Peter M. Graffy, PhD, MPH

Population Health Epidemiologist and Informaticist

Center for Computational Medicine and Clinical Artificial Intelligence, University of Chicago

+1 608 279 6729 | petergraffy@gmail.com | https://petergraffy.github.io/

Education

PhD, Biomedical Informatics   Sep 2021 – June 2025
Northwestern University, Chicago, IL

MPH, Epidemiology, Population Health   Aug 2015 – May 2017
University of Wisconsin-Madison, Madison, WI

BA, Anthropology, Women & Gender Studies, Spanish   Aug 2008 – May 2012
Luther College, Decorah, IA

Training and Employment History

Pulmonary & Critical Care Postdoctoral Fellow   July 2025 – Present
Center for Computational Medicine and Clinical Artificial Intelligence
University of Chicago, Chicago, IL

American Heart Association Predoctoral Fellow   Jan 2024 – Dec 2025
Institute for Artificial Intelligence in Medicine
Department of Preventive Medicine
Northwestern University, Chicago, IL

Research Project Manager   Jan 2020 – Jan 2023
Surgical Outcomes and Quality Improvement Center
Department of Surgery, Northwestern University, Chicago, IL

Research Scientist   Aug 2015 – Jan 2020
Department of Radiology | PI: Perry Pickhardt, MD
University of Wisconsin Hospital and Clinics, Madison, WI

Teaching Experience

Northwestern University
PUB_HLTH 303: Environmental Health Sciences (TA)   Jun 2023 – Aug 2023
PUB_HLTH 422: Intermediate Epidemiology (Guest Lecturer)   Jan 2024 – Mar 2024

PUBLICATIONS

1. **Graffy PM**. The Effect of Masculinity on Sexual Health Practices among College-Age Students in the United States. Journal of the National Association of Student Anthropologists. 2011;2(2):12-19.

2. **Graffy P**, Loomis S, Hinshaw JL, Lee F, Kim D, Pickhardt P, Lubner M, Kitchin D, Ziemlewicz T. Pulmonary intraparenchymal blood patching decreases the rate of pneumothorax-related complications following percutaneous CT-guided needle biopsy. Journal of Vascular and Interventional Radiology. 2017;28(4):608-613.e1.

3. **Graffy PM**, Pickhardt PJ. Quantification of hepatic and visceral fat by CT and MR imaging: relevance to the obesity epidemic, metabolic syndrome and NAFLD. British Journal of Radiology. 2016;89:20151024. doi:10.1259/bjr.20151024. **[Selected for "Best of BJR 2017."]**

4. **Graffy PM**, Lee SJ, Ziemlewicz TJ, Pickhardt PJ. Prevalence of vertebral compression fractures on routine body CT according to L1 trabecular attenuation: determining thresholds for opportunistic osteoporosis screening. American Journal of Roentgenology. 2017;209:491-496. doi:10.2214/AJR.17.17853.

5. Lee SJ, **Graffy PM**, Zea RD, Ziemlewicz TJ, Pickhardt PJ. Future osteoporotic fracture risk related to lumbar vertebral trabecular attenuation measured at routine body CT. Journal of Bone and Mineral Research. 2018. doi:10.1002/jbmr.3383.

6. Pickhardt P, **Graffy P**, Li K, Hernando D, Reeder S. Quantification of liver fat content with non-contrast MDCT: phantom and clinical correlation with MRI proton density fat fraction. American Journal of Roentgenology. 2018:W1-W7. doi:10.2214/AJR.17.19391.

7. Lee S, Summers R, **Graffy P**, Pickhardt P. Population-based opportunistic osteoporosis screening: validation of a fully automated CT tool for assessing longitudinal BMD changes. British Journal of Radiology. 2018:20180726. doi:10.1259/bjr.20180726.

8. O'Connor S, **Graffy P**, Zea R, Pickhardt P. Does nonenhanced CT-based quantification of abdominal aortic calcification outperform the Framingham Risk Score in predicting cardiovascular events in asymptomatic adults? Radiology. 2018. doi:10.1148/radiol.2018180562.

9. Kupfer S, Lubner S, Coronel E, Pickhardt P, Tipping M, **Graffy P**, Keenan E, Ross E, Li T, Weinberg D. Adherence to post-resection colorectal cancer surveillance at NCI-designated Comprehensive Cancer Centers. Cancer Medicine. 2018. https://doi.org/10.1002/cam4.1678.

10. Pickhardt P, **Graffy P**, Said A, Jones D, Malecki K, Welsh B, Zea R, Lubner M. Multi-parametric CT for noninvasive staging of HCV-related liver fibrosis: correlation with METAVIR histopathology. American Journal of Roentgenology. 2019. doi:10.2214/AJR.18.20284.

11. **Graffy P**, Liu J, Summers R, Pickhardt P. Deep learning-based muscle segmentation and quantification at abdominal CT: application to a longitudinal adult screening cohort for sarcopenia assessment. British Journal of Radiology. 2019;92:20190327.

12. Jang S, **Graffy P**, Lee S, Summers R, Pickhardt P. Opportunistic osteoporosis screening at routine body CT: normative L1 trabecular attenuation values from >20,000 cases. Radiology. 2019;291(2):360-367. doi:10.1148/radiol.2019181648.

13. **Graffy P**, McKinnon S, Lee G, Remington P. Life outside: a narrative ethnographic inquiry into the determinants of homelessness. Journal of Poverty. 2018. doi:10.1080/10875549.2018.1550133.

14. **Graffy P**, Liu J, O'Connor S, Summers R, Pickhardt P. Fully automated segmentation and quantification of aortic calcification at abdominal CT: application of a deep learning algorithm to a longitudinal screening cohort. Abdominal Radiology. 2019. doi:10.1007/s00261-019-02014-2.

15. **Graffy PM**, Sandfort V, Summers RM, Pickhardt PJ. Automated liver fat quantification at unenhanced abdominal CT in a longitudinal screening cohort. Radiology. 2019. https://doi.org/10.1148/radiol.2019190512.

16. Pickhardt PJ, **Graffy PM**, Zea R, Lee SJ, Liu J, Sandfort V, Summers RM. Automated CT biomarkers for opportunistic prediction of future cardiovascular events and mortality in an asymptomatic screening population. Lancet Digital Health. 2020;2:e192-e200. doi:10.1016/S2589-7500(20)30025-X.

17. Pickhardt PJ, **Graffy PM**, Weigman B, Deiss-Yehiely N, Hassan C, Weiss JM. Diagnostic performance of

multi-target stool DNA and CT colonography for non-invasive colorectal cancer screening. Radiology. 2020. doi:10.1148/radiol.2020201018.

18. Pickhardt PJ, **Graffy PM**, Zea R, Lee SJ, Liu J, Sandfort V, Summers RM. Opportunistic screening for metabolic syndrome in asymptomatic adults utilizing fully automated abdominal CT-based biomarkers. American Journal of Roentgenology. 2020. doi:10.2214/AJR.20.23049.

19. Pickhardt PJ, **Graffy PM**, Zea R, Lee SJ, Liu J, Sandfort V, Summers RM. Automated abdominal CT imaging biomarkers for opportunistic prediction of future major osteoporotic fractures. Radiology. 2020. doi:10.1148/radiol.2020200466.

20. Summers RM, Elton DC, Lee S, Liu J, Bagheri M, Sandfort V, Grayson PC, Mehta NN, Pinto PA, Linehan WM, Perez AA, **Graffy PM**, O'Connor SD, Pickhardt PJ. Atherosclerotic plaque burden on abdominal CT: automated assessment with deep learning on noncontrast and contrast-enhanced scans. Academic Radiology. 2020;28(11):1491-1499.

21. Pickhardt PJ, **Graffy PM**, Zea R. CT-gestützte Prädiktion osteoporotischer Frakturen. Risk. 2020;297:64-72.

22. Pickhardt PJ, **Graffy PM**, Perez AA, Lubner MG, Elton DC, Summers RM. Opportunistic screening at abdominal CT: automated body composition biomarkers for added cardiometabolic value. RadioGraphics. 2021;41(2):524-542.

23. Pickhardt PJ, Blake G, **Graffy PM**, Sandfort V, Elton DC, Perez AA, Summers RM. Liver steatosis categorization on contrast-enhanced CT using a fully automated deep learning volumetric segmentation tool. American Journal of Roentgenology. 2020;217(2):359-367.

24. **Graffy PM**, Summers RM, Perez AA, Sandfort V, Zea R, Pickhardt PJ. Automated assessment of longitudinal biomarker changes at abdominal CT: correlation with subsequent cardiovascular events. Abdominal Radiology. 2021. doi:10.1007/s00261-020-02885-w.

25. Lubner MG, **Graffy PM**, Said A, Watson R, Malecki K, Pickhardt PJ. Utility of multiparametric CT for identification of high-risk NAFLD. American Journal of Roentgenology. 2021. doi:10.2214/AJR.20.22842.

26. Sandfort V, Yan K, **Graffy PM**, Pickhardt PJ, Summers RM. Use of variational autoencoders with unsupervised learning to detect incorrect organ segmentations on CT. Radiology: Artificial Intelligence. 2021;3(3):e200218. doi:10.1148/ryai.2021200218.

27. Perez AA, Noe-Kim V, Lubner MG, **Graffy PM**, Garrett JW, Elton DC, Pickhardt PJ. Automated deep learning CT-based liver volume segmentation: defining normal and hepatomegaly for clinical practice. Radiology. 2022;302(2):336-342.

28. Olson SL, Ingram MC, **Graffy PM**, Murphy PM, Tian Y, Samis JH, Josefson JL, Rastatter JC. Effect of surgeon volume on pediatric thyroid surgery outcomes: a systematic review. Journal of Pediatric Surgery. 2021.

29. Deiss-Yehiely N, **Graffy PM**, Weigman B, Hassan C, Pickhardt PJ, Weiss JM. High-risk serrated lesion detection at colorectal cancer screening with multi-target stool DNA versus CT colonography. American Journal of Roentgenology. 2022;218(4):670-676.

30. Pickhardt PJ, Perez AA, Garrett JW, **Graffy PM**, Zea R, Summers RM. Fully automated deep learning tool for sarcopenia assessment on CT: L1 versus L3 vertebral level muscle measurements. American Journal of Roentgenology. 2021. doi:10.2214/AJR.21.26486. **[Selected for "Best of MSK AJR 2022."]**

31. Guo Z, Blake GM, **Graffy PM**, Sandfort V, Summers RM, Yin L, Li W, Xu S, Chen Y, Zhou J, Shao J, Jiang Y, Qu H, Baoqing L, Cheng X, Pickhardt PJ. Hepatic steatosis: CT-based prevalence in adults in China and the United States and associations with age, sex, and BMI. American Journal of Roentgenology. 2022;218(5):846-857.

32. Pickhardt PJ, Nguyen T, Perez AA, **Graffy PM**, Jang S, Summers RM, Garrett JW. Improved CT-based osteoporosis assessment with a fully automated deep learning tool. Radiology: Artificial Intelligence. 2022;4(5):e220042.

33. Lee M, Zea R, Garrett J, **Graffy PM**, Summers RM, Pickhardt PJ. Abdominal CT body composition thresholds using automated AI tools for predicting 10-year adverse outcomes. Radiology. 2022:220574.

34. **Graffy PM**, Zimmerman L, Luo Y, Yu J, Choi Y, Zmora R, Lloyd-Jones D, Allen N. Longitudinal clustering of Life's Essential 8 health metrics in the CARDIA study. Journal of the American Medical Informatics Association. 2024;31(2):406-415.

35. **Graffy PM**, Sunderraj A, Visa MA, Miller CH, Barrett BW, Rao S, et al. Methodological approaches for measuring the association between heat exposure and health outcomes: a global scoping review. GeoHealth. 2024;8:e2024GH001071.

36. Visa MA, Kemprecos H, **Graffy PM**, Barrett BW, Rasnick E, Kho A, Horton DE. Degrees of difference: the impact of climate data resolution on mortality estimates using a novel geospatial linkage tool. Environmental Research Letters. 2025. Forthcoming.

37. Garcia HC, **Graffy PM**, Barrett BW, Visa MA, Jia J, Mallen E, Prachand N, Briggs G, Ford T, Wuebbles D, Allen N, Kho A, Horton DE. Increasing urban tree canopy is associated with reduced temperatures and mortality: a longitudinal analysis of Chicago neighborhoods. GeoHealth. 2025. Accepted pending revisions.

38. Barrett BW, **Graffy PM**, Rasnick E, Kho A, Horton DE. Daymet and DeGAUSS: development of a method linking high-resolution gridded meteorology with geocoded healthcare encounters. Journal of the American Medical Informatics Association. 2025. Under review.

39. **Graffy PM**, Barrett BW, Horton DE, Kho AN, Allen NB. Critical temperature thresholds for identifying vulnerability to heat-related excess cardiovascular morbidity and mortality. Journal of the American Heart Association. 2025. Accepted pending revisions.

40. **Graffy PM**, Barrett BW, Horton DE, Allen NB, Kho AN. Heat and hearts: computational phenotyping of cardiovascular disease during extreme heat events using EHR data. Journal of Biomedical Informatics. 2025. Under review.

41. Qu S, Sillmann J, Barrett BW, **Graffy P**, Poschlod B, Brunner L, Jorgensen E, Horton D. Integrating machine-learning-based variable selection into the Heat Vulnerability Index framework: determinants of heat-related mortality in Chicago. Environmental Research: Climate. 2025. Under review.

42. Jang H, **Graffy PM**, Barrett BW, Horton DE, Chan JL, Kho AN. Identifying heat-related diagnoses in emergency department visits among adults in Chicago: a heat-wide association study. Science Advances. 2025. Under review.

43. Mackie J, Barrett BW, **Graffy PM**, Horton DE, Kho AN. Leveraging LLM-based weak supervision for automated detection of heat-related EMS incidents. 2025. Manuscript in preparation.

44. **Graffy PM**, Guleria S, Chhikara K, Burrows K, Parker WF. The association of air pollution with the incidence and severity of acute respiratory failure in critically ill patients. Journal of the American Medical Association. 2025. In preparation.

45. **Graffy PM**, Burrows K, Parker WF. Unsupervised longitudinal clustering and computational phenotyping of acute respiratory failure trajectories in ICU patients. Journal of the American Medical Association. 2025. In preparation.

CONFERENCE ABSTRACTS

1. Coronel, E., et al., Adherence to Colorectal Cancer Surveillance Guidelines at 3 United States Academic Cancer Centers. Gastroenterology. 150(4): p. S766-S767. 2016. http://dx.doi.org/10.1016/S0016-5085(16)32598-7

2. **Graffy P**, Ziemlewicz T, Pickhardt P. Prevalence of vertebral compression fractures at abdominal CT according to trabecular attenuation. Radiology (RSNA) 2016 Annual Scientific Meeting. November, 2016. Chicago, IL.

3. Ziemlewicz TJ, **Graffy PM**, Lee SJ, Pickhardt PJ. Prevalence of Vertebral Compression Fractures on Routine Thoracoabdominal Imaging According to L1 Trabecular Attenuation: A Step in the Validation of Opportunistic Osteoporosis Screening. Society of Abdominal Radiology 2017 Annual Scientific Meeting and Educational Course. Hollywood, Florida. March 26 - 31, 2017.

4. **Graffy P**, McKinnon S, Lee G, Remington P. Life Outside: An Investigation into the Lived Experiences of the Madison homeless. University of Wisconsin Population Health Sciences Annual Poster Presentation. Madison, WI. April 2017.

5. **Graffy P**, Pickhardt P, Said A, Jones D, Malecki K, Welsh B, Zea R, Lubner M. Multi-parametric CT for Noninvasive Staging of Liver Fibrosis from HCV: Correlation with the Histopathologic METAVIR Score. Society of Abdominal Radiology 2018 Annual Scientific Meeting. Scottsdale, AZ. March 4-9, 2018.

6. **Graffy P**, Pickhardt P, Said A, Jones D, Malecki K, Welsh B, Zea R, Lubner M. Multi-parametric CT for Noninvasive Staging of Liver Fibrosis from HCV: Correlation with the Histopathologic METAVIR Score. American Roentgen Ray Society 2018 Annual Scientific Meeting. Washington, DC. April 21-27, 2018.

7. **Graffy P**, Li K, Hernando D, Reeder S, Pickhardt P. Quantification of Liver Fat Content with Non-contrast MDCT: Correlation with MRI Proton Density Fat Fraction (PDFF). American Roentgen Ray Society 2018 Annual Scientific Meeting. Washington, DC. April 21-27, 2018.

8. **Graffy P**, Pickhardt P, Said A, Jones D, Malecki K, Welsh B, Zea R, Lubner M. Multi-parametric CT for Noninvasive Staging of Liver Fibrosis from HCV: Correlation with the Histopathologic METAVIR Score. 2018 Zachary Clark Radiology Research Symposium. Madison, WI. May 5, 2018.

9. **Graffy P**, Li K, Hernando D, Reeder S, Pickhardt P. Quantification of Liver Fat Content with Non-contrast MDCT: Correlation with MRI Proton Density Fat Fraction (PDFF). 2018 Zachary Clark Radiology Research Symposium. Madison, WI. May 5, 2018.

10. **Graffy P**, Lubner M, Pickhardt P. Can Multiparametric CT Predict the Presence of NASH and Fibrosis in Patients with NAFLD? American Roentgen Ray Society's 119th Annual Meeting. Honolulu, HI. May 5-10, 2019.

11. *Pickhardt PJ, **Graffy PM**, Zea R, Lee SJ, Liu J, Sandfort V, Summers RM. Fully-Automated Analysis of Abdominal CT Scans for Opportunistic Prediction of Cardiometabolic Events: Initial Results in a Large Asymptomatic Adult Cohort. Society of Abdominal Radiology (SAR) Annual Scientific Meeting. Orlando, Florida. 2019.* ***Roscoe E. Miller Best Scientific Paper Award**

12. **Graffy P**, Jang S, Lee S, Summers M, Liu J, Pickhardt P. Opportunistic Osteoporosis Screening at Routine Body CT: Normative L1 Trabecular Attenuation Values from Over 20,000 Data Points. American Roentgen Ray Society's 119th Annual Meeting. Honolulu, HI. May 5-10, 2019.

13. **Graffy P**, Liu J, Summers M, Pickhardt P. Deep Learning-Based Segmentation and Quantification of Muscle Density and Area at Abdominal CT in a Longitudinal Adult Screening Cohort. American Roentgen Ray Society's 119th Annual Meeting. Honolulu, HI. May 5-10, 2019.

14. Sandfort V, Yan K, **Graffy PM**, Pickhardt PJ, Summers RM. CT Organ Segmentation: Use of variational autoencoders to detect incorrect segmentations in a large (> 10k CT scan) dataset. Radiology (RSNA) 2019 Annual Scientific Meeting. November, 2019. Chicago, IL.

15. Pickhardt PJ, **Graffy PM**, Weigman B, Deiss-Yehiely N, Weiss JM. Diagnostic performance of multi-target stool DNA test and CT colonography for non-invasive colorectal cancer screening in clinical practice. Society of Abdominal Radiology 2020 Annual Scientific Meeting. March 1-6, 2020. Maui, Hawaii.

16. Pickhardt PJ, **Graffy PM**, Zea R, Summers RM. Prediction of Metabolic Syndrome at Abdominal CT in Asymptomatic Adults using Automated CT-based Biomarkers. Society of Abdominal Radiology 2020 Annual Scientific Meeting. March 1-6, 2020. Maui, Hawaii.

17. Pickhardt PJ, **Graffy PM**, Weigman B, Deiss-Yehiely N, Weiss JM. Diagnostic performance of multi-target stool DNA test and CT colonography for non-invasive colorectal cancer screening in clinical practice. American Roentgen Ray Society's 120th Annual Meeting. May 3-8, 2020. Chicago, Illinois.

18. Pickhardt PJ, **Graffy PM**, Zea R, Summers RM. Prediction of Metabolic Syndrome at Abdominal CT in Asymptomatic Adults using Automated CT-based Biomarkers. American Roentgen Ray Society's 120th Annual Meeting. May 3-8, 2020. Chicago, Illinois.

19. Deiss-Yehiely N, **Graffy PM**, Weigman B, Hassan C, Pickhardt PJ, Weiss JM. High-risk serrated lesion detection at CRC screening: multi-target stool DNA versus CT colonography. Digestive Disease Week 2020. May 2-5, 2020. Chicago, IL.

20. **Graffy P**, Ziemlewicz T, Pickhardt P. Prevalence of vertebral compression fractures at abdominal CT according to trabecular attenuation. Radiology (RSNA) 2016 Annual Scientific Meeting. Chicago, IL. November 2016. Oral Presentation.

21. Ziemlewicz TJ, **Graffy PM**, Lee SJ, Pickhardt PJ. Prevalence of Vertebral Compression Fractures on Routine Thoracoabdominal Imaging According to L1 Trabecular Attenuation: A Step in the Validation of Opportunistic Osteoporosis Screening. Society of Abdominal Radiology 2017 Annual Scientific Meeting

and Educational Course. Hollywood, Florida. March 26 - 31, 2017. Oral Presentation.

22. **Graffy P**, McKinnon S, Lee G, Remington P. Life Outside: An Investigation into the Lived Experiences of the Madison Homeless. University of Wisconsin Population Health Sciences Annual Poster Presentation. Madison, WI. April 2017. Poster Presentation.

23. **Graffy P**, McKinnon S, Lee G, Remington P. Life Outside: An Investigation into the Lived Experiences of the Madison Homeless. UW-Madison Preventive Health Fellowship Meeting. Madison, WI. February 2018. Oral Presentation.

24. Pickhardt P, **Graffy P**, Said A, Jones D, Malecki K, Welsh B, Zea R, Lubner M. Multi-parametric CT for Noninvasive Staging of Liver Fibrosis from HCV: Correlation with the Histopathologic METAVIR Score. Society of Abdominal Radiology 2018 Annual Scientific Meeting. Scottsdale, AZ. March 4-9, 2018. Oral Presentation.

25. **Graffy P**, Pickhardt P, Said A, Jones D, Malecki K, Welsh B, Zea R, Lubner M. Multi-parametric CT for Noninvasive Staging of Liver Fibrosis from HCV: Correlation with the Histopathologic METAVIR Score. American Roentgen Ray Society 2018 Annual Scientific Meeting. Washington, DC. April 21-27, 2018. Oral Presentation.

26. **Graffy P**, Li K, Hernando D, Reeder S, Pickhardt P. Quantification of Liver Fat Content with Non-contrast MDCT: Correlation with MRI Proton Density Fat Fraction (PDFF). American Roentgen Ray Society 2018 Annual Scientific Meeting. Washington, DC. April 21-27, 2018. Oral Presentation.

27. **Graffy P**, Pickhardt P, Said A, Jones D, Malecki K, Welsh B, Zea R, Lubner M. Multi-parametric CT for Noninvasive Staging of Liver Fibrosis from HCV: Correlation with the Histopathologic METAVIR Score. 2018 Zachary Clark Radiology Research Symposium. Madison, WI. May 5, 2018. Oral Presentation.

28. Pickhardt PJ, **Graffy PM**, Zea R, Lee SJ, Liu J, Sandfort V, Summers RM. Fully-Automated Analysis of Abdominal CT Scans for Opportunistic Prediction of Cardiometabolic Events: Initial Results in a Large Asymptomatic Adult Cohort. Society of Abdominal Radiology (SAR) Annual Scientific Meeting. Orlando, Florida. 2019.

29. **Graffy P**, Li K, Hernando D, Reeder S, Pickhardt P. Quantification of Liver Fat Content with Non-contrast MDCT: Correlation with MRI Proton Density Fat Fraction (PDFF). 2018 Zachary Clark Radiology Research Symposium. Madison, WI. May 5, 2018. Oral Presentation.

30. **Graffy P**, Lubner M, Pickhardt P. Can Multiparametric CT Predict the Presence of NASH and Fibrosis in Patients with NAFLD? American Roentgen Ray Society's 119th Annual Meeting. Honolulu, HI. May 8th, 2019.

31. **Graffy P**, Jang S, Lee S, Summers M, Liu J, Pickhardt P. Opportunistic Osteoporosis Screening at Routine Body CT: Normative L1 Trabecular Attenuation Values from Over 20,000 Data Points. American Roentgen Ray Society's 119th Annual Meeting. Honolulu, HI. May 9th, 2019. ***ARRS 2019 Cum Laude Award for Best Oral Presentation**

32. **Graffy P**, Liu J, Summers M, Pickhardt P. Deep Learning-Based Segmentation and Quantification of Muscle Density and Area at Abdominal CT in a Longitudinal Adult Screening Cohort. American Roentgen Ray Society's 119th Annual Meeting. Honolulu, HI. May 10th, 2019.

33. Sandfort V, Yan K, **Graffy PM**, Pickhardt PJ, Summers RM. CT Organ Segmentation: Use of variational autoencoders to detect incorrect segmentations in a large (> 10k CT scan) dataset. Radiology (RSNA) 2019 Annual Scientific Meeting. November, 2019. Chicago, IL.

34. **Graffy P**, Zimmerman L, Luo Y, Yu J, Choi Y, Zmora R, Lloyd-Jones D, Allen N. Longitudinal Clustering of Life's Essential 8 health metrics: Application of a novel unsupervised learning method in the CARDIA Study. The American Medical Informatics Association (AMIA) Annual Meeting. New Orleans, LA. November 11-14th, 2023.

35. **Graffy P**, Zimmerman L, Luo Y, Yu J, Choi Y, Zmora R, Lloyd-Jones D, Allen N. Clustering in CARDIA: Longitudinal Analysis of Life's Essential 8 using a Novel Machine Learning Method. 17th Annual Feinberg Lewis Landsberg Research Day. Northwestern University, Chicago, IL. September 14th, 2023. Poster Presentation.

36. **Graffy P**, Zimmerman L, Luo Y, Yu J, Choi Y, Zmora R, Lloyd-Jones D, Allen N. Clustering in CARDIA: Longitudinal Analysis of Life's Essential 8 using a Novel Machine Learning Method. 8th Annual Chicago Biomedical Informatics Data Jam. Loyola University, Maywood, IL. October 6th, 2023. Poster Presentation.

37. **Peter M. Graffy**, Ashwin Sunderraj, Maxime A. Visa, Corinne Miller, Ben Barrett, Sheetal Rao, Sara F. Camilleri, Ryan D. Harp, Chuxuan Li, Anne Brenneman, Abel Kho, Daniel E. Horton, Norrina Allen. Climate-Related Heat Exposure and Cardiovascular Health: A Global Scoping Review. American Heart Association EPI Lifestyle Meeting. March 18-21st, 2024. Chicago, IL. Poster Presentation.

38. Benjamin W. Barrett, **Peter M. Graffy**, Daniel E. Horton, Abel Kho. Daymet and DeGAUSS: Development of a Novel Method that Links High Spatial Resolution Gridded Meteorological Data with Geocoded Healthcare Encounters. International Population Data Linkage Network Annual Meeting. Chicago, IL. September 18th, 2024. Rapid Oral Presentation.

39. Harrison Garcia, **Peter Graffy**, Benjamin Barrett, Maxime Visa, Ashwin Sunderraj, Jenny Jia, Daniel E. Horton. Urban Tree Canopy, Temperature, and Mortality: A Machine Learning Analysis of Chicago Neighborhoods. 18th Annual Feinberg Lewis Landsberg Research Day. Northwestern University, Chicago, IL. September 12th, 2024. Poster Presentation. ***Social and Public Health Section Finalist**

40. Maxime Visa, Helen Kemprecos, Benjamin Barrett, **Peter Graffy**, Daniel Horton. Development and validation of a novel method for healthcare data linkage to high-resolution gridded coordinate temperature and climate variables. 18th Annual Feinberg Lewis Landsberg Research Day. Northwestern University, Chicago, IL. September 12th, 2024. Poster Presentation.

41. **Peter Graffy**, Maxime Visa, Benjamin Barrett, Abel Kho, Daniel Horton. A comparison of heat exposure measurement methods to determine the effect of extreme heat on cardiovascular disease mortality in Chicago. 18th Annual Feinberg Lewis Landsberg Research Day. Northwestern University, Chicago, IL. September 12th, 2024. Poster Presentation.

42. Mehul V. Raval, Yao Tian, Lynn Huang, Erin Wymore, Deysi Paniagua-Perez, Kirsty M. Engelhardt, Mallory N. Perez, Alison Lehane, Charesa Smith, Gwyneth Sullivan, Audra J. Reiter, Andrew Hu, Martha-Conley E. Ingram, **Peter Graffy**, et al. "Implementation Yields Success – Results of the ENhanced Recovery In CHildren Undergoing Surgery (ENRICH-US) Randomized Controlled Trial." American Pediatric Surgical Association (APSA) Annual Meeting, 2025. Quebec, Canada. May 7-10th, 2025.

43. Mehul V. Raval, Willemijn Schafer, Yao Tian, Mallory N. Perez, Lynn Huang, Alison Lehane, Erin Wymore, Deysi Paniagua-Perez, Charesa Smith, Gwyneth Sullivan, Audra J. Reiter, Andrew Hu, Martha-Conley E. Ingram, Kirsty M. Engelhardt, **Peter Graffy**, et al. "Preliminary Analysis of Implementation Drivers in the Enhanced Recovery In CHildren Undergoing Surgery (ENRICH-US) Randomized Controlled Trial." American Surgical Association (ASA) Annual Meeting, 2025. San Diego, CA. April 24-26th, 2025.

44. **Peter Graffy**, Benjamin Barrett, Daniel Horton, Abel Kho, Norrina Allen. Critical temperature thresholds for identifying vulnerability to heat-related excess cardiovascular morbidity and mortality in Chicago. 19th Annual Feinberg Lewis Landsberg Research Day. Northwestern University, Chicago, IL. September 11th, 2025. Poster Presentation.

45. **Peter Graffy**, Benjamin Barrett, Daniel Horton, Norrina Allen, Abel Kho. Heat and hearts: computational phenotyping of cardiovascular disease during extreme heat events using electronic health record data. 19th Annual Feinberg Lewis Landsberg Research Day. Northwestern University, Chicago, IL. September 11th, 2025. Poster Presentation.

46. Hyojung Jang, **Peter Graffy**, Benjamin Barrett, Abel Kho. Diagnosis-Specific Heat-Related Emergency Department Visits Among Adults in Chicago: A Time-Stratified Case-Crossover Study Using Distributed Lag Nonlinear Models. 19th Annual Feinberg Lewis Landsberg Research Day. Northwestern University, Chicago, IL. September 11th, 2025. Poster Presentation.

47. Jake Mackie, **Peter Graffy**, Benjamin Barrett. Leveraging LLM-Based Weak Supervision for Automated Detection of Heat-Related EMS Incidents. 19th Annual Feinberg Lewis Landsberg Research Day. Northwestern University, Chicago, IL. September 11th, 2025. Poster Presentation.

48. **Peter Graffy,** Shan Guleria, Kaveri Chhikara, William Parker**.** The REspiratory Failure Environmental Risk (REFER) Study: Computational Phenotyping of Acute Respiratory Failure in ICU Patients. University of Chicago 2025 BSD Postdoc Annual Symposium. Chicago, IL. September 17th, 2025. Oral Presentation. ***Best Oral Presentation Award**

49. Harrison Garcia, **Peter Graffy**, Benjamin Barrett, Maxime Visa, Jenny Jia, Daniel E. Horton. Increasing tree canopy associated with reduced mortality: a longitudinal analysis of Chicago neighborhoods. Association of Medicine and Psychiatry 2025 Annual Conference. Newport Beach, CA. October 9-11th, 2025. Poster Presentation.

50. **Peter Graffy**, Benjamin Barrett, Daniel Horton, Norrina Allen, Abel Kho. Heat and hearts: computational phenotyping of cardiovascular disease during extreme heat events using electronic health record data. American Heart Association 2025 Scientific Sessions Early Innovators Spotlight. New Orleans, LA. November 7-10th, 2025. Oral Presentation.

51. **Peter Graffy**, Benjamin Barrett, Daniel Horton, Abel Kho, Norrina Allen. Critical temperature thresholds for identifying vulnerability to heat-related excess cardiovascular morbidity and mortality in Chicago. 2025 Illinois Weather and Public Health Response Summit. Chicago, IL. November 12-13th, 2025. Oral presentation.

AWARDS AND HONORS

A. Personal
- University of Chicago BSD Postdoc Travel Award (2025)
- University of Chicago BSD Annual Symposium Best Oral Presentation Award (2025)
- Chicago Wilderness Alliance George B. Rabb Force of Nature Award (2025)
- Invited speaker for the University of Hamburg climate and health workshop (2025)
- Selected to present at inaugural AI in Healthcare Forum: NYUTron and LLMs in Medicine (2023)
- Recipient of Society of Abdominal Radiology Roscoe E. Miller Best Paper Award (2019)
- American Roentgen Ray Society Cum Laude Best Oral Presentation Award (2019)
- Delta Omega Public Health Honor Society (2017)
- Recipient of Best of British Journal of Radiology Award (2016)
- All-American Ultimate Frisbee Association 1st Team (2014 – 2018)
- Senior Honors Thesis Award (2012)
- Presidential Scholarship (2008 – 2012)
- NCAA Division III All-Academic 1st Team (Men's Soccer) (2008 – 2012)
- Dean's List (2008 – 2012)

B. Students
- Poster Finalist, 18th Annual Lewis Landberg Research Day, Harrison Garcia (2024)

SERVICE

A. Invited Professional and Public Lectures
1. "Data linkage, electronic health records, and CVD," University of Hamburg, Hamburg, Germany, July 2025

B. University, School and Departmental Committees
Northwestern University
- Northwestern Institute for Artificial Intelligence in Medicine: AI in Healthcare Forum Student Organizer
- Health Sciences Integrated Program Student Organization Sports Chair
- Youth Sports Coach (Soccer and Ultimate Frisbee)

C. Organization Membership
- American Heart Association (AHA) (2023 – Present)
- American Medical Informatics Association (AMIA) (2023 – Present)

D. Reviewer of Manuscripts
Osteoporosis International, *Artificial Intelligence in Medicine*, *Journal of Computer Assisted Tomography (JCAT)*, *Journal of Gerontology: Medical Sciences*, *Journal of the American Medical Informatics Association (JAMIA)*, *Journal of the American Medical Informatics Association Open (JAMIAO)*, *JMIR Public Health and Surveillance (JPHS)*

E. **Research Mentoring**

Ben Weigman, PGY3 Diagnostic Radiology (2017 – 2018)
Department of Radiology
University of Wisconsin Hospital and Clinics

Nimrod Deiss-Yehiely, PGY2 Internal Medicine (2018 – 2019)
Department of Radiology
University of Wisconsin Hospital and Clinics

Maxime Visa, Medical Student (2022 – 2025)
Feinberg School of Medicine
Northwestern University

Harrison Garcia, Medical Student (2024 – 2025)
Feinberg School of Medicine
Northwestern University

Helen Kemprecos, Medical Student (2024 – 2025)
Carle School of Medicine
University of Illinois Urbana-Champaign

Jake Mackie, PhD Candidate (2024 – 2025)
Health Services and Outcomes Research
Northwestern University

Mercy Berchi, PhD Candidate (2024 – 2025)
Health and Biomedical Informatics
Northwestern University

Donna Hooshmand, PhD Candidate (2025)
Computer Science
Northwestern University

Hyojung Jang, PhD Candidate (2025 – Present)
Biostatistics
Northwestern University

Rachel Zuo, HS student (2025)
Research project mentorship

Aarin Bothra, HS student (2025)
Research project mentorship

RESEARCH SUPPORT

A. **Ongoing Research Support**

The goal of this project is to design and develop a national place-based vulnerability index for patients with acute respiratory failure within the CLIF consortium. This work integrates geospatial, sociodemographic, and granular clinical ICU data to quantify how exposome factors influence patient outcomes. By linking longitudinal ICU datasets with national vulnerability metrics, the project aims to identify communities and patient populations at greatest risk, informing targeted prevention and resource allocation strategies for critical care.
Role: Trainee

B. Completed Research Support

24PRE1193628   Graffy (PI)   01/01/2024 – 6/30/2025
Predoctoral Fellowship
American Heart Association
Heat and Hearts: Computational Phenotyping Cardiovascular Disease in the Context of Extreme Heat
The primary goals were to investigate the impact of extreme heat on CVD morbidity and mortality across Chicago, integrating mortality records, emergency department data, climate variables, and sociodemographic characteristics. This work advanced methods for linking climate and health datasets at high spatial and temporal resolution, producing evidence to guide heat-warning systems and precision public health interventions.
Role: Trainee

MEDIA

Work featured in: "OEMC, cooling centers, air conditioning & more: What's changed in extreme heat response since deadly 1995 Chicago heat wave." ABC 7 Chicago, July 16, 2025. Link here.

Work featured in: "Heat Study: Chicago Temperatures Vary as Much as 22 Degrees Between Neighborhoods." *Borderless Magazine*, by Liuan Huska, January 29, 2024. Link here.

Work featured in: "As Chicago Survives Another Heat Wave, the City Reassesses Its Disaster Plan." *Chicago Tribune*, July 16, 2025. Link here.

Featured in broadcast: "Chicago Park District Announces Extended Pool Operations Through Labor Day." *WGN-TV*, August 8, 2025. Highlighted the district's use of the Heat Vulnerability Index to guide a phased closure of pools and beaches—keeping 22 beaches, 19 neighborhood pools, and one inland beach open through Labor Day amid staffing and extreme heat considerations. Link here.

PUBLICATION METRICS

Total Citations (All Time): **2,543**
Citations Since 2020: **2,418**
h-index: **24 (both overall and since 2020)**
i10-index: **29 (both overall and since 2020)**

SOFTWARE AND TOOLS

Daymet DeGAUSS Tool (2024). Open-source containerized workflow for assigning high-resolution Daymet climate data to geospatial health datasets. Available at: https://degauss.org/daymet.