Kofi Deh, Ph.D.
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Summary

An Assistant Professor with American Board of Radiology Medical Physics certification and experience in magnetic resonance imaging research.

Education

Weill Cornell Medical College, New York, NY
PhD, Department of Physiology, Biophysics, and Systems Biology **May 2018**

- Thesis: Preclinical Applications of Quantitative Susceptibility Mapping
- Developed preclinical MRI magnetic susceptibility mapping and explained the increase in magnetic susceptibility in the early stages of multiple sclerosis

Columbia University, New York, NY **Feb 2011**
MS, Medical Physics

Oberlin College, New York, NY **June 2000**
BA, Physics

Certifications

ABR Diagnostics Medical Physicist (Passed Parts 1 & 2)
New York State Medical Physics License

Research Experience

Memorial Sloan Kettering Cancer Center New York, NY
Postdoctoral Research Associate 2018-Present

- Programming and operation of a GE 3T 750 WB scanner for human ^{13}C scanning

- Administration and operation of a clinical 5T hyperpolarizer for human ^{13}C translation
- Developed a method based on IDEAL for separation of multiple ^{13}C chemical species
- Developed a method for superresolution of hyperpolarized ^{13}C images
- Mentored fellow post-doctoral, rotation, graduate, and summer students
- Programming and operation of a Bruker 3T preclinical scanner
- Development of MATLAB scripts for processing Bruker and GE ^{13}C data

Weill Cornell Medical College New York, NY
Research Assistant 2012-2018

- Programming and operation of Bruker 7T preclinical scanner
- Development of methods for preclinical quantitative susceptibility mapping
- Development of MATLAB scripts for processing 7T preclinical data
- Mentoring of rotation and summer students

New York Presbyterian Hospital New York, NY
Junior Medical Physicist 2011-2012

- Routine quality control of radiographic diagnostic medical imaging quipment
- Acceptance testing, administration and operation Inveon Multi-Modality microPET/SPECT/CT
- Evaluation of efficacy of prostate-specific membrane antigen (PSMA) imaging using ^{89}Zr
- Performed nuclear medicine wipes, small animal xenograft and imaging experiments.

Technical Skills

- Routine quality control of radiographic diagnostic medical imaging equipment
- Software development with C, Python and MATLAB
- Programming and administration of GE and Bruker scanners
- Operation and quality control of GE SPINLAB hyperpolarizer

Conference Presentations

Kofi Deh, Guannan Zhang, Angela Hijin Park, Shake Ahmmed, Serge K Lyashchenko, Nadia Bragagnolo, Charles H Cunningham, Vesselin Miloushev, Marius Mayerhoefer, Kayvan Keshari, *Preliminary results of hyperpolarized MRI of [1-13C] pyruvate in D2O in the normal human brain*, Submitted, World Molecular Imaging Congress 2022.

Thomas Lipa Ruan, Geonhui Lee, Claudia Wong, **Kofi Deh**, Sangmoo Jeong, Kayvan Keshari, Memorial Sloan Kettering Cancer Center, *Quantification of hyperpolarized [1-13C]pyruvate-to-[1-13C]lactate flux in two acute myeloid leukemia cell lines with a three-well micro-slab coil*, Submitted, World Molecular Imaging Congress 2022.

Guannan Zhang, Quinlan Cullen, Marjan Berishaj, **Kofi Deh**, Nathaniel Kim, Kayvan Keshari, *Characterization of [6,6'-2H2] Fructose as a Novel Deuterium Metabolic Imaging Probe in*

Subcutaneous Liver Cancer Mouse Models: a Comparative Study with [6,6'-2H2] Glucose, Submitted, World Molecular Imaging Congress 2022.

Paola Porcari, Saket Patel, Marjan Berishaj, Elizabeth Coffee, **Kofi Deh**, Nathaniel Kim, Kayvan Keshari*, 3D MRSI using co-polarized HP [1-13C]pyruvate and [1-13C]dehydroascorbate reveals differences in compartmentalized metabolism in the murine brain*, Submitted, World Molecular Imaging Congress 2022.

Kofi Deh, Guannan Zhang, Nathaniel Kim, Elizabeth Coffee, Miloushev Vesselin, Kayvan Keshari, *Single-image superresolution of hyperpolarized (HP) ^{13}C spectroscopic images*, Digital Poster, Joint ISMRM-ESMRMB Annual Meeting, May 7-12, 2022

Kofi Deh, Guannan Zhang, Nathaniel Kim, Kayvan Keshari, *Single-image super-resolution enables visualization of intra-tumoral metabolic heterogeneity in hyperpolarized ^{13}C images*, Scientific Abstract Presentations: Machine Learning Algorithms & Toolkits. SIIM Conference on Machine Intelligence in Medical Imaging (CMIMI), Sept. 19. 2021

Kofi Deh, Nathaniel Kim, Guannan Zhang, Kayvan Keshari, *Super-resolution of HP ^{13}C images through high frequency transfer*, World Molecular Imaging Congress Oral Presentation, Oct. 6 2021

Kofi Deh, Keigo Kawaji, Deb Horng, Marjolein Bulk, Louise Van Der Weerd, Pascal Spincemaille, Thanh Nguyen, and Yi Wang, *Multi-site reproducibility of quantitative susceptibility mapping at 1.5, 3 and 7T*, Poster Presentation delivered at Joint Annual Meeting ISMRM-ESMRMB, 2018, Paris, France

Kofi Deh, Gerald Ponath, Zaki Molvi, Gian-Carlo Toriano Parel, Kelly M. Gillen, Shun Zhang, Thanh Nguyen, Pascal Spincemaille, Yinghua Ma, Ajay Gupta, Susan Gauthier, David Pitt, and Yi Wang, *Myelin digestion during multiple sclerosis lesion formation contributes to increase on QSM*, Abstract #0932. Oral Presentation delivered at Joint Annual Meeting ISMRM-ESMRMB, 2018, Paris, France

Kofi Deh, Sarah Eskreis-Winkler, Pascal Spincemaille, Thanh Nguyen, and Yi Wang, *Repeatability & Reproducibility of Brain Quantitative Susceptibility Mapping*, Poster Presentation delivered at Joint Annual Meeting ISMRM-ESMRMB 2014, 10-16 May 2014, Milan, Italy

Peer Reviewed Publications

1. Zhang G, Cullen Q, Berishaj M, **Deh K**, Kim N, Keshari KR. [6,6'-2 H2] fructose as a deuterium metabolic imaging probe in liver cancer. NMR Biomed. (2023)
2. Lee G, Ruan T, Wong C, **Deh K**, Abolarin A, Correa A, Keshari K.R, Jeong S, Micro-Slab Coil Design for Hyperpolarized Metabolic Flux Analysis in Multiple Samples. Bioengineering (2023)
3. Miloushev Z. Vesselin, **Deh K**, Keshari R. Keshari Series of first-order phase shifts correct lattice reduction of fractional K-space indices, Journal of Magnetic Resonance (2023)

4. Miloushev Z. Vesselin, **Deh Kofi**, Keshari R. Keshari, Free super-resolution MRI by BRICKD slices, Journal of Magnetic Resonance **341** (2022)
5. **Deh K**, Granlund KL, Eskandari R, Kim N, Mamakhanyan A, Keshari KR Dynamic volumetric hyperpolarized ^{13}C imaging with multi-echo EPI. Magnetic Resonance in Medicine. (2022)
6. **Deh K**, Zaman M, Vedvyas Y, Liu Z, Gillen KM, O' Malley P, Bedretdinova D, Nguyen T, Lee R, Spincemaille P, Kim J, Wang Y, Jin MM. Validation of MRI quantitative susceptibility mapping of superparamagnetic iron oxide nanoparticles for hyperthermia applications in live subjects. Scientific Reports (2020).
7. Jafari R, Sheth S, Spincemaille P, Nguyen TD, Prince MR, Wen Y, Guo Y, **Deh K**, Liu Z, Margolis D, Brittenham GM, Kierans AS, Wang Y., Rapid automated liver quantitative susceptibility mapping. Journal of Magnetic Resonance Imaging. (2019)
8. Li D, Zhong W, **Deh K**, Nguyen T, Prince MR, Wang Y, Spincemaille P. Discontinuity Preserving Liver MR Registration with 3D Active Contour Motion Segmentation. IEEE Trans Biomed Eng. Nov. (2018)
9. Wen Y, Nguyen TD, Liu Z, Spincemaille P, Zhou D, Dimov A, Kee Y, **Deh K**, Kim J, Weinsaft JW, Wang Y. Cardiac quantitative susceptibility mapping (QSM) for heart chamber oxygenation. Magnetic Resonance Medicine (2018)
10. **Deh K**, Kawaji K, Bulk M, Van Der Weerd L, Lind E, Spincemaille P, McCabe Gillen K, Van Auderkerke J, Wang Y, Nguyen TD. Multicenter reproducibility of quantitative susceptibility mapping in a gadolinium phantom using MEDI+0 automatic zero referencing. Magnetic Resonance in Medicine (2019)
11. Gorman AW, **Deh K**, Schwiedrzik CM, White JR, Groman EV, Fisher CA, Gillen KM, Spincemaille P, Rasmussen S, Prince MR, Voss HU, Freiwald WA, Wang Y., Brain Iron Distribution after Multiple Doses of Ultra-small Superparamagnetic Iron Oxide Particles in Rats. Comparative Medicine. (2018)
12. **Deh K**, Ponath GD, Molvi Z, Parel GT, Gillen KM, Zhang S, Nguyen TD, Spincemaille P, Ma Y, Gupta A, Gauthier SA, Pitt D, Wang Y., Magnetic susceptibility increases as diamagnetic molecules breakdown: Myelin digestion during multiple sclerosis lesion formation contributes to increase on QSM., Journal of Magnetic Resonance Imaging. (2018)
13. Wen Y, Nguyen TD, Liu Z, Spincemaille P, Zhou D, Dimov A, Kee Y, **Deh K**, Kim J, Weinsaft JW, Wang Y., Cardiac quantitative susceptibility mapping (QSM) for heart chamber oxygenation., Magnetic Resonance in Medicine (2018)
14. Kee Y, Cho J, **Deh K,** Liu Z, Spincemaille P, Wang Y., Coherence enhancement in quantitative susceptibility mapping by means of anisotropic weighting in morphology enabled dipole inversion., Magnetic Resonance in Medicine (2018)
15. Kee Y, **Deh K**, Dimov A, Spincemaille P, Wang Y, Primal-dual and forward gradient implementation for quantitative susceptibility mapping, Magnetic Resonance in Medicine (2017)
16. Eskreis-Winkler Sarah, **Deh K**, Gupta Ajay, Liu Tian, Wisnieff Cynthia, Jin Moonsoo, Gauthier Susan A., Multiple sclerosis lesion geometry in quantitative susceptibility mapping (QSM) and phase imaging, Journal of Magnetic Resonance Imaging (2015)
17. **Deh K**, Nguyen Thanh D, Eskreis-Winkler Sarah, Prince Martin R, Spincemaille Pascal, Gauthier Susan, Kovanlikaya Ilhami, Reproducibility of quantitative susceptibility mapping in the brain at two field strengths from two vendors. Journal of Magnetic Resonance Imaging (2015)

18. Nguyen Thanh D, **Deh K**, Monohan Elizabeth, Pandya Sneha, Spincemaille Pascal, Raj Ashish, Wang Yi Feasibility and reproducibility of whole brain myelin water mapping in 4 minutes using fast acquisition with spiral trajectory and adiabatic T2prep (FAST-T2) at 3T." Magnetic Resonance in Medicine (2105)
19. Osborne JR, Akhtar NH, Vallabhajosula S, Anand A, **Deh K**, Tagawa ST., Prostate-specific membrane antigen-based imaging, Urology Oncology. (2013)

Awards

Magna Cum Laude 2018
(Myelin digestion during multiple sclerosis lesion formation contributes to increase in magnetic susceptibility)
Joint Annual Meeting ISMRM-ESMRMB

Ruth L. Kirschstein F-31 Individual Predoctoral Fellowship 2014
National Institute of Biomedical Imaging and Bioengineering, NIH

Bradley-Alavi Student Fellowship 2011
Society of Nuclear Medicine and Molecular Imaging

Other work experience

Motorola, Inc Boston, MA
Senior Software Engineer 2004 – 2009

- Developed software libraries and SDKs in Java and C++ to enable third party application development develop networking and MPEG applications on Motorola digital set-top boxes (STBs).
- Provided customer support services for third-party application developers.
- Wrote technical documentation for software development.

TXTechnology, Inc Randolph, NJ
Software Manager 2002 – 2004

- Design and development of communications software for monitoring and control systems.
- Management and supervision of software development team

Nokia, Inc Boston, MA
Systems Software Engineer 2000 – 2002

- Development of software for a Linux-based digital set-top box.
- Design of Linux networking drivers for use by DVB middleware.

- Created scripts and utilities for software build automation.

Professional Memberships

American Association of Physicists in Medicine
Radiological and Medical Physics Society of New York
International Society of Magnetic Resonance in Medicine

References

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