CURRICULUM VITAE
SAMUEL W. REMEDIOS, PH.D.

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RESEARCH INTERESTS

I am interested in the development of artificial intelligence methods for inverse problems in medical imaging. I have focused on super-resolution in magnetic resonance images and generative modeling. I combine mathematical grounding with data-driven approaches to facilitate robust medical image analysis and processing.

EDUCATION

Ph.D.	2025	Computer Science	Johns Hopkins University Thesis Advisor: Jerry L. Prince
M.S.E.	2023	Computer Science	Johns Hopkins University
B.S.	2019	Computer Science	Middle Tennessee State University Summa Cum Laude, GPA 4.0

RESEARCH & PROFESSIONAL EXPERIENCE

Nov 2025 – Present	Postdoctoral Researcher Johns Hopkins University Baltimore, MD, USA
June 2020 – Nov 2025	PhD Student & NSF Fellow & Research Assistant Johns Hopkins University Baltimore, MD, USA
May 2020 – Present	Special Volunteer National Institutes of Health Clinical Center Bethesda, MD, USA
Sept 2017 – June 2020	Observer (Research Assistant) Vanderbilt University Nashville, TN, USA
Sept 2017 – May 2020	Research Assistant Henry M. Jackson Foundation Bethesda, MD, USA
Summer 2017	NIH Summer Internship Program National Institutes of Health Clinical Center Bethesda, MD, USA
May 2015 – Sept 2016	Vocal and Guitar Instructor School of Rock Franklin, TN, USA

AWARDS AND HONORS

May 2025	Best Poster Award: "Cycle-Consistent Zero- Shot Through-Plane [. . .]" Information Processing in Medical Imaging Kos, Greece
Oct 2023	Best Paper Award: "Self-Supervised Super-Resolution for [. . .]" Simulation and Synthesis in Medical Imaging, A MICCAI Workshop Vancouver, BC, Canada
2020 – 2025	NSF GRFP Fellow
May 2023	Best Abstract Award Nomination: "Cautions in Anisotropy" The Consortium of Multiple Sclerosis Society 2023 Aurora, CO, USA
Oct 2022	NIH Travel Award MICCAI 2022 Singapore, Singapore
Sept 2020	Best Healthcare Hack: Flow-validated COVID-19 segmentation Prize: Bose Frames Audio Sunglasses Hophacks 2020, Johns Hopkins University Baltimore, MD, USA
May 2019	Outstanding Performance in Computer Science: Senior Middle Tennessee State University Murfreesboro, TN, USA
Nov 2018	Best Use of MicroStrategy API: Live data visualization for mobile insights Prize: Nintendo Switch VandyHacks 2018, Vanderbilt University Nashville, TN, USA
2018	Barry Goldwater Scholarship 2018: Honorable Mention
May 2018	Outstanding Performance in Computer Science: Junior Middle Tennessee State University Murfreesboro, TN, USA
Summer 2017	Best Presentation of Research in Imaging 2017 SIP RADIS Oral Presentation Competition, NIH Clinical Center Bethesda, MD, USA
Summer 2017	Best Poster Award: Machine learning applications for brain MRI 2017 SIP Poster Session, NIH Clinical Center Bethesda, MD, USA
Feb 2017	2nd Place Winner: Recommending parking locations via probabilistic models HackMT 2017, Middle Tennessee State University Murfreesboro, TN, USA
Jan 2017	Best use of MongoDB: Markov chains to create Hackathon Ideas BoilerMake IV, Purdue University West Lafayette, IN, USA
Nov 2016	Best education hack: Genetic algorithms to generate music HoyaHacks 2016, Georgetown University Washington D.C, USA

PUBLICATIONS

Journal Articles

[1] **S. W. Remedios**, S. Wei, S. Han, J. Zhang, A. Carass, K. G. Schilling, D. L. Pham, J. L. Prince, and B. E. Dewey. "ECLARE: efficient cross-planar learning for anisotropic resolution enhancement". In: *Journal of Medical Imaging* 13.2 (2026), pp. 024001–024001.

[2] **S. W. Remedios**, A. Carass, J. L. Prince, and B. E. Dewey. "Diffusion-Driven Generation of Minimally Preprocessed Brain MRI". In submission to Nature Scientific Reports. 2025.

[3] **S. W. Remedios**, F. Zhou, B. E. Dewey, A. Carass, and J. L. a. Prince. "Background Removal in Whole Head MRI with Foundation Models". In preparation for submission to the Journal of Medical Imaging. 2025.

[4] Y.-C. Lu, L. Zuo, Y.-Y. Chou, B. E. Dewey, **S. Remedios**, R. T. Shinohara, S. U. Steele, G. Nair, D. S. Reich, J. L. Prince, et al. "An Evaluation of Image-Based and Statistical Techniques for Harmonizing Brain Volume Measurements". In: *Imaging Neuroscience* (2025).

[5] K. G. Schilling, A. Newton, C. M. Tax, M. Chamberland, **S. W. Remedios**, Y. Gao, M. Li, C. Chang, F. Rheault, F. Sepherband, et al. "The relationship of white matter tract orientation to vascular geometry in the human brain". In: *Scientific Reports* 15.1 (2025), p. 18396.

[6] B. E. Dewey, **S. W. Remedios**, M. Sanjayan, N. B. Rjeily, A. Z. Lee, C. Wyche, S. Duncan, J. L. Prince, P. A. Calabresi, K. C. Fitzgerald, et al. "Super-Resolution in Clinically Available Spinal Cord MRIs Enables Automated Atrophy Analysis". In: *American Journal of Neuroradiology* 46.4 (2025), pp. 823–831.

[7] L. W. Remedios, S. Bao, **S. W. Remedios**, H. H. Lee, L. Y. Cai, T. Li, R. Deng, N. R. Newlin, A. M. Saunders, C. Cui, et al. "Data-driven nucleus subclassification on colon hematoxylin and eosin using style-transferred digital pathology". In: *Journal of Medical Imaging* 11.6 (2024), pp. 067501–067501.

[8] H. H. Lee, A. M. Saunders, M. E. Kim, **S. W. Remedios**, L. W. Remedios, Y. Tang, Q. Yang, X. Yu, S. Bao, C. Cho, et al. "Super-resolution multi-contrast unbiased eye atlases with deep probabilistic refinement". In: *Journal of Medical Imaging* 11.6 (2024), pp. 064004–064004.

[9] L. W. Remedios, H. Liu, **S. W. Remedios**, L. Zuo, A. M. Saunders, S. Bao, Y. Huo, A. C. Powers, J. Virostko, and B. A. Landman. "Influence of early through late fusion on pancreas segmentation from imperfectly registered multimodal magnetic resonance imaging". In: *Journal of Medical Imaging* 12.2 (2025), pp. 024008–024008.

[10] N. Phillips, **S. W. Remedios**, A. Nikolaidou, Z. Baracskai, and A. Adamatzky. "No ultrasounds detected from fungi when dehydrated". In: *Ultrasonics* 135 (2023), p. 107111. ISSN: 0041-624X.

[11] L. Zuo, Y. Liu, Y. Xue, B. E. Dewey, **S. W. Remedios**, S. P. Hays, M. Bilgel, E. M. Mowry, S. D. Newsome, P. A. Calabresi, S. M. Resnick, J. L. Prince, and A. Carass. "HACA3: A unified approach for multi-site MR image harmonization". In: *Computerized Medical Imaging and Graphics* 109 (2023), p. 102285. ISSN: 0895-6111.

[12] S. Han, **S. W. Remedios**, M. Schär, A. Carass, and J. L. Prince. "ESPRESO: An algorithm to estimate the slice profile of a single magnetic resonance image". In: *Magnetic Resonance Imaging* 98 (2023), pp. 155–163.

[13] C. W. Bown, O. A. Khan, D. Liu, **S. W. Remedios**, K. R. Pechman, J. G. Terry, S. Nair, L. T. Davis, B. A. Landman, K. A. Gifford, et al. "Enlarged perivascular space burden associations with arterial stiffness and cognition". In: *Neurobiology of Aging* 124 (2023), pp. 85–97.

[14] Y. Chou, C. Chang, **S. W. Remedios**, J. A. Butman, L. Chan, and D. L. Pham. "Automated classification of resting-state fMRI ICA components using a deep Siamese Network". In: *Frontiers in neuroscience* 16 (2022).

[15] L. W. Remedios, S. Lingam, **S. W. Remedios**, R. Gao, S. W. Clark, L. T. Davis, and B. A. Landman. "Comparison of convolutional neural networks for detecting large vessel occlusion on computed tomography angiography". In: *Medical Physics* 48.10 (2021), pp. 6060–6068.

[16] C. Bermudez, **S. W. Remedios**, K. Ramadass, M. McHugo, S. Heckers, Y. Huo, and B. A. Landman. "Generalizing deep whole-brain segmentation for post-contrast MRI with transfer learning". In: *Journal of Medical Imaging* 7.6 (2020), pp. 1–22.

[17] K. G. Schilling, L. Petit, F. Rheault, **S. Remedios**, C. Pierpaoli, A. W. Anderson, B. A. Landman, and M. Descoteaux. "Brain connections derived from diffusion MRI tractography can be highly anatomically accurate—if we know where white matter pathways start, where they end, and where they do not go". In: *Brain Structure and Function* 225.8 (2020), pp. 2387–2402.

[18] **S. W. Remedios**, S. Roy, C. Bermudez, M. B. Patel, J. A. Butman, B. A. Landman, and D. L. Pham. "Distributed deep learning across multisite datasets for generalized CT hemorrhage segmentation". In: *Medical Physics* 47.1 (2019), pp. 89–98.

[19] **S. W. Remedios**, S. Wei, S. Han, J. Zhang, A. Carass, K. G. Schilling, D. L. Pham, J. L. Prince, and B. E. Dewey. "ECLARE: Efficient Cross-Planar Learning for Anisotropic Resolution Enhancement". In preparation. 2025.

Theses

[1] **S. W. Remedios**. "Through-plane super-resolution of anisotropic multi-slice magnetic resonance images". Ph.D. Dissertation. Johns Hopkins University, Oct. 2025.

Authored Books

[1] **S. W. Remedios**, A. Carass, J. L. Prince, and B. E. Dewey. *Super-resolution in Magnetic Resonance Imaging: A Tutorial*. Under contract. Springer, 2027.

Book Chapters

[1] C. Zhao, **S. W. Remedios**, S. Han, B. Li, and J. L. Prince. "Medical image super-resolution with deep networks". In: *Biomedical Image Synthesis and Simulation*. Academic Press, Jan. 2022, pp. 233–253.

Accepted Conference Submissions

[1] S. Wei, **S. W. Remedios**, B. E. Dewey, Z. Bian, S. Wang, J. Chen, B. M. Jedynak, shiv saidha, P. A. Calabresi, A. Carass, and J. L. Prince. "Optical Coherence Tomography Harmonization with Anatomy-Guided Latent Metric Schrödinger Bridges". In: *The Thirty-ninth Annual Conference on Neural Information Processing Systems*. 2025.

[2] O. A. M. Gharib, **S. W. Remedios**, B. E. Dewey, J. L. Prince, and A. Carass. "Exploring the Feasibility of Zero-Shot Super-Resolution in Preclinical Imaging". In: *Medical Image Computing and Computer Assisted Intervention – MICCAI 2025*. Cham: Springer Nature Switzerland, 2025, pp. 186–196.

[3] S. Wei, **S. W. Remedios**, Z. Bian, S. Wang, J. Chen, Y. Liu, B. Jedynak, T. Y. A. Liu, S. Saidha, P. A. Calabresi, J. L. Prince, and A. Carass. "Unsupervised OCT Image Interpolation Using Deformable Registration and generative models". In: *Medical Image Computing and Computer Assisted Intervention – MICCAI 2025*. Cham: Springer Nature Switzerland, 2025, pp. 661–671.

[4] A. Feng, Z. Bian, **S. W. Remedios**, S. P. Hays, B. E. Dewey, J. Zhuo, D. Benjamini, and J. L. Prince. "Segmenting Thalamic Nuclei: T1 Maps Provide a Reliable and Efficient Solution". In: *Proceedings of the iMIMIC Workshop at MICCAI 2025*. Daejeon, South Korea, Sept. 2025.

[5] **S. W. Remedios**, S. Wei, A. Carass, B. E. Dewey, and J. L. Prince. "Cycle-Consistent Zero-Shot Through-Plane Super-Resolution for Anisotropic Head MRI". In: *International Conference on Information Processing in Medical Imaging*. Springer. 2025, pp. 249–264.

[6] Z. Bian, S. Wei, X. Liang, Y.-C. Lu, **S. W. Remedios**, F. Xing, J. Woo, D. L. Pham, A. Carass, P. V. Bayly, et al. "Brightness-Invariant Tracking Estimation in Tagged MRI". In: *International Conference on Information Processing in Medical Imaging*. Springer. 2025, pp. 375–389.

[7] G. A. Wintergerst, **S. W. Remedios**, A. T. Newton, S. A. Smith, B. A. Landman, and K. G. Schilling. "Measuring Impact of Super-Resolution on Spinal Cord MRI Scans: Lesion Detection Sensitivity, Variability, and Clinical Impact". In: *2025 IEEE 22nd International Symposium on Biomedical Imaging (ISBI)*. IEEE. 2025, pp. 1–5.

[8] C. A. Rivas, J. Zhang, S. Wei, **S. W. Remedios**, A. Carass, and J. L. Prince. "Unique MS lesion identification from MRI". In: *Medical Imaging 2025: Image Processing*. Vol. 13406. SPIE. 2025, pp. 592–599.

[9] J. Zhang, L. Zuo, Y. Liu, **S. Remedios**, B. A. Landman, J. L. Prince, and A. Carass. "Bi-directional MS lesion filling and synthesis using denoising diffusion implicit model-based lesion repainting". In: *Medical Imaging 2025: Image Processing*. Vol. 13406. SPIE. 2025, pp. 217–223.

[10] S. Hays, L. Zuo, B. E. Dewey, **S. Remedios**, J. Zhang, E. M. Mowry, S. D. Newsome, A. Carass, and J. L. Prince. "An Unsupervised Approach for Artifact Severity Scoring in Multi-Contrast MR Images". In: *Medical Imaging with Deep Learning*. 2025.

[11] Z. Wu, **S. W. Remedios**, B. E. Dewey, A. Carass, and J. L. Prince. "TS-SR3: Time-Strided Denoising Diffusion Probabilistic Model for MR Super-Resolution". In: *International Workshop on Machine Learning in Medical Imaging*. Springer. 2024, pp. 248–258.

[12] S. P. Hays, **S. W. Remedios**, L. Zuo, E. M. Mowry, S. D. Newsome, P. A. Calabresi, A. Carass, B. E. Dewey, and J. L. Prince. "Beyond MR Image Harmonization: Resolution Matters Too". In: *International Workshop on Simulation and Synthesis in Medical Imaging*. Springer. 2024, pp. 34–44.

[13] J. Zhang, L. Zuo, B. E. Dewey, **S. W. Remedios**, D. L. Pham, A. Carass, and J. L. Prince. "Towards an accurate and generalizable multiple sclerosis lesion segmentation model using self-ensembled lesion fusion". In: *2024 IEEE International Symposium on Biomedical Imaging (ISBI)*. IEEE. 2024, pp. 1–5.

[14] S. P. Hays, L. Zuo, B. E. Dewey, **S. W. Remedios**, S. D. Cassard, A. Fishman, J. Zhuo, A. Carass, E. M. Mowry, S. D. Newsome, et al. "Parameter Maps Synthesis From Magnetic Resonance Images Used in a Clinical Study of People With Multiple Sclerosis." In: *International Journal of MS Care*. Vol. 26. 2024.

[15] **S. W. Remedios**, B. E. Dewey, A. Carass, S. D. Cassard, C. Koch, A. Fishman, J. L. Prince, E. M. Mowry, S. D. Newsome, and P. A. Calabresi. "Assessing Central Vein Sign Visibility Across Various Anisotropic MRI Resolutions for Multiple Sclerosis Diagnosis." In: *International Journal of MS Care*. Vol. 26. 2024.

[16] **S. W. Remedios**, S. Wei, B. E. Dewey, A. Carass, D. L. Pham, and J. L. Prince. "Pushing the limits of zero-shot self-supervised super-resolution of anisotropic MR images". In: *Medical Imaging 2024: Image Processing*. International Society for Optics and Photonics. SPIE, 2024.

[17] L. W. Remedios, S. Bao, **S. W. Remedios**, H. H. Lee, L. Cai, T. Li, R. Deng, C. Cui, J. Li, Q. Liu, K. S. Lau, J. T. Roland, M. K. Washington, L. A. Coburn, K. T. Wilson, Y. Huo, and B. A. Landman. "Nucleus subtype classification using inter-modality learning ". In: *Medical Imaging 2024: Digital and Computational Pathology*. International Society for Optics and Photonics. SPIE, 2024.

[18] L. Guo, **S. W. Remedios**, A. Korotcov, and D. L. Pham. "Self-supervised super-resolution of 2-D pre-clinical MRI acquisitions". In: *Medical Imaging 2024: Clinical and Biomedical Imaging*. International Society for Optics and Photonics. SPIE, 2024.

[19] Y. Wang, Y. Liu, S. Wei, Y. Xue, L. Zuo, **S. W. Remedios**, Z. Bian, M. Meggyesy, J. Ahn, R. P. Lee, M. G. Luciano, J. L. Prince, and A. Carass. "Deep learning-based segmentation of hydrocephalus brain ventricle from ultrasound". In: *Medical Imaging 2024: Image Processing*. International Society for Optics and Photonics. SPIE, 2024.

[20] Z. Wu, **S. W. Remedios**, B. E. Dewey, A. Carass, and J. L. Prince. "AniRes2D: Anisotropic Residual-enhanced Diffusion for 2D MR Super-Resolution". In: *Medical Imaging 2024: Image Processing*. International Society for Optics and Photonics. SPIE, 2024.

[21] J. Zhang, L. Zuo, B. E. Dewey, **S. W. Remedios**, S. P. Hays, D. L. Pham, J. L. Prince, and A. Carass. "Harmonization-enriched domain adaptation with light fine-tuning for multiple sclerosis lesion segmentation". In: *Medical Imaging 2024: Clinical and Biomedical Imaging*. International Society for Optics and Photonics. SPIE, 2024.

[22] **S. W. Remedios**, S. Han, L. Zuo, A. Carass, D. L. Pham, J. L. Prince, and B. E. Dewey. "Self-Supervised Super-Resolution for Anisotropic MR Images with and Without Slice Gap". In: *Simulation and Synthesis in Medical Imaging*. Ed. by J. M. Wolterink, D. Svoboda, C. Zhao, and V. Fernandez. Cham: Springer Nature Switzerland, 2023, pp. 118–128. ISBN: 978-3-031-44689-4.

[23] **S. W. Remedios**, B. E. Dewey, Y. Xue, L. Zuo, S. D. Cassard, C. Koch, A. Fishman, J. L. Prince, E. M. Mowry, and S. D. Newsome. "Cautions in Anisotropy: Thick Slices and Slice Gaps in 2D Magnetic Resonance Acquisition Tarnish Volumetrics". In: *International Journal of Multiple Sclerosis Care*. The Consortium of Multiple Sclerosis Centers. IJMSC, 2023.

[24] B. E. Dewey, L. Zuo, **S. W. Remedios**, Y. Xue, S. D. Cassard, C. Koch, A. Fishman, A. Carass, J. L. Prince, E. M. Mowry, and S. D. Newsome. "Compliance with CMSC MRI Guidelines in a Multi-Center, Pragmatic, Randomized Clinical Trial: Improvements over Time". In: *International Journal of Multiple Sclerosis Care*. The Consortium of Multiple Sclerosis Centers. IJMSC, 2023.

[25] L. Zuo, S. P. Hays, B. E. Dewey, **S. W. Remedios**, Y. Xue, S. D. Cassard, C. Koch, A. Fishman, A. Carass, J. L. Prince, E. M. Mowry, and S. D. Newsome. "Inconsistent MR Acquisition in Longitudinal Volumetric Analysis: Impacts and Solutions". In: *International Journal of Multiple Sclerosis Care*. The Consortium of Multiple Sclerosis Centers. IJMSC, 2023.

[26] S. P. Hays, L. Zuo, B. E. Dewey, **S. W. Remedios**, Y. Xue, S. D. Cassard, C. Koch, A. Fishman, A. Carass, P. A. Calabresi, J. L. Prince, E. M. Mowry, and S. D. Newsome. "Quantifying contrast differences among MR images used in clinical studies". In: *International Journal of Multiple Sclerosis Care*. The Consortium of Multiple Sclerosis Centers. IJMSC, 2023.

[27] B. E. Dewey, A. Fishman, S. D. Cassard, L. Zuo, **S. W. Remedios**, Y. Xue, C. Koch, A. Carass, J. L. Prince, E. M. Mowry, and S. D. Newsome. "Measuring MRIs Differences Between Sites: Design of a Traveling Subject Study in MS". In: *International Journal of Multiple Sclerosis Care*. The Consortium of Multiple Sclerosis Centers. IJMSC, 2023.

[28] Y. Xue, B. E. Dewey, L. Zuo, **S. W. Remedios**, S. P. Hays, S. D. Cassard, C. Koch, A. Fishman, A. Carass, P. A. Calabresi, J. L. Prince, E. M. Mowry, and S. D. Newsome. "Synthesizing Missing MRI Sequences to Improve Processing Images in Multiple Sclerosis". In: *International Journal of Multiple Sclerosis Care*. The Consortium of Multiple Sclerosis Centers. IJMSC, 2023.

[29] **S. W. Remedios**, B. E. Dewey, A. Carass, D. L. Pham, and J. L. Prince. "A deep generative prior for high-resolution isotropic MR head slices". In: *Medical Imaging 2023: Image Processing*. International Society for Optics and Photonics. SPIE, 2023.

[30] Y. Xue, L. Zuo, **S. W. Remedios**, B. E. Dewey, P. Duan, Y. Liu, R. Zhang, S. D. Newsome, E. M. Mowry, A. Carass, and J. L. Prince. "Unsupervised quality assurance for brain MR image rigid registration using latent shape representation". In: *Medical Imaging 2023: Image Processing*. International Society for Optics and Photonics. SPIE, 2023.

[31] **S. W. Remedios**, S. Han, Y. Xue, A. Carass, T. D. Tran, D. L. Pham, and J. L. Prince. "Deep filter bank regression for super-resolution of anisotropic MR brain images". In: *International Conference on Medical Image Computing and Computer-Assisted Intervention*. Springer. 2022, pp. 613–622.

[32] Y. Xue, B. E. Dewey, L. Zuo, S. Han, A. Carass, P. Duan, **S. W. Remedios**, D. L. Pham, S. Saidha, P. A. Calabresi, et al. "Bi-directional Synthesis of Pre-and Post-contrast MRI via Guided Feature Disentanglement". In: *International Workshop on Simulation and Synthesis in Medical Imaging*. Springer. 2022, pp. 55–65.

[33] L. W. Remedios, L. Y. Cai, C. B. Hansen, **S. W. Remedios**, and B. Landman. "Efficient quality control with mixed CT and CTA datasets". In: *Medical Imaging 2022: Image Processing*. Vol. 12032. International Society for Optics and Photonics. SPIE, 2022, pp. 93–99.

[34] Y. Chou, **S. W. Remedios**, J. A. Butman, and D. L. Pham. "Automatic classification of MRI contrasts using a deep Siamese network and one-shot learning". In: *Medical Imaging 2022: Image Processing*. Vol. 12032. International Society for Optics and Photonics. SPIE, 2022, pp. 110–114.

[35] P. Tohidi, **S. W. Remedios**, D. L. Greenman, M. Shao, S. Han, B. E. Dewey, J. C. Reinhold, Y.-Y. Chou, D. L. Pham, J. L. Prince, and A. Carass. "Multiple Sclerosis brain lesion segmentation with different architecture ensembles". In: *Medical Imaging 2022: Biomedical Applications in Molecular, Structural, and Functional Imaging*. Vol. 12036. International Society for Optics and Photonics. SPIE, 2022, pp. 578–585.

[36] **S. W. Remedios**, S. Han, B. E. Dewey, D. L. Pham, J. L. Prince, and A. Carass. "Joint Image and Label Self-super-Resolution". In: *Simulation and Synthesis in Medical Imaging*. Cham: Springer International Publishing, 2021, pp. 14–23. ISBN: 978-3-030-87592-3.

[37] S. Han, **S. W. Remedios**, A. Carass, M. Schär, and J. L. Prince. "MR Slice Profile Estimation by Learning to Match Internal Patch Distributions". In: *Information Processing in Medical Imaging*. Cham: Springer International Publishing, 2021, pp. 108–119. ISBN: 978-3-030-78191-0.

[38] C. W. Bown, O. A. Khan, D. Liu, **S. Remedios**, K. R. Pechman, M. Schrag, L. T. Davis, J. G. Terry, S. Nair, J. J. Carr, et al. "Perivascular space volumes relate to arterial stiffness and cognition". In: *2021 Alzheimer's Association International Conference*. ALZ. 2021.

[39] **S. W. Remedios**, J. A. Butman, B. A. Landman, and D. L. Pham. "Federated gradient averaging for multi-site training with momentum-based optimizers". In: *Domain Adaptation and Representation Transfer, and Distributed and Collaborative Learning*. Springer, 2020, pp. 170–180.

[40] C. Bermudez, J. Blaber, **S. W. Remedios**, J. E. Reynolds, C. Lebel, M. McHugo, S. Heckers, Y. Huo, and B. A. Landman. "Generalizing deep whole brain segmentation for pediatric and post-contrast MRI with augmented transfer learning". In: *Medical Imaging 2020: Image Processing*. Vol. 11313. International Society for Optics and Photonics. SPIE, 2020, pp. 111–118.

[41] **S. Remedios**, Z. Wu, C. Bermudez, C. I. Kerley, S. Roy, M. B. Patel, J. A. Butman, B. A. Landman, and D. L. Pham. "Extracting 2D weak labels from volume labels using multiple instance learning in CT hemorrhage detection". In: *Medical Imaging 2020: Image Processing*. Vol. 11313. International Society for Optics and Photonics. SPIE, 2020, pp. 66–75.

[42] V. Nath, K. G. Schilling, **S. Remedios**, R. G. Bayrak, Y. Gao, J. A. Blaber, Y. Huo, B. A. Landman, and A. W. Anderson. "Learning 3D White Matter Microstructure from 2D Histology". In: *2019 IEEE 16th International Symposium on Biomedical Imaging (ISBI 2019)*. 2019, pp. 186–190.

[43] V. Nath, P. Parvathaneni, C. B. Hansen, A. E. Hainline, C. Bermudez, **S. Remedios**, J. A. Blaber, K. G. Schilling, I. Lyu, V. Janve, Y. Gao, I. Stepniewska, B. P. Rogers, A. T. Newton, L. T. Davis, J. Luci, A. W. Anderson, and L. B. A. "Inter-scanner harmonization of high angular resolution DW-MRI using null space deep learning". In: *International Conference on Medical Image Computing and Computer-Assisted Intervention*. Springer. 2019, pp. 193–201.

[44] **S. Remedios**, S. Roy, J. Blaber, C. Bermudez, V. Nath, M. B. Patel, J. A. Butman, B. A. Landman, and D. L. Pham. "Distributed deep learning for robust multi-site segmentation of CT imaging after traumatic brain injury". In: *Medical Imaging 2019: Image Processing*. Vol. 10949. International Society for Optics and Photonics. SPIE, 2019, pp. 68–75.

[45] V. Nath, **S. Remedios**, P. Parvathaneni, C. B. Hansen, R. G. Bayrak, C. Bermudez, J. A. Blaber, K. G. Schilling, V. A. Janve, Y. Gao, Y. Huo, I. Lyu, O. Williams, S. Resnick, L. Beason-Held, B. P. Rogers, I. Stepniewska, A. W. Anderson, and B. A. Landman. "Harmonizing 1.5T/3T diffusion weighted MRI through development of deep learning stabilized microarchitecture estimators ". In: *Medical Imaging 2019: Image Processing*. Vol. 10949. International Society for Optics and Photonics. SPIE, 2019, pp. 173–182.

[46] **S. Remedios**, D. L. Pham, J. A. Butman, and S. Roy. "Classifying magnetic resonance image modalities with convolutional neural networks". In: *Medical Imaging 2018: Computer-Aided Diagnosis*. Vol. 10575. International Society for Optics and Photonics. SPIE, 2018, pp. 558–563.

PRESENTATIONS

Invited Talks

[1] S. W. Remedios. *Through-plane super-resolution of anisotropic multi-slice magnetic resonance images*. Invited Talk, The University of Tokyo. Tokyo, Japan. Invited by Tatsuya Harada. Sept. 29, 2025.

[2] S. W. Remedios. *Through-plane super-resolution of anisotropic multi-slice magnetic resonance images*. Invited Talk, The Nara Institute of Science and Technology. Nara, Japan. Invited by Yoshito Otake. Oct. 3, 2025.

Conference Oral Presentations

[1] *Assessing Central Vein Sign Visibility Across Various Anisotropic MRI Resolutions for Multiple Sclerosis Diagnosis*. CMSC, Nashville, TN, USA. May 30, 2024.

[2] *Pushing the limits of zero-shot self-supervised super-resolution of anisotropic MR images*. SPIE Medical Imaging, San Diego, CA, USA. Feb. 19, 2024.

[3] *Self-Supervised Super-Resolution for Anisotropic MR Images with and Without Slice Gap*. MICCAI SASHIMI, Vancouver, BC, Canada. Oct. 8, 2023.

[4] *A deep generative prior for high-resolution isotropic MR head slices*. SPIE Medical Imaging, San Diego, CA, USA. Feb. 21, 2023.

[5] *Joint image and label self-super-resolution*. MICCAI SASHIMI, Strasbourg, France. Sept. 27, 2021.

[6] *Federated gradient averaging for multi-site training with momentum-based optimizers*. MICCAI DCL, Lima, Peru. Oct. 4, 2020.

[7] *Obtaining a trained 2D deep learning model with 3D weak volume labels using multiple instance learning for CT hemorrhage detection*. NCA TBI Research Symposium. Bethesda, MD, USA. Mar. 6, 2020.

[8] *Extracting 2D weak labels from volume labels using multiple instance learning in CT hemorrhage detection*. SPIE Medical Imaging, Houston, TX, USA. Feb. 18, 2020.

[9] *Distributed deep learning for robust multi-site segmentation of CT imaging after traumatic brain injury*. SPIE Medical Imaging, San Diego, CA, USA. Feb. 19, 2019.

[10] *Classifying magnetic resonance image modalities with convolutional neural networks*. SPIE Medical Imaging, Houston, TX, USA. Feb. 14, 2018.

[11] *Deep Learning for Classification of Magnetic Resonance Brain Images*. NIH Clinical Center SIP RADIS, Bethesda, MD, USA. Aug. 9, 2017.

Conference Poster Presentations

[1] O. A. M. Gharib, **S. W. Remedios**, B. E. Dewey, J. L. Prince, and A. Carass. *Exploring the Feasibility of Zero-Shot Super-Resolution in Preclinical Imaging*. MICCAI, Daejeon, South Korea. Sept. 25, 2025.

[2] S. Wei, **S. W. Remedios**, Z. Bian, S. Wang, J. Chen, Y. Liu, B. Jedynak, T. Y. A. Liu, S. Saidha, P. A. Calabresi, J. L. Prince, and A. Carass. *Unsupervised OCT Image Interpolation Using Deformable Registration and generative models*. MICCAI, Daejeon, South Korea. Sept. 26, 2025.

[3] **S. W. Remedios**, S. Wei, A. Carass, B. E. Dewey, and J. L. Prince. *Cycle-Consistent Zero-Shot Through-Plane Super-Resolution for Anisotropic Head MRI*. IPMI, Kos, Greece. May 27, 2025.

[4] Z. Wu, **S. W. Remedios**, B. E. Dewey, A. Carass, and J. L. Prince. *TS-SR3: Time-Strided Denoising Diffusion Probabilistic Model for MR Super-Resolution*. MLMI Workshop at MICCAI, Marrakesh, Morroco. Oct. 6, 2024.

[5] **S. W. Remedios**, B. E. Dewey, Y. Xue, L. Zuo, S. D. Cassard, C. Koch, A. Fishman, J. L. Prince, E. M. Mowry, and S. D. Newsome. *Cautions in Anisotropy: Thick Slices and Slice Gaps in 2D Magnetic Resonance Acquisition Tarnish Volumetrics*. CMSC, Aurora, Colorado, USA. June 1, 2023.

[6] **S. W. Remedios**, S. Han, Y. Xue, A. Carass, T. D. Tran, D. L. Pham, and J. L. Prince. *Deep filter bank regression for super-resolution of anisotropic MR brain images*. MICCAI, Singapore, Singapore. Sept. 20, 2022.

[7] **S. Remedios**, D. L. Pham, J. A. Butman, and S. Roy. *Classifying magnetic resonance image modalities with convolutional neural networks*. SPIE MI, Houston, TX, USA. Feb. 14, 2018.

PROFESSIONAL ACTIVITIES

Organizing Committee

- SASHIMI 2026 at MICCAI, Abu Dhabi, United Arab Emirates
- SASHIMI 2025 at MICCAI, Daejeon, South Korea
- SASHIMI 2024 at MICCAI, Marrakesh, Morocco

Journal and Conference Reviewing

- Proceedings of the IEEE
- IEEE Transactions on Image Processing
- ICLR 2025
- CVPR 2026
- MICCAI 2021, 2022, 2023, 2024, 2025
- MedNeurIPS 2023
- Nature: Scientific Reports
- Imaging Science Journal
- Artificial Intelligence in Medicine
- Journal of Medical Imaging
- Journal of Remote Sensing
- Journal of Electronic Imaging
- Pattern Analysis and Applications Journal

TEACHING EXPERIENCE

- **Head Teaching Assistant**, 520.623 Medical Image Analysis, Johns Hopkins University, Spring 2025 (27 students). Instructor: Prof. Jerry L. Prince.
- **Head Teaching Assistant**, 520.632 Medical Imaging Systems, Johns Hopkins University, Fall 2023 (42 students). Instructor: Prof. Jerry L. Prince.
- **Head Teaching Assistant**, 520.390 Music Signal Processing, Johns Hopkins University, Fall 2022 (4 students). Instructor: Prof. Jerry L. Prince.

PUBLIC RELATIONS ACTIVITIES AND ARTICLES

- "CS student wins Best Poster Award at IPMI 2025," Johns Hopkins University Department of Computer Science News, October 3, 2025. https://www.cs.jhu.edu/news/cs-student-wins-best-poster-award-at-ipmi-2025/

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