

T. Scott Trinkle

Biographical Information

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Current position

- [1] **Machine learning intern** June 2021–September 2021
Waters Corporation
Milford, MA
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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: 3.91/4.00
- [1] **University of Florida** 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
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Original Peer-Reviewed Journal Articles

- [4] **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,” *Under review at NeuroImage*, 2021.
- [3] **Trinkle, S.**, Wildenberg, G., Kasthuri, N., La Rivière, P., Foxley, S., “Comparison of myelin sensitivity using model-based and model-free analysis of the water resonance line-shape in postmortem mouse brain,” *Under review at Magnetic Resonance in Medicine*, 2021.
- [2] Foxley, S., Sampathkumar, V., De Andrade, V., **Trinkle, S.**, Sorokina, A., Norwood, K., La Riviere, P., Kasthuri, N., “Multi-modal imaging of a single mouse brain over five orders of magnitude of resolution,” *NeuroImage*, vol. 238, p. 118 250, 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>.
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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.”
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.

5/2019
- [4] “Towards whole-brain validation of diffusion MRI fiber-orientation distributions with x-ray microcomputed tomography.”
Trinkle S, Foxley S, Kasthuri N, La Rivière P.
 Gordon Research Conference on Image Science, Easton, MA.
 Poster.

6/2018
- [3] “High-resolution mapping of optical path difference using orientation-independent differential interference contrast microscopy”
 Shribak M, Mehta S, Zuckenburg C, Rhines T, **Trinkle S**, La Rivière P
 SPIE Photonics West Conference, San Francisco, CA.
 Invited Talk (cancelled due to scheduling conflict).

1/2018
- [2] “Quantitative analysis of temporal subtraction chest radiographs.”
Trinkle S, Engelmann R, Macmahon H, Armato S.
 AAPM Annual Meeting, Denver, CO.
 ePoster.

8/2017
- [1] “Development of a Novel Tissue-Equivalent Physical Phantom for Experimental Validation of CT Dosimetry under TCM”
Trinkle S, Stepusin E, Olguin E, Bolch W.
 UF Undergraduate research symposium, Gainesville, FL.
 Poster.

3/2016

Miscellaneous Presentations

- [6] “I’ll show you the life of the mind! Single-neuronal predictions of others’ beliefs”
 Graduate Program in Medical Physics Journal Club.
 30 minute talk.

2/2021
- [5] “Multi-modal validation of diffusion MRI tractography”
 Graduate Program in Medical Physics Colloquium Series, Chicago, IL.
 60 minute talk.

5/2020
- [4] “Head for the hills! Estimating population risk to rising sea levels”
 Graduate Program in Medical Physics Journal Club.
 30 minute talk.

3/2020
- [3] “Does your vote matter? Wealth and influence in American democracy.”
 Graduate Program in Medical Physics Journal Club.
 30 minute talk.

1/2019
- [2] “Moderating risky gambling behavior”
 Graduate Program in Medical Physics Journal Club.
 30 minute talk.

3/2018
- [1] “Charged Particle Emission Tomography”
 Graduate Program in Medical Physics Journal Club.
 30 minute talk.

4/2017

Research Experience

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

7/2017–

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| [4] | Pan Lab , University of Chicago
Advisor: Dr. Xiaochuan Pan
Topics: Dual-energy CT | 3/2017–6/2017 |
| [3] | Center for EPR Imaging in Vivo Physiology ,
University of Chicago
Advisor: Dr. Howard Halpern
Topics: EPR Imaging, dose profile validation | 1/2017–3/2017 |
| [2] | Armato Lab , University of Chicago
Advisor: Dr. Sam Armato
Topics: Computer-aided diagnosis, temporal subtraction radiography | 9/2016–12/2016 |
| [1] | Advanced Laboratory for Radiation Dosimetry Studies ,
University of Florida
Advisor: Dr. Wesley Bolch
Topics: Physical phantom construction, computational dosimetry | 1/2013–5/2016 |
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Current Funding Awards

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| [1] | Principal Investigator: T. Scott Trinkle
Title: <i>A novel multi-modal, multi-scale imaging pipeline for the validation of diffusion MRI of the brain.</i>
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) |
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Teaching activity

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| [4] | Introduction to Medical Physics , University of Chicago
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 | 2020 |
| [3] | Supervised undergraduate Independent Study
Chineze Egwudo
Topic: Tractography parameter optimization | 2019–2020 |
| [2] | Medical Imaging 1 , University of Chicago
Teaching Assistant
Topics: X-ray imaging, MRI, image restoration
Rating: 5.0/5.0 from 4 students | 2018 |
| [1] | Mathematics For Medical Physics , University of Chicago
Teaching Assistant
Topics: Linear systems theory, stochastic processes, image reconstruction
Rating: 4.8/5.0 from 6 students | 2017 |
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Leadership Roles

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| [1] | Student Co-President
Graduate Program in Medical Physics, University of Chicago | 2018–2019 |
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Awards and Honors

[13]	Figure chosen as August issue cover for Magnetic Resonance in Medicine	-	2021
[12]	Magna Cum Laude oral session award, ISMRM, “Synchrotron microCT tractography connectomics: comparison with diffusion MRI and neural tracer injections”	-	2020
[11]	Magna Cum Laude oral session award, ISMRM, “X-ray microcomputed tomography as a natively isotropic, nondestructive, 3D validation dataset for diffusion MRI.”	-	2019
[10]	ISMRM Trainee Stipend	\$565	2019
[9]	University Scholars Program Award	\$1750	2016
[8]	Lilly Endowment Faith and Vocation Essay Contest Winner	\$300	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 International Society for Magnetic Resonance in Medicine (ISMRM)	2018–
[4]	The International Society for Optics and Photonics (SPIE)	2017–
[3]	The American Association of Physicists in Medicine (AAPM)	2016–2018
[2]	Health Physics Society (HPS)	2015–2016
[1]	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, L ^A T _E X, git, Docker, AWS