

# T. Scott Trinkle

## Biographical Information

Location: Atlanta, GA  
Email: scott\_trinkle@waters.com

---

## Experience

- [2] **Senior Data Scientist** January 2022–  
Waters Corporation  
Milford, MA
- [1] **Machine Learning Intern** June 2021–September 2021  
Waters Corporation  
Milford, MA
- 

## Education

- [2] **University of Chicago** 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,” *BioRxiv*, 2022, 2022.02.24.481824. <https://doi.org/10.1101/2022.02.24.481824>.
- [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

- [10] “MSI-Segmentation: a micro-app for automated exploration and material segmentation of mass spectrometry imaging data.” 8/2022  
**Trinkle S.**, Jones E, Chapman R.  
Imaging Mass Spectrometry Society Summer Workshop 2022, Baltimore, MD.  
Poster.

- [9] “A machine learning-based pipeline for background classification and data reduction in mass spectrometry imaging.” 6/2022  
**Trinkle S**, Jones E, Chapman R.  
 70th ASMS Conference on Mass Spectrometry and Allied Topics, Minneapolis, MN.  
 Poster.
- [8] “MSI-Segmentation: a web-based micro-app for automated exploration and material segmentation of MS imaging data.” 6/2022  
**Trinkle S**, Jones E, Chapman R.  
 70th ASMS Conference on Mass Spectrometry and Allied Topics, Minneapolis, MN.  
 Poster.
- [7] “Rapid development of predictive models and software tools for IMS research enabled by Saas and Low Code Computing.” 6/2022  
 Ianchis V, Gioioso M, Colley P, Vissers J, Kharit B, **Trinkle S**, Chapman R.  
 70th ASMS Conference on Mass Spectrometry and Allied Topics, Minneapolis, MN.  
 Poster.
- [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 28<sup>th</sup> 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 27<sup>th</sup> 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 Other 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

## 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: 7/1/2019–12/31/2021  
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]	<b>Supervised undergraduate Independent Study</b> Chineze Egwudo Topic: Tractography parameter optimization	2019–2020
[2]	<b>Medical Imaging 1</b> , University of Chicago Teaching Assistant Topics: X-ray imaging, MRI, image restoration Rating: 5.0/5.0 from 4 students	2018
[1]	<b>Mathematics For Medical Physics</b> , University of Chicago Teaching Assistant Topics: Linear systems theory, stochastic processes, image reconstruction Rating: 4.8/5.0 from 6 students	2017

---

### Relevant coursework

[3]	<b>Machine Learning for Healthcare</b> , Massachusetts Institute of Technology Short Programs Topics: Risk stratification, clinical NLP, treatment selection, causal inference, survival modeling	2022
[2]	<b>Introduction to Machine Learning</b> , Toyota Institute of Technology Topics: Experimental design, regression, feature selection, SVM, random forests, gradient boosting, deep learning, CNN	2019
[1]	<b>Mathematics for Medical Physics</b> , University of Chicago Topics: Optimization, stochastic processes, estimation theory, ROC analysis, linear algebra, non-Gaussian noise models	2016

---

### Leadership Roles

[1]	<b>Student Co-President</b> Graduate Program in Medical Physics, University of Chicago	2018–2019
-----	---	-----------

---

### Awards and Honors

[13]	UChicago Graduate Program in Medical Physics Best Thesis Award	\$500	2022
[12]	Figure chosen as <a href="#">August issue cover</a> 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

[6]	The American Society for Mass Spectrometry (ASMS)	2022–
[5]	The International Society for Magnetic Resonance in Medicine (ISMRM)	2018–2021
[4]	The International Society for Optics and Photonics (SPIE)	2017–2021
[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

<b>Top Language:</b>	Python
<b>Competent:</b>	MATLAB, Bash
<b>Familiar:</b>	SQL, R, C++, html
<b>Visualization:</b>	Matplotlib, Bokeh, Photoshop, ImageJ
<b>Machine learning:</b>	Scikit-learn, Keras, PyTorch, TensorFlow
<b>Other tools:</b>	GNU Emacs, L <sup>A</sup> T <sub>E</sub> X, git, Docker, AWS