

William Roncal

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Asymmetric Operations Sector
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Professional Experience

2007–Present **Principal Research Engineer, Project Manager, Section Supervisor, Johns Hopkins University Applied Physics Laboratory, Laurel, MD.**

*Applies systems engineering methods to complex challenges spanning defense, space, biomedical, and learning systems, with expertise in building scalable data systems and human-machine teaming solutions. **Research Program Leadership:***

- *Co-PI (2023–2028):* NIH CONNECTS Mouse Connectome—scaling circuit analysis and reconstruction.
- *Key Personnel (2023–2026):* NIH CONNECTS High Throughput Imaging Research Grant.
- *Key Personnel (2018–2028):* NIH bossDB (R24MH114785)—petabyte-scale data storage and community collaboration for connectomics and precision medicine.
- *PI (2021–2023):* BENCHMARK (NIH R01MH126684)—community standards for high-resolution connectomics.
- *PI (2020–2021):* TITAN (DARPA AIE)—low-shot learning algorithms inspired by insect neural connectivity.
- *Technical Lead (2017–2022):* IARPA MICrONS—algorithms for cubic millimeter mammalian neuroscience; scene parsing methods for operator-focused environments.
- *PI (2017–2020):* NIH SABER (R24MH114799)—reproducible cloud processing pipelines for neuroscience.
- *Technical Lead (2020–2021):* NeuroAI Engines—translating biological neural computation to next-generation AI algorithms.
- *Current Research:* Human cognitive performance—quantitative measures of operator capability in complex operational contexts.

Leadership & Management:

- *Acting Group Supervisor (2022–2023):* REDD Group strategic development and staff mentorship.
- *Section Supervisor (2018–2022):* Line management, hiring, mentoring, and strategic initiatives.
- *Team Lead (2024):* CDAO Digital Talent Management Futures—diverse talent pipeline for DoD.

Data Science & Clinical Applications:

- *Data Scientist (2017–2022):* JHU Precision Medicine—analytics leadership for Multiple Sclerosis and COVID-19.

2017–Present **Faculty Appointments, Johns Hopkins University.**

- *Visiting Assistant Professor, School of Education (2026–Present):* Leading development of the Learning Engineering Specialization within the Master of Education in Learning Design and Technology program; applying systems engineering principles to learning in operational environments including healthcare and defense.
Previously: Assistant Research Professor (courtesy), School of Education (2020–2025)—interdisciplinary research at the intersection of engineering and education.
- *Assistant Research Professor, Computer Science (2017–Present):* Teaching, research collaboration, and advising undergraduate/graduate students.
- *Lecturer, Applied Biomedical Engineering, Engineering for Professionals (2018–Present):* Graduate courses in applied neuroscience and neuroengineering.
- *Lecturer, Lifelong Learning (2022–Present):* Workshops and courses in frontier AI areas.

2010–2017 **Research Scientist, NeuroData and the Open Connectome Project, Johns Hopkins University.**
Led research in mesoscale and nanoscale connectomics, community analytics, and computer vision. Translated raw image volumes to knowledge for statistical inference across multiple institutions.

2001–2007 **Electrical and Systems Engineer**, *Northrop Grumman Corporation*, Information Technology (TASC), Chantilly VA; Space Technology, Redondo Beach, CA.
Subject Matter Expert and Responsible Engineer for satellite systems. 100% Award Fee. Intern 2001–02.

Education

2010–2016 **Ph.D. in Computer Science**, *Johns Hopkins University*.
Dissertation: Enabling Scalable Neurocartography: Images to Graphs for Discovery
Committee Chair: Gregory D. Hager

2009–2010 **Post-Masters Certificate, Electrical Engineering**, *Johns Hopkins University*.

2004–2005 **M.S. in Electrical Engineering**, *University of Southern California*.

1999–2003 **B.E. in Electrical Engineering, Math Minor**, *Vanderbilt University*.
Magna Cum Laude

2012 **Introduction to Connectomics**, *MIT and Harvard Universities*.

2002 **Study Abroad**, *University of Leeds, England*.

Educational Leadership & Workforce Development

2017–2023 **Founder & Lead, CIRCUIT Program**, *Johns Hopkins University Applied Physics Laboratory*.
Cohort-based Integrated Research Community for Undergraduate Innovation and Trailblazing. Nationally recognized research and mentoring program for underserved and underrepresented students in STEM. **220+ students served** from high school to graduate school across technical areas from underwater to space systems.

2009–Present **Co-Founder & Co-Director, College Prep Program at APL, Laurel, MD**.
All-volunteer summer program supporting underserved students with college preparation. Competency-based curriculum including academics, applications, essays, financial aid, and longitudinal support. **220+ students served; >90% on track for 4-year degrees**. 500+ volunteer hours annually.

Teaching

2018–Present **Frontiers in Neuroengineering (EN.585.781)**, *JHU Engineering for Professionals*.
Multi-instructor graduate survey in Applied Biomedical Engineering, online and asynchronous, on state-of-the-art tools for measuring and interpreting brain activity.

2022–Present **Agentic AI Systems**, *JHU Lifelong Learning*.
Faculty masterclass in the Agentic AI and Applied Generative AI certificate programs, covering the evolution from traditional computer vision to modern multimodal agent frameworks.

2015–2022 **Mapping the Brain: An Introduction to Connectomics (Interession)**, *Johns Hopkins University*.
Intensive research-based course with student poster session. Consistently among highest-rated courses in Whiting School.

2011–Present **Research Mentor**, *JHU and APL*.
Mentored approximately **500 students** at high school, undergraduate, and graduate levels.

Skills & Certifications

Technical **Machine Learning, Deep Learning, Computer Vision, Graph Neural Networks, Connectomics, Cloud Computing (AWS)**.

Languages **Python, MATLAB, SQL, LaTeX**.

Certifications **Six Sigma Green Belt · Engineer Intern (EIT) · Secret Clearance**.

Memberships **Society for Neuroscience · Eta Kappa Nu · Tau Beta Pi Honor Societies**.

Awards & Honors

Research & Innovation

- 2024 **Nexus Convening Award**, Johns Hopkins University.
- 2021 **Light the FUSE Award**, JHU Applied Physics Laboratory, Team award, Trailblazer CIRCUIT team (2020 awards cycle).
- 2020 **Fast Company World Changing Ideas — finalist**, CIRCUIT, education category.
- 2018 **REDx Imagine Award**, JHU Applied Physics Laboratory, AI and connectomics.
- 2015 **Author's First Paper Publication Award**, JHU Applied Physics Laboratory.
- 2014 **Hart Prize Award for Best Research Project**, JHU Applied Physics Laboratory.

Service & Leadership

- 2017 **Outstanding Young Alumni Award**, Greeneville City Schools Education Foundation, CORE Champions Awards, cited in part for co-founding the APL College Prep program.
- 2014 **Volunteer of the Year Award**, Howard County, Maryland.
- 2009–2013 **APL Diversity Awards**, JHU Applied Physics Laboratory.
- 2009 **Diversity Leadership Award**, Johns Hopkins University.

Academic

- 2010–2016 **Full-tuition PhD Fellowship**, JHU Applied Physics Laboratory.
- 2004–2005 **Full-tuition Master's Fellowship**, Northrop Grumman Corporation.
- 1999–2003 **Harold Stirling Vanderbilt Scholarship**, Vanderbilt University, Full tuition.
- 2003 **Program Award for Top EECS Student**, Vanderbilt University.
- 2003 **Dean's Award for Outstanding Service**, Vanderbilt University.

Publications

Conference Proceedings

- 1 The MICrONS Consortium. Functional connectomics spanning multiple areas of mouse visual cortex. *Nature*, 640(8058):435–447, 2025.
- 2 M. E. Wimbish, N. K. Guittari, V. A. Rose, J. L. Rivera, P. K. Rivlin, M. A. Hinton, J. K. Matelsky, N. E. Stock, B. A. Wester, E. C. Johnson, and W. R. Gray-Roncal. Em and xrm connectomics imaging and experimental metadata standards. arXiv:2401.15251, 2024.
- 3 S. Floryanzia, A. Jayabharathi, K.-A. Carr, K. Gray-Roncal, and W. Gray-Roncal. Toward a framework for providing equitable opportunities to activate stem talent. In *2024 IEEE Integrated STEM Education Conference (ISEC)*, 2024.
- 4 M. Cervantes, S. Floryanzia, J. Sharp, E. C. Johnson, and W. Gray-Roncal. Empowering trailblazers toward scalable, systematized, research-based workforce development. *ASEE Annual Conference & Exposition*, 2023.
- 5 J. Sharp, J. Burroughs, A. J. D. J. Santiago, J. L. Rivera, A. Jayabharathi, K.-A. Carr, W. R. Gray-Roncal, and D. P. Hilliard. Utilizing technical competitions to enhance diverse workforce recruitment and retention. In *ASEE Annual Conference & Exposition*, 2023.
- 6 E. C. Johnson, M. Villafañe-Delgado, D. Symonette, K.-A. Carr, M. Hughes, J. Burroughs, S. Floryanzia, M. Cervantes, and W. R. Gray-Roncal. An immersive curriculum to develop computational science and research skills in a cohort-based internship program. In *2023 IEEE Integrated STEM Education Conference (ISEC)*, 2023.
- 7 M. Sanchez, D. Moore, E. C. Johnson, B. Wester, J. W. Lichtman, and W. Gray-Roncal. Connectomics Annotation Metadata Standardization for Increased Accessibility and Queryability. *Frontiers in Neuroinformatics*, 16:828458, 2022.
- 8 R. Hider, D. Kleissas, T. Gion, D. Xenos, J. Matelsky, D. Pryor, L. Rodriguez, E. C. Johnson, W. Gray-Roncal, and B. Wester. The Brain Observatory Storage Service and Database

- (BossDB): A Cloud-Native Approach for Petascale Neuroscience Discovery. *Frontiers in Neuroinformatics*, 16:828787, 2022.
- 9 J. K. Matelsky, E. C. Johnson, B. Wester, and W. Gray-Roncal. Scalable graph analysis tools for the connectomics community. *bioRxiv*, 2022.
 - 10 B. S. Robinson, R. Norman-Tenazas, M. Cervantes, D. Symonette, E. C. Johnson, J. Joyce, P. K. Rivlin, G. M. Hwang, K. Zhang, and W. Gray-Roncal. Online learning for orientation estimation during translation in an insect ring attractor network. *Scientific Reports*, 12(1):3210, 2022.
 - 11 H. P. Cowley, M. Natter, K. Gray-Roncal, R. E. Rhodes, E. C. Johnson, N. Drenkow, T. M. Shead, F. S. Chance, B. Wester, and W. Gray-Roncal. A framework for rigorous evaluation of human performance in human and machine learning comparison studies. *Scientific Reports*, 12(1):5444, mar 2022.
 - 12 H. P. Cowley, M. S. Robinette, J. K. Matelsky, D. Xenos, A. Kashyap, N. F. Ibrahim, M. L. Robinson, S. Zeger, B. T. Garibaldi, and W. Gray-Roncal. Using machine learning on clinical data to identify unexpected patterns in groups of COVID-19 patients. *Scientific Reports*, 13(1), 2023.
 - 13 J. K. Matelsky, E. P. Reilly, E. C. Johnson, J. Stiso, D. S. Bassett, B. A. Wester, and W. Gray-Roncal. Dotmotif: an open-source tool for connectome subgraph isomorphism search and graph queries. *Scientific Reports*, 11(1):13045, 2021.
 - 14 R. Lawrence, A. Loftus, G. Kiar, E. W. Bridgeford, W. G. Roncal, V. Chandrashekhar, D. Mhem-bere, S. Ryman, X.-N. Zuo, D. S. Margulies, et al. A low-resource reliable pipeline to democratize multi-modal connectome estimation and analysis. *bioRxiv*, 2021.
 - 15 E. W. Bridgeford, S. Wang, Z. Wang, T. Xu, C. Craddock, J. Dey, G. Kiar, W. Gray-Roncal, C. Colantuoni, C. Douville, et al. Eliminating accidental deviations to minimize generalization error and maximize replicability: Applications in connectomics and genomics. *PLoS Computational Biology*, 17(9):e1009279, 2021.
 - 16 B. S. Robinson, R. Norman-Tenazas, M. Cervantes, D. Symonette, E. C. Johnson, J. Joyce, P. K. Rivlin, G. Hwang, K. Zhang, and W. Gray-Roncal. Online learning for orientation estimation during translation in an insect ring attractor network. *bioRxiv preprint*, 2021.
 - 17 M. Azabou, M. G. Azar, R. Liu, C.-H. Lin, E. C. Johnson, K. Bhaskaran-Nair, M. Dabagia, B. Avila-Pires, L. Kitchell, K. B. Hengen, et al. Mine your own view: Self-supervised learning through across-sample prediction. *arXiv preprint arXiv:2102.10106*, 2021.
 - 18 J. K. Matelsky, R. Norman-Tenazas, F. Davenport, E. P. Reilly, and W. Gray-Roncal. Circuit motifs and graph properties of connectome development in *c. elegans*. *bioRxiv*, 2021.
 - 19 A. Balwani, J. Miano, R. Liu, L. Kitchell, J. A. Prasad, E. C. Johnson, W. Gray-Roncal, and E. L. Dyer. Multi-scale modeling of neural structure in X-Ray imagery. In *2021 IEEE International Conference on Image Processing (ICIP)*, pages 141–145. IEEE, 2021.
 - 20 R. E. Rhodes, H. P. Cowley, J. G. Huang, W. Gray-Roncal, B. A. Wester, and N. Drenkow. Benchmarking human performance for visual search of aerial images. *Frontiers in psychology*, 12, 2021.
 - 21 C. Bishop, J. Matelsky, M. Wilt, J. Downs, P. Rivlin, S. Plaza, B. Wester, and W. Gray-Roncal. Confirms: a toolkit for scalable, black box connectome assessment and investigation. In *2021 43rd Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC)*, pages 2444–2450. IEEE, 2021.
 - 22 J. K. Matelsky, L. M. Rodriguez, D. Xenos, T. Gion, R. Hider, B. A. Wester, and W. Gray-Roncal. An integrated toolkit for extensible and reproducible neuroscience. In *2021 43rd Annual*

International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC), pages 2413–2418. IEEE, 2021.

- 23 J. K. Matelsky, E. P. Reilly, E. C. Johnson, B. A. Wester, and W. Gray-Roncal. Connectome subgraph isomorphisms and graph queries with DotMotif. *bioRxiv*, 2020.
- 24 N. Drenkow, J. Joyce, J. Matelsky, J. Heiko, R. Larabi, B. Wester, D. Kleissas, and W. Gray-Roncal. Leveraging tools from autonomous navigation for rapid, robust neuron connectivity. In A. L. Martel, P. Abolmaesumi, D. Stoyanov, D. Mateus, M. A. Zuluaga, S. K. Zhou, D. Racocanu, and L. Joskowicz, editors, *Medical Image Computing and Computer Assisted Intervention – MICCAI 2020*, pages 109–118, Cham, 2020. Springer International Publishing.
- 25 J. A. Prasad, A. H. Balwani, E. C. Johnson, J. D. Miano, V. Sampathkumar, V. De Andrade, K. Fezzaa, M. Du, R. Vescovi, C. Jacobsen, K. P. Kording, D. Gürsoy, W. Gray Roncal, N. Kasthuri, and E. L. Dyer. A three-dimensional thalamocortical dataset for characterizing brain heterogeneity. *Scientific Data*, 7(1):358, 2020.
- 26 M. Villafaña-Delgado, E. C. Johnson, M. Hughes, M. Cervantes, and W. Gray-Roncal. Stem leadership and training for trailblazing students in an immersive research environment. In *2020 IEEE Integrated STEM Education Conference (ISEC)*, pages 1–4, 2020.
- 27 L. Huynh, K. Gray-Roncal, M. Roncal, and W. Gray-Roncal. An accessible, distributed, Technology-Based approach for student and mentor engagement. In *2019 IEEE Integrated STEM Education Conference (ISEC) (ISEC’19)*, Princeton, USA, 2019.
- 28 E. C. Johnson, L. M. Rodriguez, R. Norman-Tenazas, D. Xenos, and W. R. Gray-Roncal. Transfer learning analysis of image processing workflows for electron microscopy datasets. In *2019 53rd Asilomar Conference on Signals, Systems, and Computers*, pages 1197–1201, 2019.
- 29 K. Gray-Roncal, L. Huynh, T. Kolarik, M. Roncal, M. A. Saunders, and W. Gray-Roncal. The college prep program at apl: An experiential model to help high-achieving, underserved students trailblaze and achieve success. In *2018 IEEE Integrated STEM Education Conference (ISEC)*, pages 90–97, 2018.
- 30 M. Encarnacion, C. Bishop, J. Downs, N. Drenkow, J. K. Matelsky, P. K. Rivlin, B. Wester, and W. Gray-Roncal. Circuit summer program: A computational neuroscience outreach experience for high-achieving undergraduates via sponsored research. In *2018 IEEE Integrated STEM Education Conference (ISEC)*, pages 45–52, 2018.
- 31 J. T. Vogelstein, E. Perlman, B. Falk, A. Baden, W. G. Roncal, V. Chandrashekhar, F. Collman, S. Seshamani, J. L. Patsolic, K. Lillaney, M. Kazhdan, R. Hider, D. Pryor, J. Matelsky, T. Gion, P. Manavalan, B. Wester, M. Chevillet, E. T. Trautman, K. Khairy, E. Bridgeford, D. M. Kleissas, D. J. Tward, A. K. Crow, B. Hsueh, M. A. Wright, M. I. Miller, S. J. Smith, R. J. Vogelstein, K. Deisseroth, and R. Burns. A community-developed open-source computational ecosystem for big neuro data. *Nature Methods*, pages 1–2, 2018.
- 32 G. Kiar, E. Bridgeford, W. Gray-Roncal, V. Chandrashekhar, D. Mhembere, S. Ryman, X.-N. Zuo, D. S. Marguiles, R. C. Craddock, C. E. Priebe, R. Jung, V. Calhoun, B. Caffo, R. Burns, M. P. Milham, and J. Vogelstein. A High-Throughput Pipeline Identifies Robust Connectomes But Troublesome Variability. *bioRxiv*, 2018.
- 33 E. P. Reilly, J. S. Garretson, W. Gray Roncal, D. M. Kleissas, B. A. Wester, M. A. Chevillet, and M. J. Roos. Neural Reconstruction Integrity: A metric for assessing the connectivity of reconstructed neural networks. *arXiv preprint*, pages 1–19, 2017.
- 34 E. Dyer, W. Gray Roncal, J. Prasad, H. Fernandes, D. Gürsoy, V. De Andrade, K. Fezzaa, X. Xiao, J. Vogelstein, C. Jacobsen, K. Kording, and N. Kasthuri. Quantifying mesoscale neuroanatomy using X-ray microtomography. *eNeuro*, 4(5), 2017.
- 35 J. K. Matelsky, J. Downs, B. Wester, and W. Gray Roncal. A substrate for modular, extensible data-visualization. *bioRxiv*, 2017.

- 36 W. Gray Roncal, C. Lea, A. Baruah, and G. D. Hager. [SANTIAGO : Spine Association for Neuron Topology Improvement](#). *arXiv preprint*, 2016.
- 37 G. Kiar, K. J. Gorgolewski, D. Kleissas, W. G. Roncal, B. Litt, B. Wandell, R. A. Poldrack, M. Wiener, R. J. Vogelstein, R. Burns, and J. T. Vogelstein. Science in the cloud (SIC): A use case in MRI connectomics. *GigaScience*, 6(5):1–10, may 2017.
- 38 W. Gray Roncal, E. L. Dyer, G. Doga, and K. Kording. [From sample to knowledge : Towards an integrated approach for neuroscience discovery](#). *arXiv preprint*, pages 1–8, 2016.
- 39 W. Gray Roncal, D. M. Kleissas, and J. T. Vogelstein. [An Automated Images-to-Graphs Framework for High Resolution Connectomics](#). *Frontiers in Neuroinformatics*, 9:1–10, 2015.
- 40 W. Gray Roncal, M. Pekala, V. Kaynig-fittkau, D. M. Kleissas, J. T. Vogelstein, H. Pfister, R. Burns, R. J. Vogelstein, M. A. Chevillet, and G. D. Hager. [VESICLE : Volumetric Evaluation of Synaptic Interfaces using Computer vision at Large Scale](#). *British Machine Vision Conference*, pages 1–9, 2015.
- 41 N. Kasthuri, K. J. Hayworth, D. R. Berger, R. L. Schalek, J. A. Conchello, S. Knowles-Barley, D. Lee, A. Vázquez-Reina, V. Kaynig, T. R. Jones, M. Roberts, J. L. Morgan, J. C. Tapia, H. S. Seung, W. Gray Roncal, J. T. Vogelstein, R. Burns, D. L. Sussman, C. E. Priebe, H. Pfister, and J. W. Lichtman. [Saturated Reconstruction of a Volume of Neocortex](#). *Cell*, 162(3):648–661, 2015.
- 42 M. Kazhdan, K. Lillaney, W. Gray Roncal, D. Bock, J. T. Vogelstein, and R. Burns. [Gradient-Domain Fusion for Color Correction in Large EM Image Stacks](#). *arXiv*, 2015.
- 43 W. Gray Roncal, Z. H. Koterba, D. Mhembe, D. M. Kleissas, J. T. Vogelstein, R. Burns, A. R. Bowles, D. K. Donavos, S. Ryman, R. E. Jung, L. Wu, V. Calhoun, and R. J. Vogelstein. [MIGRAINE: MRI Graph Reliability Analysis and Inference for Connectomics](#). *GlobalSIP*, 2013.
- 44 R. Burns, W. Gray Roncal, D. Kleissas, K. Lillaney, P. Manavalan, E. Perlman, D. R. Berger, D. D. Bock, K. Chung, L. Grosenick, N. Kasthuri, N. C. Weiler, K. Deisseroth, M. Kazhdan, J. Lichtman, R. C. Reid, S. J. Smith, A. S. Szalay, J. T. Vogelstein, and R. J. Vogelstein. [The Open Connectome Project Data Cluster: Scalable Analysis and Vision for High-Throughput Neuroscience](#). *Proceedings of the 25th International Conference on Scientific and Statistical Database Management (SSDBM)*, 2013.
- 45 J. T. Vogelstein, W. R. Gray Roncal, R. J. Vogelstein, and C. E. Priebe. [Graph classification using signal-subgraphs: applications in statistical connectomics](#). *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 35(7):1539–1551, 2013.
- 46 D. Mhembe, W. Gray Roncal, D. Sussman, C. E. Priebe, R. Jung, S. Ryman, R. J. Vogelstein, J. T. Vogelstein, and R. Burns. [Computing Scalable Multivariate Global Invariants of Large \(Brain-\) Graphs](#). *GlobalSIP*, 2013.
- 47 W. R. Gray Roncal, J. A. Bogovic, J. T. Vogelstein, B. A. Landman, J. L. Prince, and R. J. Vogelstein. [Magnetic resonance connectome automated pipeline: an overview](#). *IEEE Pulse*, 3(2):42–48, 2012.

Invited Talks

Talks

- 1 W. Gray-Roncal. Learning engineering for next-generation systems: A new concentration at Johns Hopkins. IEEE ICICLE Monthly Community Call, May 2026 (Invited Guest), 2026.
- 2 W. Gray-Roncal. Scalably and systematically empowering trailblazing (STEM) students. CoNECD 2024 Pre-Conference Workshop, February 2024 (Lead Facilitator), 2024.
- 3 W. Gray-Roncal. Invited panel. SXSW 2022, Austin, TX (Invited Speaker), 2022.

- 4 W. Gray Roncal. Enabling scalable neurocartography: Images to graphs for discovery. Johns Hopkins University, Department of Computer Science Seminar Series, 2016.
- 5 W. Gray-Roncal. NeuroAI Engines: Revolutionary Function through Biological Form. GoogleX, 2021., 2021.
- 6 W. Gray-Roncal. Enhanced Learning Environment for Accelerating Training and Engagement. Warfighter Training Modernization Conference, JHU/APL, 2021, 2021.
- 7 W. Gray-Roncal. Accelerating the Pipeline of Trailblazing STEM Students Workshop. AAAI21. 2021., 2021.
- 8 W. Gray-Roncal. *Toward Petascale and Exascale Connectomics*. National BRAIN Initiative Investigators Meeting, 2020 Symposium Organizer and Presenter, 2020.
- 9 W. Gray-Roncal. Stem workforce development workshop. IEEE Integrated STEM Education Conference (ISEC), 2019 Workshop Moderator, Presenter, 2019.
- 10 W. Gray-Roncal. Invited participant. Berlin Connectomics Conference, 2018.
- 11 W. Gray Roncal. *BigNeuro 2017: Analyzing brain data from nano to macroscale*. NeurIPS 2017 Workshop Co-organizer and Moderator), 2017.
- 12 W. Gray Roncal. Volumetric Evaluation of Synaptic Interfaces using Computer Vision at Large Scale. Hopkins Imaging Initiative, 2015.
- 13 W. Gray Roncal. BigNeuro 2015: Making sense of big neural data workshop. NIPS, 2015.
- 14 *Images to Graphs for Inference*, European Research Data Alliance, 2015.
- 15 *Images to Graphs: Techniques and Strategies for Mapping the Brain*, Oxford University, 2015.
- 16 *Machine Intelligence from Cortical Networks (MICRONS) IRAD*, JHUAPL Hart Prize Colloquium, 2015.
- 17 *Graph Inference for Connectomics*, JHUAPL Graphs Seminar Series, 2014.
- 18 *Predicting Human Performance from Brain Connectivity*, JHU Lattman Lecture Series, 2011.
- 19 *Connectome Annotation for Joint Analysis of Large 3-Dimensional Data: Research Progress*, Harvard University, 2013.
- 20 *Towards A Fully Automatic Pipeline for Connectome Estimation from High-Resolution EM Data*, Janelia Farm Turning Images to Knowledge Conference, 2012.

--- Posters

Posters

- 1 W. Gray Roncal, M. Encarnación, J. Matelsky, R. Azwoir, C. Dorsey, M. Fredricks, N. Jones, M. Santangelo, H. Trevino, P. Rivlin, and B. Wester. CONFIRMS: Creating Optimized Networks for Informing Reconstruction Metrics and Science. In *Society for Neuroscience*, 2017.
- 2 C. Bishop, E. Atlabachew, M. Cervantes, H. Cowley, M. Fredricks, O. Martinez, E. Zhu, J. Matelsky, J. Downs, B. Wester, and W. R. Gray Roncal. RETINA: Real -time evaluation tools for integrated neuroscience analysis. In *Society for Neuroscience*, 2017.
- 3 J. Matelsky, L. Rodriguez, S. Bannowsky, S. Davis, A. Frazier, K. Porter, P. Manavalan, D. Pryor, R. Hider, T. Gion, W. R. Gray Roncal, and D. Kleissas. Cloud-Native Infrastructure and Accessible Interfaces to Enable Petascale Neuroscience. *Society for Neuroscience*, page 2017, 2017.

- 4 N. Drenkow, D. Hill, J. Li, R. Norman-Tenazas, R. Rais, K. Torgas, B. Wester, and W. Gray Roncal. Toward a Common, Extensible Cloud Architecture for Images to Graphs. *Society for Neuroscience*, page 2017, 2017.
- 5 J. Matelsky, S. Berg, A. Eusman, K. Lillaney, J. T. Vogelstein, G. D. Hager, and W. Gray Roncal. ndio: Neuroscience Discovery Input and Output. In *Society for Neuroscience Abstract*, San Diego, 2016.
- 6 W. Gray Roncal, M. Pekala, D. M. Kleissas, J. T. Vogelstein, and G. D. Hager. ndparse: Tools and Interfaces for Scalable Neuroscience Discovery. In *Society for Neuroscience Abstract*, 2016.
- 7 W. Gray Roncal, A. Simhal, J. Vogelstein, F. Collman, E. L. Dyer, M. Chevillet, R. Burns, G. Sapiro, and G. Hager. Scalable automated (synapse) detection using the Open Connectome Project. In *Society for Neuroscience Abstract*, 2015.
- 8 A. Baden, K. Lillaney, W. Gray Roncal, J. Vogelstein, and R. Burns. Web Visualization of Massive Neuroscience Datasets using the Open Connectome Project. In *Society for Neuroscience Abstract*, 2015.
- 9 A. Simhal, W. Gray Roncal, A. Baden, K. Lillaney, K. Kutten, M. Miller, J. Vogelstein, R. Burns, L. Ye, R. Tomer, K. Deisseroth, and G. Sapiro. Computational statistics for whole brain CLARITY analysis using the Open Connectome Project. In *Society for Neuroscience Abstract*, 2015.
- 10 J. Vogelstein, S. Smith, W. Gray Roncal, R. Vogelstein, R. Burns, K. Lillaney, A. Baden, G. Kiar, and P. Manavalan. Open Connectome Project and NeuroData: Enabling Data-Driven Neuroscience at Scale. In *Society for Neuroscience Abstract*, 2015.
- 11 G. Kiar, W. Gray Roncal, D. Mhembere, E. Bridgeford, D. Clark, R. Millham, Michael Craddock, Cameron Burns, and J. T. Vogelstein. Community Connectomics via Cloud Computing Utilizing m2g - a Reference Pipeline. In *Organization for Human Brain Mapping*, 2015.
- 12 W. Gray Roncal, O. M. Akmal, M. Encarnacion, T. Latchman, A. Baruah, J. T. Vogelstein, D. Dementhon, N. Kasthuri, R. Burns, C. E. Priebe, and G. D. Hager. A Semantic Framework to Guide Computer Vision in (EM) Connectomics. In *Society for Neuroscience*, 2014.
- 13 A. Sinha, W. Gray Roncal, N. Kasthuri, J. W. Lichtman, and R. Burns. Automatic Annotation of 3D Axoplasmic Reticula for Neuron Segmentation. In *Resting State Brain Connectivity*, page 4(9): A26, 2014.
- 14 D. M. Kleissas, W. Gray Roncal, P. Manavalan, K. Lillaney, A. Sinha, J. T. Vogelstein, G. D. Hager, R. Burns, M. A. Chevillet, and R. J. Vogelstein. Automated Neuronal Graph Creation Using the Open Connectome Project RAMON Data Open Connectome Project (OCP) Services. *Society for Neuroscience*, page 2, 2014.
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Other Publications

Professional Service

- 2025 **Co-organizer**, *AI Synergy Summit*, Johns Hopkins University.
Convened researchers and practitioners on integrating generative AI and human learning approaches.
- 2021 **Workshop Moderator & Presenter**, *Toward Agentic and Multimodal AI Systems*, AAAI.
- 2020 **Symposium Organizer & Presenter**, *Toward Petascale and Exascale Connectomics*, BRAIN Initiative Meeting.
- 2019 **Workshop Moderator & Presenter**, *IEEE Integrated STEM Education Conference (ISEC)*.
- 2017 **Workshop Co-organizer & Moderator**, *BigNeuro 2017: Analyzing brain data from nano to macroscale*, NeurIPS.
- 2015 **Workshop Organizer**, *BigNeuro 2015: Making sense of big neural data*, NIPS.