T. Scott Trinkle

Biographical Information

Location: Chicago, IL
Email: scott_trinkle@waters.com

Current position

[1] **Senior Data Scientist** January 2022–
Waters Corporation
Milford, MA

Experience

[1] **Machine Learning Intern** June 2021–September 2021
Waters Corporation
Milford, MA

Education

[2] **University of Chicago** (Expected) December 2021
Ph.D., Medical Physics
Thesis: "Multi-modal validation of MR microstructure imaging in the mouse brain"
Advisor: Dr. Patrick La Rivière
GPA: 3.92/4.00

[1] **University of Florida** May 2016
B.S., Nuclear and Radiological Science, *summa cum laude*
Thesis: "Development of a Novel Tissue-Equivalent Physical Phantom for Experimental Validation of CT Dosimetry under Tube Current Modulation"
GPA: 3.92/4.00

Original Peer-Reviewed Journal Articles

[4] **Trinkle, S.**, Wildenberg, G., Kasthuri, N., La Rivière, P., Foxley, S.,"Model-free analysis in the spectral domain of postmortem mouse brain EPSI reveals inconsistencies with model-based analyses of the free induction decay," *Under review at Magnetic Resonance in Medicine*, 2022.

[3] **Trinkle, S.**, Foxley, S., Wildenberg, G., Kasthuri, N., La Rivière, P., "The role of spatial embedding in mouse brain networks constructed from diffusion tractography and tracer injections," *NeuroImage*, vol. 244, p. 118576, 2021, ISSN: 1053–8119. DOI: https://doi.org/10.1016/j.neuroimage.2021.118576

[2] Foxley, S., Sampathkumar, V., De Andrade, V., **Trinkle, S.**, Sorokina, A., Norwood, K., LaRivière, P., Kasthuri, N., "Multi-modal imaging of a single mouse brain over five orders of magnitude of resolution," *NeuroImage*, vol. 238, p. 118250, 2021, ISSN: 1053–8119. DOI: https://doi.org/10.1016/j.neuroimage.2021.118250.

[1] **Trinkle, S.**, Foxley, S., Kasthuri, N., La Rivière, P., "Synchrotron X-ray micro-CT as a validation dataset for diffusion MRI in whole mouse brain," *Magnetic Resonance in Medicine*, vol. 86, no. 2, pp. 1067–1076, 2021. DOI: https://doi.org/10.1002/mrm.28776.

Abstracts/Presentations

[6] "Synchrotron microCT tractography connectomics: comparison with diffusion MRI and neural tracer injections" 8/2020
Trinkle S, Foxley S, Kasthuri N, La Rivière P.
ISMRM 28th Annual Meeting, Paris, France.
Virtual presentation due to COVID-19 pandemic.
Received Magna Cum Laude Merit Award.
12 minute talk.

[5] "X-ray microcomputed tomography as a natively isotropic, nondestructive, 3D validation dataset for diffusion MRI." 5/2019
Trinkle S, Foxley S, Kasthuri N, La Rivière P.
ISMRM 27th Annual Meeting, Montréal, QC, Canada.
Received Magna Cum Laude Merit Award.
12 minute talk.

[4] "Towards whole-brain validation of diffusion MRI fiber-orientation distributions with x-ray microcomputed tomography." 6/2018
Trinkle S, Foxley S, Kasthuri N, La Rivière P.
Gordon Research Conference on Image Science, Easton, MA.
Poster.

[3] "High-resolution mapping of optical path difference using orientation-independent differential interference contrast microscopy" 1/2018
Shribak M, Mehta S, Zuckerburg C, Rhines T, **Trinkle S**, La Rivière P
SPIE Photonics West Conference, San Francisco, CA.
Invited Talk (cancelled due to scheduling conflict).

[2] "Quantitative analysis of temporal subtraction chest radiographs." 8/2017
Trinkle S, Engelmann R, Macmahon H, Armato S.
AAPM Annual Meeting, Denver, CO.
ePoster.

[1] "Development of a Novel Tissue-Equivalent Physical Phantom for Experimental Validation of CT Dosimetry under TCM" 3/2016
Trinkle S, Stepusin E, Olguin E, Bolch W.
UF Undergraduate research symposium, Gainesville, FL.
Poster.

Miscellaneous Presentations

[6] "I'll show you the life of the mind! Single-neuronal predictions of others' beliefs" 2/2021
Graduate Program in Medical Physics Journal Club.
30 minute talk.

[5] "Multi-modal validation of diffusion MRI tractography" 5/2020
Graduate Program in Medical Physics Colloquium Series, Chicago, IL.
60 minute talk.

[4] "Head for the hills! Estimating population risk to rising sea levels" 3/2020
Graduate Program in Medical Physics Journal Club.
30 minute talk.

[3] "Does your vote matter? Wealth and influence in American democracy." 1/2019
Graduate Program in Medical Physics Journal Club.
30 minute talk.

[2] "Moderating risky gambling behavior" 3/2018
Graduate Program in Medical Physics Journal Club.
30 minute talk.

[1] "Charged Particle Emission Tomography" 4/2017
Graduate Program in Medical Physics Journal Club.
30 minute talk.

Research Experience

[5] **La Rivière Lab**, University of Chicago 7/2017–
Advisor: Dr. Patrick La Rivière
Topics: Multi-modal microstructure imaging validation

[4] **Pan Lab**, University of Chicago 3/2017–6/2017
Advisor: Dr. Xiaochuan Pan
Topics: Dual-energy CT

[3] **Center for EPR Imaging in Vivo Physiology**,
University of Chicago 1/2017–3/2017
Advisor: Dr. Howard Halpern
Topics: EPR Imaging, dose profile validation

[2] **Armato Lab**, University of Chicago 9/2016–12/2016
Advisor: Dr. Sam Armato
Topics: Computer-aided diagnosis, temporal subtraction radiography

[1] **Advanced Laboratory for Radiation Dosimetry Studies**,
University of Florida 1/2013–5/2016
Advisor: Dr. Wesley Bolch
Topics: Physical phantom construction, computational dosimetry

Current Funding Awards

[1] Principal Investigator: T. Scott Trinkle
Title: *A novel multi-modal, multi-scale imaging pipeline for the validation of diffusion MRI of the brain.*
Source: NIH National Research Service Award (F31)
Project period: 7/1/2019–6/30/2022
Total direct costs: $120,979
Project role: Contact PI (100% effort)

Teaching activity

[4] **Introduction to Medical Physics**, University of Chicago 2020
Teaching Assistant
Topics: Medical imaging, Image Processing, Radiation therapy
Rating: 5.0/5.0 from 12 students
Received 4 nominations for Iguana Award for Teaching Assistants

[3] **Supervised undergraduate Independent Study** 2019–2020
Chineze Egwudo
Topic: Tractography parameter optimization

[2] **Medical Imaging 1**, University of Chicago 2018
Teaching Assistant
Topics: X-ray imaging, MRI, image restoration
Rating: 5.0/5.0 from 4 students

[1] **Mathematics For Medical Physics**, University of Chicago 2017
Teaching Assistant
Topics: Linear systems theory, stochastic processes, image reconstruction
Rating: 4.8/5.0 from 6 students

Leadership Roles

[1] **Student Co-President**
Graduate Program in Medical Physics, University of Chicago 2018–2019

Awards and Honors

[12]	Figure chosen as August issue cover for Magnetic Resonance in Medicine	-	2021
[11]	Magna Cum Laude oral session award, ISMRM, "Synchrotron microCT tractography connectomics: comparison with diffusion MRI and neural tracer injections"	-	2020
[10]	Magna Cum Laude oral session award, ISMRM, "X-ray microcomputed tomography as a natively isotropic, nondestructive, 3D validation dataset for diffusion MRI."	-	2019
[9]	ISMRM Trainee Stipend	$565	2019
[8]	University Scholars Program Award	$1750	2016
[7]	N.L. Griesheimer Memorial Scholarship Recipient	$300	2015
[6]	Roberto Pagano Memorial Scholarship Recipient	$2000	2015
[5]	Bryan Scholarship Recipient	$1000	2015
[4]	Anderson Scholar Award	-	2014
[3]	Wunsch Scholarship Recipient	$1000	2014
[2]	Jacobs Scholarship Recipient	$225	2013
[1]	Rice Family Scholarship Recipient	$325	2013

Professional Associations

[5]	The American Society for Mass Spectrometry (ASMS)	2022–
[4]	The International Society for Magnetic Resonance in Medicine (ISMRM)	2018–2021
[3]	The International Society for Optics and Photonics (SPIE)	2017–2021
[2]	The American Association of Physicists in Medicine (AAPM)	2016–2018
[1]	Health Physics Society (HPS)	2015–2016
[0]	American Nuclear Society (ANS)	2012–2016

Computing

Top Language:	Python
Competent:	MATLAB, Bash
Familiar:	SQL, R, C++, html
Visualization:	Matplotlib, Bokeh, Photoshop, ImageJ
Machine learning:	Scikit-learn, Keras, PyTorch, TensorFlow
Other tools:	GNU Emacs, LaTeX, git, Docker, AWS