

CURRICULUM VITAE

The Johns Hopkins University School of Medicine

(Signature) Rachel Ger
 (Typed Name) Rachel Ger

10/07/2021
 (Date of this version)

DEMOGRAPHIC AND PERSONAL INFORMATION**Current Appointments**

2021-present Instructor of Radiation Oncology and Molecular Radiation Sciences Johns Hopkins School of Medicine

Personal Data

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Education and Training *(in chronological order, earliest first by start date under each subcategory)*

2014 BS, Physics, University of North Carolina, Chapel Hill, NC
 2019 PhD, Medical Physics, MD Anderson Cancer Center UTHealth Graduate School of Biomedical Sciences, Houston, TX
 2021 Residency, Therapeutic Medical Physics, Mayo Clinic, Phoenix, AZ

Professional Experience**PUBLICATIONS:****Original Research [OR]**

1. Chtcheprov P, Burk L, Yuan H, Inscoe C, **Ger R**, Hadsell M, Lu J, Zhang L, Chang S, Zhou O. Physiologically gated microbeam radiation therapy using electronically controlled field emission x-ray source array. *Medical Physics*, 2014. 41(8):081705
2. Belley MD, Stanton IN, Hadsell M, **Ger R**, Langloss BW, Lu J, Zhou O, Chang SX, Therien MJ, Yoshizumi TT. Fiber-optic detector for real time dosimetry of a micro-planar x-ray beam. *Medical Physics*, 2015. 42(4):1966.
3. Joint Head and Neck Radiotherapy-MRI Development Cooperative. Dynamic contrast-enhanced MRI detects acute radiotherapy-induced alterations in mandibular microvasculature: prospective assessment of imaging biomarkers of normal tissue injury. *Scientific Reports*, 2016. 6(1):29864; seventh author.
4. Rubinstein AE, Ingram WS, Anderson BM, Gay SS, Fave XJ, **Ger RB**, McCarroll RE, Owens CA, Netherton TJ, Kisting KD, Court LE, Yang J, Li Y, Lee J, Mackin DS, Cardenas CE. Cost-effective immobilization for whole brain radiation therapy. *Journal of Applied Clinical Medical Physics*, 2017. 18(4):116-122.
5. **Ger RB***, Yang J, Ding Y, Jacobsen MC, Fuller CD, Howell RM, Li H, Stafford RJ, Zhou S, Court LE. Accuracy of deformable image registration on magnetic resonance images in digital and physical phantoms. *Medical Physics*, 2017. 44(1):5153-5161; *corresponding author.
6. Joint Head and Neck Radiotherapy-MRI Development Cooperative. A multi-institutional comparison of dynamic contrast-enhanced magnetic resonance imaging parameter calculations. *Scientific Reports*, 2017. 7(1):11185; first author.
7. M.D. Anderson Cancer Center Head and Neck Quantitative Imaging Working Group. Investigation of radiomic signatures for local recurrence using primary tumor texture analysis in oropharyngeal head and neck cancer patients. *Scientific Reports*, 2018. 8(1):1524; nineteenth author.
8. Joint Head and Neck Radiotherapy-MRI Development Cooperative. Dynamic contrast-enhanced magnetic resonance imaging for head and neck cancers. *Scientific Data*, 2018. 5:180008; second author.
9. **Ger RB**, Cardenas CE, Anderson BM, Yang J, Mackin DS, Zhang L, Court LE. Guidelines and experience using imaging biomarker explorer (IBEX) for radiomics. *Journal of Visualized Experiments*, 2018. (131).
10. Mackin D, **Ger R**, Dodge C, Fave X, Chi P, Zhang L, Yang J, Bache S, Dodge C, Jones AK, Court L. Effect of tube current on computed tomography radiomics features. *Scientific Reports*, 2018. 8(1):2354.
11. **Ger RB***, Yang J, Ding Y, Jacobsen MC, Cardenas CE, Fuller CD, Howell RM, Li H, Stafford RJ, Zhou S, Court LE. Synthetic head and neck and phantom images for determining deformable image registration accuracy in magnetic resonance imaging. *Medical Physics*, 2018. 45(9):4315-4321; *corresponding author.

12. MICCAI/MD Anderson Cancer Center Head and Neck Quantitative Imaging Working Group. Machine learning applications in head and neck radiation oncology: lessons from open-source radiomics challenges. *Frontiers in Oncology*, 2018. 8:294; nineteenth author.
13. Kisling KD, **Ger RB**, Netherton TJ, Cardenas CE, Owens CA, Anderson BM, Lee J, Rhee DJ, Edward SS, Gay SS, He Y, David SD, Yang J, Nitsch PL, Balter PA, Urbauer DL, Peterson CB, Court LE, Dube S. A snapshot of medical physics practice patterns. *Journal of Applied Clinical Medical Physics*, 2018. 19(6):306-315.
14. **Ger RB***, Craft DF, Mackin DS, Zhou S, Layman RR, Jones AK, Elhalawani H, Fuller CD, Howell RM, Li H, Stafford RJ, Court LE. Practical guidelines for handling head and neck computed tomography artifacts for quantitative image analysis. *Computerized Medical Imaging and Graphics*, 2018. 69:134-139; *corresponding author.
15. **Ger RB***, Zhou S, Chi PM, Lee HJ, Layman RR, Jones AK, Goff DL, Fuller CD, Howell RM, Li H, Stafford RJ, Court LE, Mackin DS. Comprehensive investigation on controlling for inter-scanner variabilities in radiomics studies. *Scientific Reports*, 2018. 8(1):13047; *corresponding author.
16. Craft DF, Balter P, Woodward W, Kry SF, Salehpour M, **Ger R**, Peters M, Baltz G, Traneus E, Howell RM. Design, fabrication, and validation of patient-specific electron tissue compensators for postmastectomy radiation therapy. *Physics & Imaging in Radiation Oncology*, 2018. 8:38-43.
17. Mackin D, **Ger R**, Gay S, Dodge C, Zhang L, Yang J, Jones AK, Court L. Matching and homogenizing convolution kernels for quantitative studies in computed tomography. *Investigative Radiology*, 2019. 54(5):288-295.
18. Gay SS, Netherton TJ, Cardenas CE, **Ger RB**, Balter PA, Dong L, Mihailidis D, Court LE. Dosimetric impact and detectability of multi-leaf collimator positioning errors on Varian Halcyon. *Journal of Applied Clinical Medical Physics*, 2019. 20(8):47-55.
19. Branco LRF, **Ger RB**, Mackin DS, Zhou S, Court LE, Layman RR. Technical Note: Proof of concept for radiomics-based quality assurance for computed tomography. *Journal of Applied Clinical Medical Physics*, 2019. 20(11):199-205.
20. **Ger RB***, Meier JG, Pahlka RB, Gay S, Mumme R, Fuller CD, Li H, Howell RM, Layman RR, Stafford RJ, Zhou S, Mawlawi O, Court LE. Effects of alterations in positron emission tomography imaging parameters on radiomics features. *PLOS One*, 2019. 14(9):e0221877; *corresponding author.
21. **Ger RB***, Zhou S, Elgohari B, Elhalawani H, Mackin DM, Meier JG, Nguyen CM, Anderson BM, Gay C, Ning J, Fuller CD, Li H, Howell RM, Layman RR, Mawlawi O, Stafford RJ, Aerts H, Court LE. Radiomics features of the primary tumor fail to classify overall survival in large oropharynx patient cohorts. *PLOS One*, 2019. 14(9):e0222509; *corresponding author.
22. Jacobsen MC, Thrower SL, **Ger RB**, Leng S, Court LE, Brock KK, Tamm EP, Cressman ENK, Cody DD, Layman RR. Multi-energy computed tomography and material quantification: Current barriers and opportunities for advancement. *Medical Physics*, 2020. 47(8):3752-3771.
23. Lee J, Steinmann A, Ding Y, Lee H, Owens C, Wang J, Yang J, Followill D, **Ger R**, Mackin D, Court L. Radiomics feature robustness as measured using an MRI phantom. *Scientific Reports*, 2021. 11(1):1-14.
24. Huang K, Rhee DJ, **Ger RB**, Layman R, Yang J, Cardenas CE, Court LE. Impact of slice thickness, pixel size, and CT dose on the performance of automatic contouring algorithms. *Journal of Applied Clinical Medical Physics*, 2021. 22(5):168-174.
25. Korte JC, Cardenas C, Hardcastle N, Kron T, Wang J, Bahig H, Elgohari B, **Ger RB**, Court L, Fuller CD, Ng SP. Radiomics feature stability of open-source software evaluated on apparent diffusion coefficient maps in head and neck cancer. *Scientific Reports*. 11(1):1-11.

[Review Articles \[RA\]](#)

[Case Reports \[CR\]](#)

[Book Chapters, Monographs \[BC\]](#)

[Books, Textbooks \[BK\]](#)

Other Publications: Suggested Additional Subcategory Titles: *May adjust as necessary for your specialty*

[Proceedings Reports \[PR\]](#)

[Guidelines/Protocols, Consensus Statement, Expert Opinion, Consortium Articles \[GL\]](#)

[Editorials \[ED\]](#)

[Methods and Techniques, "How I Do It" articles \[MT\]](#)

[Research Letters/White Papers/Brief Reports \[RL\]](#)

[Published Curricula \[PC\], Learner Assessment Tools, Educational Evaluations, Assessment/Evaluation Instruments \[PC\]](#)

[Letters, Correspondence \[LT\]](#)

[Media Releases or Interviews \[MR\]](#)

[Other Media \[OM\] \(Videos, Websites, Blogs, Social Media, etc.\)](#)

FUNDING

EXTRAMURAL Funding

INTRAMURAL Funding

CLINICAL ACTIVITIES

Clinical Focus

Certification

Medical, other state/government licensure

Boards, other specialty certification

Clinical (Service) Responsibilities

Clinical Productivity

Clinical Draw from outside local/regional area (*reflecting national/international reputation*)

Membership in or examiner for specialty board

Clinical Program Building / Leadership

Clinical Demonstration Activities to external audience, on or off campus

Development of nationally/internationally recognized clinical standard of care (*may not be published in peer-reviewed journals*):

EDUCATIONAL ACTIVITIES

Educational Focus

Teaching

Classroom instruction

Clinical instruction

CME instruction

Workshops /seminars

Mentoring

Pre-doctoral Advisees /Mentees

Post-doctoral Advisees /Mentees

Thesis committees

Educational Program Building / Leadership

Educational Demonstration Activities to external audiences,

RESEARCH ACTIVITIES

Research Focus

Research Program Building / Leadership

Research Demonstration Activities

Inventions, Patents, Copyrights

Technology Transfer Activities

SYSTEM INNOVATION AND QUALITY IMPROVEMENT ACTIVITIES

None

ORGANIZATIONAL ACTIVITIES

Institutional Administrative Appointments

Editorial Activities

Editorial Board appointments

Journal peer review activities

Date Journal full name (*do not abbreviate here*)

Other peer review activities [*non medico-legal*]

Advisory Committees, Review Groups/Study Sections

Professional Societies

Conference Organizer

Session Chair

Consultantships

RECOGNITION

Awards, Honors

Date	Title, description, sponsor, any explanatory notes
2013	AAPM Summer Undergraduate Fellowship, 10 week summer program designed to provide opportunities for undergraduate university students to gain experience in medical physics by performing research in a medical physics laboratory or assisting with clinical service at a clinical facility, AAPM
2013	UNC Shelton Award for Undergraduate Research, awarded to one undergraduate physics major each year for exemplary research, UNC
2014	Phi Beta Kappa, academic honor society in the United States
2014-2015	HHMI Med Into Grad Fellowship, prepare scientists to translate laboratory discoveries into new medical treatments and diagnostics, Rice University
2015-2018	Travel Award, award to attend conferences when presenting research, MD Anderson Cancer Center UTHealth Graduate School of Biomedical Sciences
2016-2019	Rosalie B. Hite Fellowship, full support of stipend, tuition and fees for one year to promising graduate students in the area of cancer research, MD Anderson Cancer Center UTHealth Graduate School of Biomedical Sciences
2017	American Legion Auxiliary Fellowship, \$5,000 in funds to student supports students early in their graduate training whose research is related to the understanding and treatment of cancer, MD Anderson Cancer Center UTHealth Graduate School of Biomedical Sciences
2018	Southwest AAPM Young Investigator Symposium Second Place, presentation competition for current trainees, Southwest Chapter of AAPM
2021	AAPM Spring Clinical Early-Career Investigator Symposium Finalist, competition for clinical projects or research for candidates no more than two years post-graduate or if post-graduate, in a medical physics residency program or a medical physics related postdoctoral fellowship, AAPM

Invited Talks

OTHER PROFESSIONAL ACCOMPLISHMENTS (*Optional*)

Posters

Oral/Podium Presentations [abstracts that were both presented orally and published]

1. Hadsell M, Ger R*, Inscoe C, Schreiber E, Lu J, Chang S, Zhou O. Dosimetric characterization of a prototype nanotechnology microbeam radiation therapy device using Gafchromic EBT2 Film. AAPM 2013.
2. Ger R*, Burgett E, Price R, Craft D, Kry S, Howell R. Pseudo in vivo patient dosimetry using a 3D-printed patient-specific phantom. AAPM 2015.
3. Ger R*, Awan M, Mohamed A, Ding Y, Frank S, Howell R, Li H, Liu H, Mohan R, Schellingerhout D, Stafford R, Wang J, Fuller C, Court L. Investigation of longitudinal salivary gland DCE-MRI changes. AAPM 2016.

4. **Ger R***, Mohamed A, Awan M, Ding Y, Li K, Fave X, Beers A, Driscoll B, Elhalawani H, Hormuth D, van Houdt P, He R, Zhou S, Mathieu K, Li H, Coolens C, Chung C, Bankson J, Huang W, Wang J, Sandulache V, Lai S, Howell R, Stafford R, Yankeelov T, van der Heide U, Frank S, Barboriak D, Hazle J, Court L, Kalpathy-Cramer J, Fuller C. Comparison of parameter calculation algorithms for DCE-MRI: results from a multi-institutional study. AAPM 2017.
5. **Ger R***, Yang J, Ding Y, Jacobsen M, Fuller C, Howell R, Li H, Stafford R, Zhou S, Court L. Assessment of the accuracy of DIR on MR images using Velocity and an in-house demons algorithm. AAPM 2017.
6. **Ger R***, Zhou S, Chi P, Goff D, Zhang L, Lee H, Fuller C, Howell R, Li H, Stafford R, Court L, Mackin D. Quantitative image feature variability amongst CT scanners with a controlled scan protocol. SPIE 2018.
7. **Ger R***, Zhou S, Chi P, Lee H, Layman R, Jones A, Goff D, Fuller C, Howell R, Li H, Stafford R, Mackin D, Court L. Harmonized CT protocols for high quality radiomics studies. AAPM 2018.
8. **Ger R***, Zhou S, Mackin D, Elhalawani H, Elgohari B, Meier J, Fuller C, Howell R, Layman R, Li H, Mawlawi O, Stafford J, Court L. Harmonizing imaging protocols: Impact on radiomics survival prediction in large patient cohorts. AAPM 2019.
9. **Ger R***, Armstrong M, Robertson D. Computer Vision Mechanical QA: The Future is Automation. Spring Clinical AAPM 2021.

Military Service
Community Services
Humanitarian Activities
Philanthropic Activities
Other