent adversarial network. *2019 Annual Meeting of the Society of Nuclear Medicine and Molecular Imaging (SNMMI)*. (**Oral** presentation)
19. Wu D, Kim K, **Gong K**, Kalra MK, De Man B, Li Q. Deep learning based material decomposition image denoising for dual energy CT with only noisy training images. *Radiological Society of North America (RSNA) 2019 Annual Meeting*. (**Oral** presentation)
20. **Gong K**, Han P, Horng D, El Fakhri G, Ma C, Li Q. Arterial spin labeling (ASL) image reconstruction using deep image prior. *The Annual Meeting of the International Society for Magnetic Resonance in Medicine*, Montréal, QC, Canada 2019.
21. **Gong K**, Catana C, Qi J, Li Q. Personalized Medical Imaging Reconstruction Using Deep Neural Network without Prior Training Data. *2018 IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC)*. (**Oral** presentation)
22. **Gong K**, Yang J, Kim K, El Fakhri G, Seo Y, Li Q. Attenuation Correction for Brain PET Imaging Using Deep Neural Network Based on Dixon and ZTE MR images. *2018 Annual Meeting of the Society of Nuclear Medicine and Molecular Imaging (SNMMI)*. (**Oral** presentation)
23. **Gong K**, Qi J. Accelerated Direct Patlak Reconstruction for Dynamic PET with Momentum. *International Meeting on Fully Three-Dimensional Image Reconstruction in Radiology and Nuclear Medicine*, 2017 (pp. 733-6). (**Oral** presentation)
24. Judenhofer M, Sumanasena MB, **Gong K**, Peng Q, Burkett G, Spencer B, Qi J, Badawi R. Preliminary Results of a Depth-of-Interaction based PET System with Dual Ended Readout for Combined Breast PET/CT Imaging. *2017 Annual Meeting of the Society of Nuclear Medicine and Molecular Imaging (SNMMI)*. (**Oral** presentation)

25. Brefczynski-Lewis JA, Bauer C, Kinahan PE, Qi J, Dolinsky S, **Gong K**, Elston BF, Harrison RL, Majewski S. Simulation. Detector and prototype testing of a wearable PET scanner for human brain imaging. *The 22nd Annual Meeting of the Organization for Human Brain Mapping (OHBM)*, 2016.
26. **Gong K**. Designing a compact high performance brain PET scanner— simulation study. 2016 Young investigators symposium of medical physics research and development. (**Oral** presentation)
27. **Gong K**, Majewski S, Kinahan PE, Harrison RL, Elston BF, Manjeshwar R, Dolinsky S, Stolin AV, Brefczynski-Lewis JA, and Qi J. Performance Evaluation of a Helmet Brain PET. *The 38th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, 2016.
28. **Gong K**, Wang G, Chen KT, Catana C, Qi J. Patlak PET Reconstruction Using the Kernel Method with MRI Information. the 17th annual UC systemwide bioengineering symposium, 2016. (**Oral** presentation)
29. **Gong K**, Wang G, Chen KT, Catana C, and Qi J. Dynamic PET Reconstruction Using the Kernel Method with MRI Information. *2016 IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC)*. (**Oral** presentation)
30. Brefczynski-lewis JA, Majewski S, Manjeshwar R, Stolin AV, Kinahan PE, Qi J, Dolinsky S, Harrison RL, Rishel M, Elston BF, **Gong K**, Vaigneur K. AMPET: a brain initiative planning project to design a wearable, microdose pet imager. *Society for Neuroscience (SfN)'s 45th annual meeting*, 2015. (**Oral** presentation)
31. **Gong K**, Zhou J, Qi J. Sinogram Blurring Matrix Estimation from Point Sources Measurements with Rank-One Approximation. *2014 IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC)*. (**Oral** presentation)
32. **Gong K**, Cherry S, Qi J. On the Assessment of Spatial Resolution of PET System with Iterative Image Reconstruction. *2013 IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC).*

PATENT

- Li Q, **Gong K**, "System and method for deep learning for inverse problems without training data," U.S. patent application No. PCT/us2020/053166, filed September 28, 2020 (Pending)

INVITED TALKS

2023	Deep learning-based PET image reconstruction for neurodegenerative diseases Banner Alzheimer's Institute
2023	PET-MRI synthetic CT generation AAPM Webinar "Synthetic CT: A New Paradigm in Radiotherapy Treatment Planning"
2023	Joint Program in Nuclear Medicine "Seminars in Molecular Imaging" series Brigham and Women's Hospital
2022	PET image denoising based on denoising diffusion probabilistic models Department of Radiology, Stanford University
2021	Bruce H. Hasegawa Young Investigator Medical Imaging Science Award Presentation IEEE Nuclear Science Symposium & Medical Imaging Conference, Yokohama, Japan
2020	Machine-learning based partial volume correction Cerveau MK-6240 Users Group Virtual Conference

2019 Deep Learning for Attenuation Correction and Image Reconstruction
Department of Radiology Oncology, MGH, Boston, MA

2019 Software aspects of applying deep learning to PET image reconstruction
Institute of Nuclear Medicine, University of College London, London, UK

PROFESSIONAL AFFILATIONS

- Institute of Electrical and Electronics Engineers, Member.
- Society of Nuclear Medicine and Molecular Imaging, Member
- International Society for Magnetic Resonance in Medicine, Member.

SERVICE

- Associate Editor, Medical Physics, 2022-
- Associate Editor, IEEE Transactions on Radiation and Plasma Medical Sciences, 2021-
- Guest Editor for the Special Issue *Low Dose Emission Tomography Imaging*, IEEE Transactions on Radiation and Plasma Medical Sciences, *2022-2023*
- Guest Editor for the Special Issue *PET imaging with deep learning*, Applied Science, 2020
- Scientific committee member of Fully3D 2021, IEEE NSS/MIC 2022, Fully3D 2023.
- Conference session chair, Fully3D 2019, Fully3D 2021, IEEE NSS/MIC 2021, Deep Recon workshop 2021, SNMMI 2023, Fully3D 2023, IEEE NSS/MIC 2023.
- Grant reviewer for SNMMI 2023.
- Challenge proposal reviewer for MICCAI 2023.
- Ad hoc Reviewer for Journals:
    - Journal of Nuclear Medicine
    - European Journal of Nuclear Medicine and Molecular Imaging
    - Medical Image Analysis
    - IEEE Transactions on Medical Imaging
    - IEEE Transactions on Biomedical Engineering
    - IEEE Transactions on Computational Imaging
    - IEEE Transactions on Radiation and Plasma Medical Sciences
    - IEEE Transactions on Nuclear Science
    - IEEE Journal of Selected Topics in Signal Processing
    - Patterns
    - npj Digital Medicine
    - Human Brain Mapping
    - Medical Physics
    - Physics in Medicine & Biology
    - Computerized Medical Imaging and Graphics
    - PLOS ONE
    - Neurocomputing
    - Journal of Clinical Medicine
    - EJNMMI Research
    - EJNMMI Physics
    - Physica Medica
    - Journal of Neuroscience Methods
    - Frontiers in Radiology
    - Scientific Reports

- Ad hoc Reviewer for Conferences:
    - World Molecular Imaging Congress (WMIC), 2018, 2019
    - International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI), 2019,2020,2023.
    - IEEE Medical Imaging Conference (MIC), 2016, 2018, 2019,2020,2021,2022.2023.