

Rachel M. Lee, PhD

Bioimage Data Analyst, Advanced Imaging Center, Janelia Research Campus
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- EDUCATION**
- Doctor of Philosophy, Physics** August 2016
University of Maryland – College Park, Maryland
Doctoral Thesis: “Guided Migration and Collective Behavior: Cell Dynamics During Cancer Progression”
4.0 GPA
- Bachelor of Science, Physics** May 2010
Bachelor of Science, Chemical Engineering
University of Arkansas – Fayetteville, Arkansas
Minor: Mathematics
Honors Thesis: “Liposomes as Carriers for Drug Delivery”
4.0 GPA, *summa cum laude*
- RESEARCH EXPERIENCE**
- Bioimage Data Analyst** 2021–Present
Advanced Imaging Center
Janelia Research Campus
- I provide data analysis support to members of the Advanced Imaging Center (AIC) and to visitors who use the AIC’s advanced microscopes.
- Postdoctoral Fellow** 2017–2021
Marlene and Stewart Greenebaum Comprehensive Cancer Center
University of Maryland School of Medicine, Baltimore
Advisor: Stuart S. Martin
- Received competitive funding from Cancer Biology T32 Program (2017–2019).
 - Measured changes in migration dynamics for a genetically-defined cancer model system, leading to a first-author publication in *Scientific Reports*.
 - Collaborated with biologists and clinicians to develop analysis tools supporting multiple cancer studies, including key analysis for a publication in *PNAS*.
- Postdoctoral Associate** 2016–2017
Institute for Physical Science and Technology, University of Maryland
Advisors: Wolfgang Losert and John T. Fourkas
- Measured migration behavior and actin dynamics on nanotopographic surfaces.
 - Collaborated with chemists and physicists to apply optical flow techniques to actin dynamics, leading to a co-first-author publication in *MBoC*.
- Graduate Student** 2010–2016
Department of Physics, University of Maryland, College Park
Advisor: Wolfgang Losert
- Supported by a NSF Graduate Research Fellowship (2010–2013).
 - Received competitive funding from the ARCS Foundation (2013–2016).
 - Developed image analysis pipelines and nonlinear dynamics metrics for the study of collective cell migration dynamics, leading to 4 first-author publications.
 - Collaborated with Carole A. Parent and colleagues at National Cancer Institute to study migration dynamics during metastatic breast cancer.

Undergraduate Student

2007–2010

Department of Physics, University of Arkansas, Fayetteville

Advisor: Gregory Salamo

- Measured drug delivery properties of temperature-sensitive liposomes.
- Supported by the Department of Physics (2009–2010) and the University of Arkansas Howard Hughes Medical Institute Research Studio (2007–2009).

PUBLICATIONS*Submitted Manuscripts and Preprints*

22. S. Gu, **R. M. Lee**, Z. Benson, C. Ling, M. I. Vitolo, S. S. Martin, J. Chalfoun, and W. Losert. Label-free Cell Tracking Enables Collective Motion Phenotyping in Epithelial Monolayers. *bioRxiv*, 2021. doi:10.1101/2021.12.14.472148 *In Revision*.
21. K. Zhu, A. J. Contreras, **R. M. Lee**, Y. Zhang, L. Guo, D. B. Eisen, W. Losert, and M. Zhao. Dynamic coordination of collective electrotaxis *In Revision*.

Peer-Reviewed Publications

20. T. J. Mathias, J. A. Ju, **R. M. Lee**, K. N. Thompson, M. L. Mull, D. A. Annis, K. T. Chang, E. C. Ory, M. B. Stemberger, T. Hotta, R. Ohi, M. I. Vitolo, M.-J. Moutin, and S. S. Martin. Tubulin Carboxypeptidase Activity Promotes Focal Gelatin Degradation in Breast Tumor Cells and Induces Apoptosis in Breast Epithelial Cells That Is Overcome by Oncogenic Signaling. *Cancers*, 14(7):1707, 2022. doi:10.3390/cancers14071707
19. M. A. Reiche, J. S. Aaron, U. Boehm, M. C. DeSantis, C. M. Hobson, S. Khuon, **R. M. Lee**, and T.-L. Chew. When light meets biology – how the specimen affects quantitative microscopy. *Journal of Cell Science*, 135(6):jcs259656, 2022. doi:10.1242/jcs.259656
18. K. N. Thompson, J. A. Ju, E. C. Ory, S. J. P. Pratt, **R. M. Lee**, T. J. Mathias, K. T. Chang, C. J. Lee, O. G. Goloubeva, P. C. Bailey, K. R. Chakrabarti, C. M. Jewell, M. I. Vitolo, and S. S. Martin. Microtubule disruption reduces metastasis more effectively than primary tumor growth. *Breast Cancer Research*, 24(1):13, 2022. doi:10.1186/s13058-022-01506-2
17. J. C. Reader, C. Fan, E. C.-H. Ory, J. Ju, **R. M. Lee**, M. I. Vitolo, P. Smith, S. Wu, M. M. N. Ching, E. B. Asiedu, C. M. Jewell, G. G. Rao, A. Fulton, T. J. Webb, P. Yang, A. D. Santin, H.-C. Huang, S. S. Martin, and D. M. Roque. Microtentacle formation in ovarian carcinoma. *Cancers*, 14(3):800, 2022. Number: 3 Publisher: Multidisciplinary Digital Publishing Institute. doi:10.3390/cancers14030800
16. **R. M. Lee**, M. I. Vitolo, W. Losert, and S. S. Martin. Distinct roles of tumor associated mutations in collective cell migration. *Scientific Reports*, 11(1):10291, 2021. doi:10.1038/s41598-021-89130-6
 - Associated collective migration analysis tools are available on [GitHub](#).
 - Associated raw images are available from [IDR](#).
15. S. J. P. Pratt, **R. M. Lee**, K. T. Chang, E. O. Hernández-Ochoa, D. A. Annis, E. C. Ory, K. N. Thompson, P. C. Bailey, T. J. Mathias, J. A. Ju, M. I. Vitolo, M. F. Schneider, J. P. Stains, C. W. Ward, and S. S. Martin. Mechanoactivation of NOX2-generated ROS elicits persistent TRPM8 Ca²⁺ signals that are inhibited by oncogenic KRas. *Proceedings of the National Academy of Sciences*, 117(42):26008–26019, 2020. doi:10.1073/pnas.2009495117
 - Associated calcium signaling analysis tools are available on [GitHub](#).

14. J. A. Ju, C. J. Lee, K. N. Thompson, E. C. Ory, **R. M. Lee**, T. J. Mathias, S. J. P. Pratt, M. I. Vitolo, C. M. Jewell, and S. S. Martin. Partial thermal imidization of polyelectrolyte multilayer cell tethering surfaces (TetherChip) enables efficient cell capture and microtentacle fixation for circulating tumor cell analysis. *Lab on a Chip*, 20(16):2872–2888, 2020. doi:10.1039/D0LC00207K
13. **R. M. Lee***, L. Campanello*, M. J. Hourwitz, P. Alvarez, A. Omidvar, J. T. Fourkas, and W. Losert. Quantifying topography-guided actin dynamics across scales using optical flow. *Molecular Biology of the Cell (Fourth Special Issue on Forces On and Within Cells)*, 31(16):1753–1764, 2020. doi:10.1091/mbc.E19-11-0614 (*contributed equally to this study)
 - Associated actin images are available on [Mendeley Data](#).
 - Associated optical flow analysis code is available on [GitHub](#).
12. S. J. P. Pratt, **R. M. Lee**, and S. S. Martin. The Mechanical Microenvironment in Breast Cancer. *Cancers*, 12(6), 2020. doi:10.3390/cancers12061452
11. **R. M. Lee** and W. Losert. Dynamics phenotyping across length and time scales in collective cell migration. *Seminars in Cell & Developmental Biology*, 93:69–76, Sept. 2019. doi:10.1016/j.semcd.2018.10.010
10. P. C. Bailey, **R. M. Lee**, M. I. Vitolo, S. J. P. Pratt, E. Ory, K. Chakrabarti, C. J. Lee, K. N. Thompson, and S. S. Martin. Single cell tracking of breast cancer cells enables highly accurate prediction of sphere formation using only early doubling information. *iScience*, 2018. doi:10.1016/j.isci.2018.08.015
 - Associated raw data is available on [Mendeley Data](#).
9. S. J. Pratt, E. O. Hernández-Ochoa, **R. M. Lee**, E. C. Ory, J. S. Lyons, H. C. Joca, A. Johnson, K. Thompson, P. Bailey, C. J. Lee, T. Mathias, M. I. Vitolo, M. Trudeau, J. P. Stains, C. W. Ward, M. F. Schneider, and S. S. Martin. Real-time scratch assay reveals mechanisms of early calcium signaling in breast cancer cells in response to wounding. *Oncotarget*, 9:25008–25024, 2018. doi:10.18632/oncotarget.25186
 - Associated calcium signaling analysis tools are available on [GitHub](#).
8. C. H. Stuelten, **R. M. Lee**, W. Losert, and C. A. Parent. Lysophosphatidic acid regulates the motility of MCF10CA1a breast cancer cell sheets via two opposing signaling pathways. *Cellular Signalling*, 45, 2018. doi:10.1016/j.cellsig.2018.01.005
7. Y. Zhang, G. Xu, **R. M. Lee**, Z. Zhu, J. Wu, S. Liao, G. Zhang, Y. Sun, A. Mogilner, W. Losert, T. Pan, F. Lin, Z. Xu, and M. Zhao. Collective cell migration has distinct directionality and speed dynamics. *Cellular and Molecular Life Sciences*, 74(20):3841–3850, 2017. doi:10.1007/s00018-017-2553-6
6. **R. M. Lee**, H. Yue, W.-J. Rappel, and W. Losert. Inferring single-cell behaviour from large-scale epithelial sheet migration patterns. *Journal of The Royal Society Interface*, 14(130):20170147, 2017. doi:10.1098/rsif.2017.0147
 - Associated data and code is available on [DRUM](#).
5. **R. M. Lee**, C. H. Stuelten, C. A. Parent, and W. Losert. Collective cell migration over long time scales reveals distinct phenotypes. *Convergent Science Physical Oncology*, 2:025001, 2016. doi:10.1088/2057-1739/2/2/025001
4. **R. M. Lee**, D. H. Kelley, K. N. Nordstrom, N. T. Ouellette, and W. Losert. Quantifying stretching and rearrangement in epithelial sheet migration. *New Journal of Physics*, 15(2):025036, 2013. doi:10.1088/1367-2630/15/2/025036
3. D. Fologea, E. Krueger, R. Al Faori, **R. M. Lee**, Y. I. Mazur, R. Henry, M. Arnold, and G. J. Salamo. Multivalent ions control the transport through lysenin channels. *Biophysical chemistry*, 152:40–45, Nov. 2010. doi:10.1016/j.bpc.2010.07.004

2. D. Fologea, E. Krueger, **R. M. Lee**, M. Naglak, Y. I. Mazur, R. Henry, and G. J. Salamo. Controlled gating of lysenin pores. *Biophysical chemistry*, 146(1):25–29, Jan. 2010. doi:10.1016/j.bpc.2009.09.014
1. W. R. Penney, **R. M. Lee**, M. E. Magie, and E. C. Clausen. Design projects in undergraduate heat transfer: Six examples from the fall 2007 course at the University of Arkansas. *Proceedings of the 2007 Midwest Section Conference of the American Society for Engineering Education*, 2007

FELLOWSHIPS	T32 Trainee Fellowship in Cancer Biology	2017–2019
	ARCS Foundation Scholar (JCM Foundation)	2014–2016
	ARCS Endowed Fellowship	2013–2014
	NSF Graduate Fellowship	2010–2013
	University Graduate Fellowship, University of Maryland	2010–2012
	Computer, Mathematical, and Physical Sciences Dean’s Fellowship	2010
	Goldwater Scholar	2009–2010
	University of Arkansas Bodenhamer Fellow	2005–2010
	State Undergraduate Research Fellowship	2008–2009
	National Merit Scholar	2005
	Arkansas Governor’s Distinguished Scholar	2005–2009
	Carl B. & Florence E. King Foundation Scholar	2005–2009

AWARDS	Top Poster, Postdoctoral Poster Presentation, UMB Cancer Biology Retreat	2021
	First Place, Postdoctoral Poster Presentation, UMB Cancer Biology Retreat	2019
	Best Postdoctoral Oral Presentation, UMB Cancer Biology Retreat	2018
	University of Maryland School of Medicine Postdoctoral Travel Award	2018
	First Place, Trainee Poster Competition, UMGCCC Research Day	2017
	George A. Snow Memorial Award, UMD Physics – <i>For helping advance the representation of women in the field of physics</i>	2016
	SIAM Student Travel Award	2015
	Biophysics Category Poster Winner, UMD Bioscience Day	2013
	Arkansas INBRE Physics Poster Competition, First place	2009
	Honors College Study Abroad Grant	2007, 2009
	Girl Scout Gold Award Recipient	2005

TEACHING EXPERIENCE	Guest Lecturer, Molecular Medicine Survival Skills	2019, 2020
	– Developed and presented lecture on <i>Introduction to Statistics</i> for GPLS 647. – Graduate level course on scientific communication and practical research skills.	

Lead Instructor, MATLAB Boot Camp	2013–2017
– Week long session designed to prepare summer students for image analysis projects. Also attended by researchers from the National Institutes of Health.	
– Developed curriculum, lectures, and in-class problem sets.	
– Led sessions as a lecturer and provided guidance during student coding sessions.	

MENTORING	Research Students	
	– Shuyao Gu, Graduate Student, Physics	2020–Present
	– Phillip Alvarez, Graduate Student, Biophysics	2017–Present
	– Bianca Reginauld, Undergraduate, Biochemistry	2017–2020
	– Esther Maidoh, Undergraduate, Pre-Med	2017–2020
	– Deborah Hemingway, Graduate Student, Biophysics	2016–2018
	– Alan Li, High School Student	Summer 2014
– Ryan Shute, Undergraduate, Pre-Med	Spring 2013	

- Peter Kordell, Undergraduate, Physics Fall 2011

Women in Physics Mentoring Program

- Mengwen Shi, Undergraduate, Physics 2020–Present
- Lisa Maszkiewicz, Undergraduate, Physics 2014–2015

SERVICE

Peer Reviewer

- Journal of the Royal Society Interface
- PLOS Computational Biology
- PLOS ONE

Conference Organization and Service

- University of Maryland Cancer Biology Research Retreat 2017, 2018
Member of organizing committee
- American Physical Society March Meeting 2015, 2019
Session chair for Physics of Cancer focus session
- Mid-Atlantic Conference for Undergraduate Women in Physics 2013–2014
Member of local organizing committee. Developed and maintained website. Led social media presence. Moderated a panel discussion during the event.

Webmaster

- Univ. of Maryland Women in Physics Summer 2013–Spring 2016
Developed and maintained website. Managed social media presence. Member of organizing committee for panel discussion of physics careers outside academia.

President

- Univ. of Arkansas Society of Physics Students Fall 2009–Spring 2010
- Univ. of Arkansas Sigma Pi Sigma Fall 2009–Spring 2010

Treasurer

- Univ. of Arkansas Society of Physics Students Fall 2007–Spring 2009
- Univ. of Arkansas American Institute of Chemical Engineers 2007

INVITED TALKS

Imaging migration dynamics during cancer progression. *2019 University of Maryland Greenebaum NCI Comprehensive Cancer Center Cancer Imaging Retreat*, May 2019

Dynamics phenotyping across length and time scales in collective cell migration. *Mathematics of the Cell: Mechanical and Chemical Signaling across Scales, Banff International Research Station*, August 2018

Guided migration and collective behavior: Cell dynamics during cancer progression. *Department of Physics and Astronomy Colloquium, West Virginia University*, October 2017

Guided migration and collective behavior: Cell dynamics during cancer progression. *Integrative Cancer Research Seminar, University of Maryland*, November 2016

Studying the physics of cancer with cell migration dynamics. *Quince Orchard High School*, September 2016

Studying the physics of cancer with cell migration dynamics. *U.S. Physics Team Training Camp, University of Maryland*, May 2016

Quantifying collective cell migration during cancer progression. *SIAM Conference on Applications of Dynamical Systems, Minisymposium on Emerging Collective Patterns in Dynamic Swarms*, May 2015

Quantifying collective cell migration during cancer progression. *Eleventh Annual Symposium of the Burgers Program for Fluid Dynamics, University of Maryland*, November 2014

Studying the physics of cancer with cell migration dynamics. *Summer Girls Program, University of Maryland*, August 2014, 2015, 2017

Quantifying collective migration in cancer progression. *University of Arkansas Physics Colloquium*, March 2014

Fighting cancer with biophysics. *Institute for Academic Challenge Community Seminar Series*, March 2013

Quantifying collective migration in cell monolayers. *University of Maryland Applied Dynamics Seminar*, November 2012

Liposomes as carriers for drug delivery. *Sigma Pi Sigma Induction Ceremony, University of Arkansas*, April 2010

Developing and visualizing nano-carriers for cellular drug delivery. *Undergraduate Research Colloquium, University of Arkansas Physics Department*, September 2008

TALKS & POSTERS

R. M. Lee, M. Vitolo, W. Losert, and S. S. Martin. Distinct roles of tumor associated mutations in collective cell migration. *11th Annual Cancer Biology Research Retreat, University of Maryland Baltimore*, June 2021. (poster) – **Postdoctoral Poster Competition Winner**

R. M. Lee, M. Vitolo, W. Losert, and S. S. Martin. Distinct roles of tumor-associated mutations in collective cell migration. *American Physical Society March Meeting*, March 2021

R. M. Lee, M. J. Hourwitz, K. Thompson, M. Vitolo, J. T. Fourkas, W. Losert, and S. S. Martin. The role of cell migration guidance cues in collective behavior. *10th Annual Cancer Biology Research Retreat, University of Maryland Baltimore*, June 2019. (poster) – **1st Place, Postdoctoral Poster Competition**

R. M. Lee, M. J. Hourwitz, K. Thompson, M. Vitolo, J. T. Fourkas, W. Losert, and S. S. Martin. The role of cell migration guidance cues in emergent collective behavior. *American Physical Society March Meeting*, March 2019

R. M. Lee, H. Yue, C. Stuelton, W.-J. Rappel, C. A. Parent, and W. Losert. Collective dynamics over long time scales and large length scales reveals distinct cell migration phenotypes. *2018 APS Mid-Atlantic Annual Meeting*, November 2018. (poster)

R. M. Lee. Response of collective cell migration to surface topography reveals distinct phenotypes. *9th Annual Cancer Biology Research Retreat, University of Maryland Baltimore*, April 2018. – **Award for Best Postdoctoral Oral Presentation**

R. M. Lee, M. J. Hourwitz, K. Thompson, M. Vitolo, J. T. Fourkas, W. Losert, and S. S. Martin. Response of collective cell migration to surface topography reveals distinct phenotypes. *American Physical Society March Meeting*, March 2018

R. M. Lee, H. Yue, C. Stuelton, W.-J. Rappel, C. A. Parent, and W. Losert. Collective dynamics over long time scales and large length scales reveals distinct cell migration phenotypes. *2017 ASCB Annual Meeting*, December 2017. (poster). [doi:10.1091/mbc.E17-10-0618](https://doi.org/10.1091/mbc.E17-10-0618)

R. M. Lee, C. Stuelton, C. A. Parent, and W. Losert. Collective cell migration over long time scales reveals distinct phenotypes. *UMGCC Research Day*, September 2017. (poster) – **1st Place, Trainee Poster Competition**

R. M. Lee, B. U. S. Schmidt, L. Campanello, M. J. Hourwitz, J. T. Fourkas, and W. Losert. Physical guidance of the actin cytoskeleton and cell migration dynamics in epithelial cells. *American Physical Society March Meeting*, March 2017

- R. M. Lee, C. Stuelton, C. A. Parent, and W. Losert. Collective cell migration over long time scales reveals distinct phenotypes. *Directed Cell Migration Gordon Research Conference*, January 2017. (poster)
- R. M. Lee, S. Das, M. Hourwitz, X. Sun, C. Parent, J. Fourkas, and W. Losert. Nanotopography guides and directs cell migration in amoeboid and epithelial cells. *American Physical Society March Meeting*, March 2016
- S. Das, R. M. Lee, M. Hourwitz, X. Sun, C. Parent, J. T. Fourkas, and W. Losert. Nanoridges guide and direct cell migration via cytoskeletal alignment. *2015 Annual Meeting of the International Physics of Living Systems (iPoLS) Network*, July 2015. (poster)
- R. M. Lee, H. Yue, W.-J. Rappel, and W. Losert. Characterization of collective cell migration dynamics. *American Physical Society March Meeting*, March 2015
- R. M. Lee, C. Stuelton, C. A. Parent, and W. Losert. Quantifying collective cell migration during cancer progression. *Directed Cell Migration Gordon Research Conference*, January 2015. (poster)
- R. M. Lee. Quantifying collective cell migration during cancer progression. *Directed Cell Migration Gordon Research Seminar*, January 2015
- R. M. Lee, C. Stuelten, K. Nordstrom, D. Kelley, N. Ouellete, C. Parent, and W. Losert. Quantifying collective cell migration during cancer progression. *International Meeting of the Physics of Living Systems Student Research Network*, July 2014
- R. M. Lee, C. Stuelten, K. Nordstrom, C. Parent, and W. Losert. Quantifying collective cell migration during cancer progression. *American Physical Society March Meeting*, March 2014
- R. M. Lee, D. H. Kelley, K. N. Nordstrom, M. Weiger, C. Stuelton, C. A. Parent, N. T. Ouellette, and W. Losert. Quantifying collective migration in cancer progression. *University of Maryland Bioscience Day*, November 2013. (poster) – **Biophysics Category Poster Winner**
- R. M. Lee, D. H. Kelley, K. N. Nordstrom, N. T. Ouellette, and W. Losert. Quantifying stretching and rearrangement in epithelial sheets. *American Physical Society March Meeting*, March 2013
- R. M. Lee, D. H. Kelley, K. N. Nordstrom, M. Weiger, C. Stuelton, C. A. Parent, N. T. Ouellette, and W. Losert. Quantifying stretching and rearrangement in epithelial sheets. *Directed Cell Migration GRC*, January 2013. (poster)
- R. M. Lee, D. H. Kelley, K. N. Nordstrom, M. Weiger, C. Stuelton, C. A. Parent, N. T. Ouellette, and W. Losert. Quantifying stretching and rearrangement in epithelial sheets. *University of Maryland Bioscience Day*, November 2012. (poster)
- R. M. Lee, M. Weiger, C. Stuelton, C. A. Parent, and W. Losert. Analysis of collective forces involved in epithelial sheet migration. *12th Annual Center for Cancer Research Fellows and Young Investigators Colloquium*, March 2012. (poster)
- R. M. Lee, M. Weiger, C. Stuelton, C. A. Parent, and W. Losert. Analysis of collective forces involved in epithelial sheet migration. *8th Annual NIH Graduate Student Research Symposium*, January 2012. (poster)
- R. M. Lee, M. Weiger, C. Stuelton, C. A. Parent, and W. Losert. Analysis of collective forces involved in epithelial sheet migration. *Dynamics Days (Baltimore, Maryland)*, January 2012. (poster)
- R. M. Lee, M. Weiger, C. Stuelton, C. A. Parent, and W. Losert. Mechanics of collective cell motion. *UMD-NCI Cancer Technology Workshop, National Institute of Health*, November 2011. (poster)

R. Lee, R. Henry, G. Salamo, and D. Fologea. Liposomes as carriers for drug delivery. *Nanotechnology for Health Care, Winthrop Rockefeller Institute*, January 2010. (poster)

R. Lee, M. Naglak, R. Henry, G. Salamo, and D. Fologea. Uptake and release of drugs and nanoparticles from liposomes. *Arkansas INBRE Fall 2009 Research Conference*, October 2009. (poster) – **1st place, Physics Poster Competition**

R. Lee, M. Naglak, R. Henry, G. Salamo, and D. Fologea. Uptake and release of drugs and nanoparticles from liposomes. *Nanotechnology for Health Care, Winthrop Rockefeller Institute*, January 2009. (poster)

R. Lee, M. Naglak, R. Henry, G. Salamo, and D. Fologea. Liposomal carriers for drug delivery. *Sigma Pi Sigma 2008 Quadrennial Congress, Fermi National Accelerator Laboratory*, November 2008. (poster)

INTERVIEWS Ask Rachel Lee about: The physics of migrating cancer cells. *BioBuzz*, 2016. URL: <https://biohive.breezio.com/discussion/4580442791158482829/>
 K. Keefe. Rachel Lee - Medical Researcher - Univ. of Maryland. *LabTV on YouTube*, 2014. URL: <http://youtu.be/JHWeScGj4DI>
 J. Powviriya. Researchers use fat to fight cancer. *University of Arkansas Research Frontiers*, 2009. URL: <https://researchfrontiers.uark.edu/researchers-use-fat-to-fight-cancer/>

ADDITIONAL TRAINING Office of Postdoctoral Scholars, UM School of Medicine July 2018
Responsible Conduct of Research for Postdoctoral Fellows (Year Long Course)
 Office of Intramural Training and Education, NIH December 2015
Workplace Dynamics Certification
 L'École de Physique des Houches Summer School July 2012
Soft Interfaces
 J.M. Burgerscentrum Course October 2011
Particle Image Velocimetry

COMPUTER SKILLS – MATLAB
 – HTML/CSS
 – Inkscape/GIMP
 – ImageJ/Fiji
 – Mathematica
Published image and data analysis workflows are available at github.com/ScientistRachel

AFFILIATIONS American Physical Society 2007–Present
 Society of Physics Students 2006–2016
 American Institute of Chemical Engineers 2005–2010
 Phi Beta Kappa Inducted Spring 2010
 Sigma Pi Sigma Inducted Spring 2009
 Tau Beta Pi Initiated Spring 2007
 Girl Scouts of the USA Lifetime Membership

COMMUNITY OUTREACH Maryland Day 2011-2014, 2017, 2019
 Girls Excelling in Math and Science (GEMS) 2016
 Physics is Phun 2011
 Society of Physics Students Haunted Lab Outreach 2006–2009

Physics Fantastic Fun and Follies Fair
Student Day of Caring
Make a Difference Day

2009
2007
2005, 2006