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Work Experience

2021 - present	**Research Associate Professor** *University of Washington Department of Psychology*
2020 - 2021	**Research Assistant Professor** *University of Washington Department of Psychology*
2015-2020	**Senior Data Scientist** *University of Washington eScience Institute*
2011-2015	**Postdoctoral Researcher** *Stanford University*
2010-2011	**Postdoctoral Researcher** *University of California, Berkeley*
2002-2003	**Research Student** *Humboldt-Universität zu Berlin*

Education

2010 **Ph.D.** Neuroscience, University of California, Berkeley
Advisor: Michael Silver, Thesis: "Neural mechanisms of perceptual learning"
2005 **M.A.** (*Summa cum Laude*) Cognitive Psychology, Hebrew University of Jerusalem
Advisor: Merav Ahissar, Thesis: "Interactions of cognitive and auditory abilities in the blind"
2002 **B.Sc.** (*Cum Laude*) Biology and Psychology, Hebrew University of Jerusalem

Peer-reviewed journal publications

Google Scholar, total citations: 7,838, h-index: 42
*** indicates equal contribution**

81. Kruper, J., Hagen, M., Rheault, F., Crane, I., Gilmore, A., Narayan, M., Motwani, K., Lila, E., Rorden, C., Yeatman, J., and **Rokem, A.** (2024a). Tractometry of the Human Connectome Project: Resources and insights. *Frontiers in Neuroscience*

80. Takemura, H., Kruper, J., Miyata, T., and **Rokem, A** (2024). Tractometry of human visual white matter pathways in health and disease. *Magentic Resonance in Medical Science*

79. **Rokem, A*** and Benson, N. C.* (2024). Hands-on neuroinformatics education at the crossroads of online and in-person: lessons learned from neurohackademy. *Neuroinformatics*

78. Roy, E., Van Rinsveld, A., Nedelec, P., Richie-Halford, A., Rauschecker, A. M., Sugrue, L. P., **Rokem, A**, McCandliss, B. D., and Yeatman, J. D. (2024b). Educational environment and white matter development in early adolescence. *Developmental Cognitive Neuroscience*, 67:101386

77. Kruper, J., Richie-Halford, A., Benson, N. C., Caffarra, S., Owen, J., Wu, Y., Egan, C., Lee, A. Y., Lee, C. S., Yeatman, J. D., **Rokem, A**, and UK Biobank Eye and Vision Consortium (2024b). Convolutional neural network-based classification of glaucoma using optic radiation tissue properties. *Communications Medicine*, 4(1):72

76. Pogoncheff, G., Hu, Z., **Rokem, A**, and Beyeler, M. (2024). Explainable machine learning predictions of perceptual sensitivity for retinal prostheses. *Journal of Neural Engineering*, 21:026009

75. Poldrack, R. A., Markiewicz, C. J., Appelhoff, S., Ashar, Y. K., Auer, T., Baillet, S., Bansal, S., Beltrachini, L., Benar, C. G., Bertazzoli, G., Bhogawar, S., Blair, R. W., Bortoletto, M., Boudreau, M., Brooks, T. L., Calhoun, V. D., Castelli, F. M., Clement, P., Cohen, A. L., Cohen-Adad, J., D'Ambrosio, S., de Hollander, G., de la Iglesia-Vayá, M., de la Vega, A., Delorme, A., Devinsky, O., Draschkow, D., Duff, E. P., DuPre, E., Earl, E., Esteban, O., Feingold, F. W., Flandin, G., Galassi, A., Gallitto, G., Ganz, M., Gau, R., Gholam, J., Ghosh, S. S., Giacomel, A., Gillman, A. G., Gleeson, P., Gramfort, A., Guay, S., Guidali, G., Halchenko, Y. O., Handwerker, D. A., Hardcastle, N., Herholz, P., Hermes, D., Honey, C. J., Innis, R. B., Ioanas, H.-I., Jahn, A., Karakuzu, A., Keator, D. B., Kiar, G., Kincses, B., Laird, A. R., Lau, J. C., Lazari, A., Legarreta, J. H., Li, A., Li, X., Love, B. C., Lu, H., Maumet, C., Mazzamuto, G., Meisler, S. L., Mikkelsen, M., Mutsaerts, H., Nichols, T. E., Nikolaidis, A., Nilsonne, G., Niso, G., Norgaard, M., Okell, T. W., Oostenveld, R., Ort, E., Park, P. J., Pawlik, M., Pernet, C. R., Pestilli, F., Petr, J., Phillips, C., Poline, J.-B., Pollonini, L., Raamana, P. R., Ritter, P., Rizzo, G., Robbins, K. A., Rockhill, A. P., Rogers, C., **Rokem, A**, Rorden, C., Routier, A., Saborit-Torres, J. M., Salo, T., Schirner, M., Smith, R. E., Spisak, T., Sprenger, J., Swann, N. C., Szinte, M., Takerkart, S., Thirion, B., Thomas, A. G., Torabian, S., Varoquaux, G., Voytek, B., Welzel, J., Wilson, M., Yarkoni, T., and Gorgolewski, K. J. (2024). The past, present, and future of the brain imaging data structure (BIDS). *Imaging Neuroscience*, 2:1–19

74. Roy, E., Richie-Halford, A., Kruper, J., Narayan, M., Bloom, D., Nedelec, P., Rauschecker, A., Brown, T. T., Jernigan, T. L., McCandliss, B. D., **Rokem, A**, and Yeatman, J. (2024a). White matter and literacy: a dynamic system in flux. *Developmental Cognitive Neuroscience*, 65:101341

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72. Caffarra, S., Kanopka, K., Kruper, J., Richie-Halford, A., **Rokem, A**, and Yeatman, J. D. (2024). Development of the alpha rhythm is linked to visual white matter pathways and visual detection performance. *J Neuroscience*, 44:e0684232023

71. Ferré, J., **Rokem, A**, Buffalo, E. A., Kutz, N., and Fairhall, A. (2023). Non-stationary dynamical mode decomposition. *IEEE Access*, 11:117159–117176

70. Grotheer, M., Bloom, D., Kruper, J., Richie-Halford, A., Zika, S., Aguilera Gonzàlez, V. A., Yeatman, J. D., Grill-Spector, K., and **Rokem, A** (2023). Human white matter myelinates faster in utero than ex utero. *Proceedings of the National Academy of Sciences*, 120:e2303491120

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68. Richie-Halford, A., Cieslak, M., Ai, L., Caffarra, S., Covitz, S., Franco, A. R., Karipidis, I. I., Kruper, J., Milham, M., Avelar-Pereira, B., Roy, E., Sydnor, V. J., Yeatman, J. D., Satterthwaite, T.D.*,

and **Rokem, A*** (2022). An analysis-ready and quality controlled resource for pediatric brain white-matter research. *Scientific Data*, 9(1):1–27

67. Yücel, E. I., Sadeghi, R., Kartha, A., Montezuma, S. R., Dagnelie, G., **Rokem, A**, Boynton, G. M., Fine, I., and Beyeler, M. (2022). Factors affecting two-point discrimination in Argus II patients. *Frontiers in Neuroscience*, 16:901337

66. Graham, S., **Rokem, A**, , and Lambers, J. H. R. (2022). forestexplorR: an R package for the exploration and analysis of stem-mapped forest stand data. *Ecography*, 2022(10):e06223

65. Fadnavis, S., Endres, S., Wen, Q., Wu, Y.-C., Cheng, H., Koudoro, S., Rane, S., **Rokem, A**, and Garyfallidis, E. (2021). Bifurcated topological optimization for IVIM. *Frontiers in Neuroscience*, 15

64. Graham, S. I., **Rokem, A.**, Fortunel, C., Kraft, N. J. B., and Lambers, J. H. R. (2021). Regularized regression: A new tool for investigating and predicting tree growth. *Forests*, 12(9):1283

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62. Caffarra, S., Joo, S. J., Bloom, D., Kruper, J., **Rokem, A**, and Yeatman, J. D. (2021). Development of the visual white matter pathways mediates development of electrophysiological responses in visual cortex. *Hum. Brain Mapp.*, 42(17):5785–5797

61. Kiar, G., Chatelain, Y., de Oliveira Castro, P., Petit, E., **Rokem, A**, Varoquaux, G., Misic, B., Evans, A. C., and Glatard, T. (2021). Numerical uncertainty in analytical pipelines lead to impactful variability in brain networks. *PLoS One*, 16(11):e0250755

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58. Henriques, R., Correia, M., Maralle, M., Huber, E., Kruper, J., Koudoro, S., Yeatman, J. D., Garyfallidis, E., and **Rokem, A.** (2021). Diffusion Kurtosis Imaging in the Diffusion Imaging in Python project. *Frontiers in Human Neuroscience*, 15

57. Richie-Halford, A., Yeatman, J. D., Simon, N., and **Rokem, A.** (2021). Multidimensional analysis and detection of informative features in human brain white matter. *PLoS Computational Biology*, 17(6):1–24. PMC5838108[pmc]

56. Cieslak, M., Cook, P. A., He, X., Yeh, F.-C., Dhollander, T., Adebimpe, A., Aguirre, G. K., Bassett, D. S., Betzel, R. F., Bourque, J., Cabral, L. M., Davatzikos, C., Detre, J. A., Earl, E., Elliott, M. A., Fadnavis, S., Fair, D. A., Foran, W., Fotiadis, P., Garyfallidis, E., Giesbrecht, B., Gur, R. C., Gur, R. E., Kelz, M. B., Keshavan, A., Larsen, B. S., Luna, B., Mackey, A. P., Milham, M. P., Oathes, D. J., Perrone, A., Pines, A. R., Roalf, D. R., Richie-Halford, A., **Rokem, A**, Sydnor, V. J., Tapera, T. M., Tooley, U. A., Vettel, J. M., Yeatman, J. D., Grafton, S. T., and Satterthwaite, T. D. (2021). Qsiprep: an integrative platform for preprocessing and reconstructing diffusion MRI data. *Nature Methods*, 18(7):775–778

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54. Mehta, P., Petersen, C. A., Wen, J. C., Bannit, M. R., Chen, P. P., Bojikian, K. D., Egan, C., Lee, S.-I., Balazinska, M., Lee, A.Y.*, and **Rokem, A*** (2021). Automated detection of glaucoma with interpretable machine learning using clinical data and multi-modal retinal images. *American Journal of Ophthalmology*, 231:154–169

53. Richie Halford, A., Narayan, M., Simon, N., Yeatman, J., and **Rokem A.** (2021). Groupyr: Sparse Group Lasso in Python. *Journal of Open Source Software*, 6(58):3024

52. **Rokem, A** and Kay, K. (2020). Fractional ridge regression: a fast, interpretable reparameterization of ridge regression. *GigaScience*, 9(12)

51. Chandio, B. Q., Risacher, S. L., Pestilli, F., Bullock, D., Yeh, F.-C., Koudoro, S., **Rokem, A**, Harezlak, J., and Garyfallidis, E. (2020). Bundle analytics, a computational framework for investigating the shapes and profiles of brain pathways across populations. *Scientific Reports*, 10(1):17149

50. Bressler, D., **Rokem, A.**, and Silver, M. A. (2020). Slow endogenous fluctuations in cortical fMRI signals correlate with reduced performance in a visual detection task and are suppressed by spatial attention. *Journal of Cognitive Neuroscience*, 32:85–99

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48. Beyeler, M., Nanduri, D., Weiland, J. D., **Rokem, A.**, Boynton, G. M., and Fine, I. (2019b). A model of ganglion axon pathways accounts for percepts elicited by retinal implants. *Scientific Reports*, 9(1):9199

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46. Keshavan, A., Yeatman, J. D., and **Rokem, A.** (2019). Combining citizen science and deep learning to amplify expertise in neuroimaging. *Frontiers in Neuroinformatics*, 13:29

45. Curtis, C., **Rokem, A.**, and Nance, E. (2019). diff_classifier: Parallelization of multi-particle tracking video analyses. *Journal of Open Source Software*, 4(36):989

44. Huber, E., Henriques, R. N., Owen, J. P., **Rokem, A.**, and Yeatman, J. D. (2019). Applying microstructural models to understand the role of white matter in cognitive development. *Developmental Cognitive Neuroscience*, 36:100624

43. Tian, Q., Yang, G., Leuze, C., **Rokem, A.**, Edlow, B. L., and McNab, J. A. (2019). Generalized diffusion spectrum magnetic resonance imaging (GDSI) for model-free reconstruction of the ensemble average propagator. *NeuroImage*, 189:497–515

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41. Huppenkothen, D., Arendt, A., Hogg, D. W., Ram, K., VanderPlas, J. T., and **Rokem, A** (2018). Hack weeks as a model for data science education and collaboration. *Proceedings of the National Academy of Sciences*, 115(36):8872–8877

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35. Polimis, K., **Rokem, A.**, and Hazelton, B. (2017). Confidence intervals for random forests in python. *The Journal of Open Source Software*, 2(19)

34. Beyeler, M., Boynton, G., Fine, I., and **Rokem, A.** (2017a). pulse2percept: A Python-based simulation framework for bionic vision. In *Proceedings of the 15th Python in Science Conference (SciPy)*

33. Lee, C., Tyring, A., Deruyter, N., Wu, Y., **Rokem, A.**, and Lee, A. (2017). Deep-learning based, automated segmentation of macular edema in optical coherence tomography. *Biomed. Opt. Express*, 8(7):3440–3448

32. Beyeler, M., **Rokem, A.**, Boynton, G. M., and Fine, I. (2017b). Learning to see again: Biological constraints on cortical plasticity and the implications for sight restoration technologies. *Journal of neural engineering*, 14(5):051003

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25. Mezer, A., **Rokem, A.**, Berman, S., Hastie, T., and Wandell, B. (2016). Evaluating quantitative proton-density-mapping methods. *Human brain mapping*, 37(10):3623–3635

24. Tian, Q., **Rokem, A.**, Folkerth, R. D., Nummenmaa, A., Fan, Q., Edlow, B. L., and McNab, J. A. (2016). Q-space truncation and sampling in diffusion spectrum imaging. *Magnetic Resonance in Medicine*, 76(6):1750–1763

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16. Kay, K. N., **Rokem, A.**, Winawer, J., Dougherty, R. F., and Wandell, B. A. (2013a). GLMdenoise: a fast, automated technique for denoising task-based fMRI data. *Front Neurosci*, 7:247

15. Kay, K. N., Winawer, J., **Rokem, A.**, Mezer, A., and Wandell, B. A. (2013b). A two-stage cascade model of BOLD responses in human visual cortex. *PLoS Comput. Biol.*, 9(5):e1003079

14. Yoon, J. H., Sheremata, S. L., **Rokem, A.**, and Silver, M. A. (2013). Windows to the soul: vision science as a tool for studying biological mechanisms of information processing deficits in schizophrenia. *Front Psychol*, 4:681

13. **Rokem, A.** and Silver, M. A. (2013). The benefits of cholinergic enhancement during perceptual learning are long-lasting. *Front Comput Neurosci*, 7:66

12. Kosovicheva, A. A., Sheremata, S. L., **Rokem, A.**, Landau, A. N., and Silver, M. A. (2012). Cholinergic enhancement reduces orientation-specific surround suppression but not visual crowding. *Front Behav Neurosci*, 6:61

11. **Rokem, A.**, Landau, A. N., Prinzmetal, W., Wallace, D. L., Silver, M. A., and D'Esposito, M. (2012). Modulation of inhibition of return by the dopamine D2 receptor agonist bromocriptine depends on individual DAT1 genotype. *Cereb. Cortex*, 22(5):1133–1138

10. **Rokem, A.**, Yoon, J. H., Ooms, R. E., Maddock, R. J., Minzenberg, M. J., and Silver, M. A. (2011). Broader visual orientation tuning in patients with schizophrenia. *Front Hum Neurosci*, 5:127

9. **Rokem, A.** and Silver, M. A. (2010). Cholinergic enhancement augments magnitude and specificity of visual perceptual learning in healthy humans. *Curr. Biol.*, 20(19):1723–1728

8. **Rokem, A.**, Landau, A. N., Garg, D., Prinzmetal, W., and Silver, M. A. (2010). Cholinergic enhancement increases the effects of voluntary attention but does not affect involuntary attention. *Neuropsychopharmacology*, 35(13):2538–2544

7. Yoon, J. H., Maddock, R. J., **Rokem, A.**, Silver, M. A., Minzenberg, M. J., Ragland, J. D., and Carter, C. S. (2010). GABA concentration is reduced in visual cortex in schizophrenia and correlates with orientation-specific surround suppression. *J. Neurosci.*, 30(10):3777–3781

6. Eyherabide, H. G., **Rokem, A.**, Herz, A. V., and Samengo, I. (2009). Bursts generate a non-reducible spike-pattern code. *Front Neurosci*, 3(1):8–14

5. Yoon, J. H., **Rokem, A.**, Silver, M. A., Minzenberg, M. J., Ursu, S., Ragland, J. D., and Carter, C. S. (2009). Diminished orientation-specific surround suppression of visual processing in schizophrenia. *Schizophr Bull*, 35(6):1078–1084

4. **Rokem, A.** and Silver, M. A. (2009). A model of encoding and decoding in V1 and MT accounts for motion perception anisotropies in the human visual system. *Brain Res.*, 1299:3–16

3. **Rokem, A.** and Ahissar, M. (2009). Interactions of cognitive and auditory abilities in congenitally blind individuals. *Neuropsychologia*, 47(3):843–848

2. Eyherabide, H. G., **Rokem, A.**, Herz, A. V., and Samengo, I. (2008). Burst firing is a neural code in an insect auditory system. *Front Comput Neurosci*, 2:3

1. **Rokem, A.**, Watzl, S., Gollisch, T., Stemmler, M., Herz, A. V., and Samengo, I. (2006). Spike-timing precision underlies the coding efficiency of auditory receptor neurons. *J. Neurophysiol.*, 95(4):2541–2552

Peer-reviewed conference proceedings

10. Liu, F., Sankaranarayanan, V., Villanueva-Meyer, J., Hervey-Jumper, S., Hawkins, J., Damasceno, P., Bisson, M., Romero, J., Kurth, T., Fatica, M., Garyfallidis, E., **Rokem A**, Crane, J. C., and Majumdar, S. (2023). Clinical validation of rapid GPU-enabled DTI tractography of the brain. *Electronic Imaging*, 35(11):237–1–237–1

9. Chang, K., Burke, L., LaPiana, N., Howlett, B., Hunt, D., Dezelar, M., Andre, J. B., Ralston, J., **Rokem, A***, and Mac Donald, C* (2023). Advanced diffusion MRI modeling sheds light on FLAIR white matter hyperintensities in an aging cohort. *Proceedings of the MICCAI Workshop on Computational Diffusion MRI, 2023*

8. Kruper, J. and **Rokem, A** (2023). Automatic fast and reliable recognition of a small brain white matter bundle. *Proceedings of the MICCAI Workshop on Computational Diffusion MRI, 2023*

7. Hayot-Sasson, V., Glatard, T., and **Rokem, A** (2021). The benefits of prefetching for large-scale cloud-based neuroimaging analysis workflows. In *2021 IEEE Workshop on Workflows in Support of Large-Scale Science (WORKS)*, pages 42–49

6. Beyeler, M., Boynton, G. M., Fine, I., and **Rokem, A.** (2019a). Model-based recommendations for optimal surgical placement of epiretinal implants. *The 22nd International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI 2019), Shenzhen, China, Oct. 13-17, 2019.*

5. Mehta, P., Dorkenwald, S., Zhao, D., Kaftan, T., Cheung, A., Balazinska, M., **Rokem, A.**, Connolly, A., Vanderplas, J., and AlSayyad, Y. (2017). Comparative evaluation of big-data systems on scientific image analytics workloads. *Proceedings of the VLDB Endowment*, 10(11):1226–1237

4. Holdgraf, C., Culich, A., **Rokem, A.**, Deniz, F., Alegro, M., and Ushizima, D. (2017). Portable learning environments for hands-on computational instruction: Using container-and cloud-based technology to teach data science. In *Practice and Experience in Advanced Research Computing, 2017*

3. **Rokem, A.**, Aragon, C., Arendt, A., Fiore-Gartland, B., Hazelton, B., Hellerstein, J., Herman, B., Howe, B., Lazowska, E., Parker, M., Staneva, V., Stone, S., Tanweer, A., and Vanderplas, J. (2015a). Building an urban data science summer program at the University of Washington eScience Institute. In *The Bloomberg Data Science 4 Good Exchange*

2. Zheng, C. Y., Pestilli, F., and **Rokem, A.** (2014). Deconvolution of High Dimensional Mixtures via Boosting, with Application to Diffusion-Weighted MRI of Human Brain. *Adv Neural Inf Process Syst*, 27:2699–2707

1. **Rokem, A.**, Trumpis, M., and Pèrez, F. (2009). Nitime: time-series analysis for neuroimaging data. In Varoquaux, G., van der Walt, S., and Millman, J., editors, *Proceedings of the 8th Python in Science Conference (SciPy)*

Books and book chapters

4. **Rokem, A** and Yarkoni, T. (2023). *Neuroimaging and Data Science: An Introduction*. Princeton University Press, Princeton, NJ. http://neuroimaging-data-science.org/

3. **Rokem, A.** (2018). Reproducibility in human neuroimaging research: A practical example from the analysis of diffusion mri. In Kitzes, J., Turek, D., and Deniz, F., editors, *The Practice of Reproducible Research: Case Studies and Lessons from the Data-Intensive Sciences*. University of California Press, Oakland, CA

2. **Rokem, A.** and Chirigati, F. (2018). Glossary of reproducible research. In Kitzes, J., Turek, D., and Deniz, F., editors, *The Practice of Reproducible Research: Case Studies and Lessons from the Data-Intensive Sciences*. University of California Press, Oakland, CA

1. **Rokem, A.**, Marwick, B., and Staneva, V. (2018). Assessing reproducibility. In Kitzes, J., Turek, D., and Deniz, F., editors, *The Practice of Reproducible Research: Case Studies and Lessons from the Data-Intensive Sciences*. University of California Press, Oakland, CA

White papers, commentaries, and work in progress

1. **Rokem, A**, Qiao, J., Yeatman, J. D., and Richie-Halford, A. (2023). Incremental improvements in tractometry-based brain-age modeling with deep learning. https://www.biorxiv.org/content/10.1101/2023.03.02.530885v1

2. **Rokem, A** (2021). Detect-ing brain anomalies with autoencoders. *Nature Computational Science*, 1(9):569–570

3. **Rokem, A**, Dichter, B., Holdgraf, C., and Ghosh, S. S. (2021). Pan-neuro: interactive computing at scale with BRAIN datasets. https://osf.io/mwh2b/

Online courses

1. Rokem, A. (2018). DataCamp course: Convolutional neural networks for image processing. https://www.datacamp.com/courses/convolutional-neural-networks-for-image-processing

2. Rokem, A. (2019). DataCamp course: Introduction to Matplotlib. https://www.datacamp.com/courses/introduction-to-matplotlib

Honors and awards

2023 McGill University Neuro / Irv and Helga Cooper Foundation Open Science Prize for international projects, received as a member of the Brain Imaging Data Structure steering group ($ 80,000 CAD).
2022 – 2024 Elected member of the Brain Imaging Data Structure (BIDS) steering group.
2012 – 2015 NIH Postdoctoral National Research Service Award.
2009 – 2010 NIH Predoctoral National Research Service Award.

Current funded research

All $ amounts specified for total cost

As Principal Investigator

2023-2024 NSF Workshop: Towards an Open Source Model for Data and Metadata Standards (role: PI) $ 99,953
2017-2027 NIH/National Institute for Mental Health, R25: Summer Institute in Neuroimaging and Data Science (role: PI), $2,003,598

As co-PI or senior personnel

2018-2027 NIH R01: Community-supported open-source software for computational neuroanatomy (role: subcontract PI, PI: Eleftherios Garyfallidis), $ 2,726,578
2021-2026 NIH U19: Adult Changes in Thought (ACT) Research Program (role: Senior Personnel, PI: Eric Larson and Paul Crane), $23,352,014
2022-2024 Chan Zuckerberg Initiative Essential Open Source Software: Diffusion Imaging in Python (role: co-Investigator; PI: Serge Koudoro), $165,407
2021-2024 NIH R01 A community-driven development of the brain imaging data standard (BIDS) to describe macroscopic brain connections (role: Senior Personnel; PI: Franco Pestilli) $352,342.
2021-2024 NIH R01 NIPreps: integrating neuroimaging preprocessing workflows across modalities, populations, and species (role: multi-PI) $1,630,690
2019-2024 NIH R01: Aging eyes and aging brains in studying Alzheimer's disease: modern ophthalmic data collection in the Adult Changes in Thought (ACT) study (role: Senior Personnel; PI: Cecilia Lee). $17,197,690

Completed funded research

As Principal Investigator

2019-2024 NIH BRAIN Initiative RF1: A data science toolbox for analysis of Human Connectome Project diffusion MRI (role: PI), $707,444.
2021-2022 UW Azure Cloud Computing Credits (role: PI), $43,000
2021 Google Cloud Research Credits (role: PI), $5,000
2021 Amazon Web Services Cloud Computing Credits (role: PI), $5,000
2020 Google Cloud Research Credits (role: PI), $5,000
2021 UW Azure Cloud Computing Credits (role: PI), $20,000
2020 Google Cloud Research Credits (role: PI), $5,000

2019 Google TensorFlow Research Cloud credits, 100 TPU hours role: PI.

2017 XSEDE: Educational allocation for a one-day course in neuroscience and data science (role: PI), 10,000 core hours.

2016 Amazon Web Services cloud computing credits for research (role: PI), $30,000.

2012-2015 NIH/National Eye Institute, National Research Service Award (F32): The Anatomical Basis of Texture Perception in Central and Peripheral Visual Field (role: PI), $155,346.

2009-2010 NIH/National Institute for Aging, National Research Service Award (F31): Neural Mechanisms of Perceptual Learning (role: PI), $22,253.

As co-PI or senior personnel

2019-2023 NSF BDHUBS: Collaborative Proposal: West: Accelerating the Big Data Innovation Ecosystem (role: Senior Personnel, PI: Ed Lazowska), $201,822.

2019-2023 NSF HDR: I-DIRSE-FW: Accelerating the Engineering Design and Manufacturing Life-Cycle with Data Science (role: co-PI; PI: Magda Balazinska), $2,320,979.

2017-2023 The Bill & Melinda Gates Foundation: Advance Data Analytic Support for Strategic PNW Partners by eScience Institute (role: co-PI, PI: Bill Howe), $754,601.

2021-2022 NSF AccelNet Exchange Grant through the International Network for Biologically-Inspired Computing $10,000.

2018-2022 NIH BRAIN Initiative U19: Computational and Circuit Mechanisms Underlying Rapid Learning. (role: Data Science Core Senior Personnel, PI: Beth Buffalo), $14,439,172.

2018 - 2021 NSF TRIPODS + X EDU: Foundational training in neuroscience and geoscience via hack weeks (role: co-PI, PI: Maryam Fazel), $ 185,058.

2017-2020 NSF SI2-SSE: An ecosystem of reusable image analytics pipelines (role: co-PI, PI: Andy Connoly), $500,000.

2017-2018 The Bill & Melinda Gates Foundation: The King County Analytics Project (role: co-PI, PI: Bryna Hazelton), $320,000.

2017-2018 NSF ACI SI2-S2I2: Conceptualization: Conceptualizing a US Research Software Sustainability Institute (URSSI) (role: senior Personnel, PI: Daniel Katz), $ 499,999.

2015-2018 NSF BDHUBS: A Big Data Innovation Hub for the Western United States (role: co-PI, PI: Ed Lazowska), $201,822.

2015-2016 The Bill & Melinda Gates Foundation: Increasing Data-Driven Decision Making through Data Modeling Techniques and Best Practices (role: co-PI, PI: Bryna Hazelton), $140,995.

Invited talks

7/2024 National Institute for Physiological Sciences, Okazaki, Japan

7/2024 Yonsei University, Seoul, Korea

6/2024 Department of Psychology, University of Marburg, Germany

11/2023 Tanenbaum Open Science Institute Leaders Council. McGill University, Canada

11/2023 Quantitative Life Sciences and Medicine seminar series. McGill University, Canada

4/2023 Academic Data Science Alliance. "Careers in neuroscience and data science" panel.

11/2022 Society for Neuroscience Professional Development Workshop: "Brain Data Science: A World of New Neuroscience Career Opportunities".

7/2022 Invited talk at Pacific Northwest National Lab MARS Seminar (online).

8/2021 Invited talk at Research Running on Cloud Compute & Emerging Technologies (RRoCCET) 2021 (on-

line).

6/2021 Oregon State University (Corvalis) and Nanyang Techincal University (Singapore) CN Yang Scholars program (online)

10/2020 Open Data Science Conference West, San Francisco, CA (and online).

9/2020 Amazon Web Services Education: Research Seminar Series (online)

9/2019 INCF Neuroinformatics congress, Warsaw, Poland (Keynote).

5/2019 Halıcıoğlu Data Science Institute, University of California, San Diego.

5/2019 Northwest Data Science Summit, University of Washington, Seattle, WA.

10/2018 Carnegie Mellon University, Open Science Symposium, Pittsburgh, PA.

10/2018 Presentation to the Advisory Council to the NIH Director Working Group for the BRAIN Initiative 2.0, Baylor College of Medicine, Houston, TX.

6/2018 ISMRM educational course: "Modeling diffusion MRI", Paris, France.

5/2018 Edmund and Lily Safra Center for Brain Science, The Hebrew University of Jerusalem, Israel.

5/2018 Department of Physiology and Biophysics, University of Washington, Seattle, WA.

11/2017 Center for Studies in Demography and Ecology, University of Washington, Seattle, WA.

7/2017 PNW Prostate Cancer SPORE annual meeting, Seattle, WA.

11/2015 Psychology Department, Indiana University, Bloomington, IN.

3/2015 Berkeley Institute for Data Science. Berkeley, CA

8/2014 Neuroimaging Laboratory, Washington University, Saint Louis, MO.

5/2013 Max Planck Institute for Brain Research, Frankfurt, Germany.

1/2012 Tech talk at GitHub Inc, San Francisco, CA

6/2011 Psychology Department, Dartmouth University. Hannover, NH.

1/2011 Center for Magnetic Resonance Research, University of Minneapolis. Twin Cities, MN

1/2011 Department of Psychology, Vanderbilt University. Nashville, TN.

3/2009 Posit Science. San Francisco, CA.

10/2008 Stanford Vision Lunch. Stanford, CA.

9/2008 The Institute for Theoretical Biology, Humboldt University, Berlin, Germany.

9/2008 The Institute for Biology, Ludwig-Maximillian University, Munich, Germany.

8/2008 UC Davis, Imaging Research Center. Davis, CA.

Software

Full record of open-source software contributions available at https://github.com/arokem

2015 – *pyAFQ*: automated quantification of brain white matter fibers https://yeatmanlab.github.io/pyAFQ/.

2017 – *AFQ-Browser* https://yeatmanlab.github.io/AFQ-Browser.

2020 – *AFQ-Insight*: Statistical learning for tractometry data https://yeatmanlab.github.io/AFQ-Insight/.

2022 – *Tractable*: Statistical analysis for tractometry data https://github.com/yeatmanlab/tractable/.

2017 – *Cloudknot*: a pythonic interface to AWS Batch Services. https://nrdg.github.io/cloudknot

2016 – *Pulse2percept*: Models for Sight Restoration. https://uwescience.github.io/pulse2percept/

2011 – *DIPY*: diffusion MRI in Python, http://dipy.org

2008 – *Nitime*: Time-series analysis for neuroscience, http://nitime.org

Selected Conference presentation (last five years)

1. Early life adversity and white matter development. Adam Richie-Halford, Ethan Roy, John Kruper, Jason Yeatman, **Ariel Rokem**. Annual Meeting of the Society for Neuroscience, 2022.

2. Deep learning for analysis of diffusion-MRI based white matter tractometry. Joanna Qiao, Jason Yeatman, **Ariel Rokem**, Adam Richie-Halford (2022). Annual Meeting of the Society for Neuroscience, 2022.

3. Francois Rheault, Valérie Hayot-Sasson, Robert E. Smith, Christopher Rorden, Jacques-Donald Tournier, Eleftherios Garyfallidis, Fang-Cheng Yeh, Christopher J. Markiewicz, Matthew Brett, Ben Jeurissen, Paul A. Taylor, D. Baran Aydogan, Derek A. Pisner, Serge Koudoro, Soichi Hayashi, Daniel Haehn, Steve Pieper, Daniel Bullock, Emanuele Olivetti, Jean-Christophe Houde, Marc-Alexandre Côté, Flavio Dell'Acqua, Alexander Leemans, Maxime Descoteaux, Bennett Landman, Franco Pestilli, and **Ariel Rokem** (2002). TRX: A community-oriented tractography file format. Annual Meeting of the Organization for Human Brain Mapping, 2022.

4. Adam Richie-Halford, Matthew Cieslak, Azeez Adebimpe, Sydney Covitz, McKenzie Paige Hagen, John Kruper, Mengjia Lyu, Oscar Miranda-Dominguez, Audrey Houghton, Damien Fair, Jason D. Yeatman, Theodore D. Satterthwaite, **Ariel Rokem**. (2022) NIRV: The NeuroImaging Report Viewer. Annual Meeting of the Organization for Human Brain Mapping, 2022.

5. Mareike Grotheer, David Bloom, John Kruper, Manjari Narayan, Adam Richie-Halford, Vicente A. Aguilera González, Jason D. Yeatman, Kalanit Grill-Spector, and **Ariel Rokem** (2022) Spatiotemporal differences in development of preterm infants white matter bundles are explained by faster *in utero* compared to *ex utero* myelination. Annual Meeting of the Organization for Human Brain Mapping, 2022.

6. Manjari Narayan, Noah Simon, Adam Richie-Halford, Jason Yeatman, **Ariel Rokem** (2021). Nonparametric causal analysis of brain and cognition, applied to developmental neuroimaging. Annual Meeting of the Organization for Human Brain Mapping 2021.

7. John Kruper, Jason D. Yeatman, Adam Richie-Halford,David Bloom, Mareike Grotheer, Sendy Caffarra, Gregory Kiar, Iliana I. Karipidis, Ethan Roy, **Ariel Rokem** (2021). Evaluating the reliability of diffusion-MRI based tractometry. Annual Meeting of the Organization for Human Brain Mapping 2021.

8. Adam Richie-Halford, Matthew Cieslak, Alexandre R. Franco, Valerie J. Sydnor, Jason Yeatman, Lei Ai, Michael Milham, Theodore D. Satterthwaite, **Ariel Rokem** (2021). A preprocessed open diffusion derivatives dataset from the Healthy Brain Network. Annual Meeting of the Organization for Human Brain Mapping 2021. Received *Merit Abstract Award*.

9. Mauro Bisson, Josh Romero, Thorsten Kurth, Massimiliano Fatica, Pablo F. Damasceno, Xihe Xie, Adam Richie-Halford, Serge Koudoro, Eleftherios Garyfallidis, **Ariel Rokem** (2021). GPU-accelerated diffusion MRI tractography in DIPY. International Society for Magnetic Resonance in Medicine 2021

10. Rafael Neto Henriques, Marta Correia, Maurizio Marrale, Elizabeth Huber, John Kruper, Serge Koudoro, Jason Yeatman, Eleftherios Garyfallidis, **Ariel Rokem** (2021). Diffusional Kurtosis Imaging in the Diffusion Imaging in Python Project. Inernational Society for Magnetic Resonance in Medicine 2021

11. A. Richie-Halford, J. Yeatman, N. Simon, and **A. Rokem** (2021). Multidimensional analysis and detection of informative features in diffusion MRI measurements of human white matter. International Society for Magnetic Resonance in Medicine 2021. Received the *Magna Cum Laude* award based on reviewer scores.

12. A. Keshavan, J. Yeatman, **A. Rokem** (2019). Swipes for science: An open-source gamified citizen science framework for scalable data annotation. Organization for Human Brain Mapping, 2019.
13. A. Richie-Halford J. Yeatman, **A. Rokem**, A. Keshavan (2019). DMRIprep: a Robust, Scalable Preprocessing Pipeline for diffusion MRI. Organization for Human Brain Mapping 2019.
14. S. Xiao, Y. Wu, A. Y. Lee, **A. Rokem** (2019). MRI2MRI: deep learning neural networks infer brain diffusion properties from T1-weighted MRI. Organization for Human Brain Mapping 2019.
15. A. Richie-Halford, Jason Yeatman, Noah Simon, and **A. Rokem** (2018, 2019). Multidimensional analysis and detection of informative features in diffusion MRI measurements of human white matter. Society for Neuroscience, 2018. Organization for Human Brain Mapping 2019.

Teaching

Classes

As principal instructor

Spring 2024 Informatics for Psychology, Graduate Seminar, UW Department of Psychology. Website: https://uw-psych.github.io/2024-psych532.

As guest instructor

5/2024 (Instructor: Ione Fine)
Core Graduate seminar, UW Department of Psychology (Instructor: Andrea Stocco)
5/2021 Image Analysis for Data Scientists, UW Department of Chemical Engineering (Instructor: Chad Curtis)
5/2018 Data Science and Society, UW Department of Sociology (Instructor: Afra Mashhadi)
10/2017 Data Science and Society, UW Department of Sociology (Instructor: Afra Mashhadi)
4/2014 MA capstone class, Department of Statistics, University of California, Berkeley (Instructor: Victoria Stodden).
10/2013 MRI methods, Department of Psychology, Stanford University (Instructor: Brian Wandell).

Software and Data Carpentry

2022 University of Washington eScience Institute: led instruction of pilot workshop in Image Processing in Python, 20 participants.
2015 – 2020 University of Washington eScience Institute: led instruction of 20 workshops, >1,000 participants from >30 departments on campus.
2015 – University of Washington eScience Institute: led 3 Carpentries instructor training workshops. Trained >40 Carpentries instructors.
2018 – 2021 Annual Instructor Training, The West Big Data Innovation Hub. Seattle, WA. Trained more than >50 Carpentries Instructors.

Other workshops

2021 – 2024 Co-organizer (with Catherine Lebel, François Rheault): "Tractometry : peering into the white matter", educational course at the annual meeting of the Organization for Human Brain Mapping
11/2023 Faculty: African Brain Data Science Academy
https://africanbraindatanetwork.com/abds-academy/.

1/2022 Organizer and lead instructor: Workshop on data science training and collaboration in Hispanic-Serving Institutions (West Big Data Hub and HSI STEM Hub; https://uwescience.github.io/dstc-20220118/).

6/2021 Organizer and lead instructor: Workshop on data science training and collaboration in Hispanic-Serving Institutions (West Big Data Hub and HSI STEM Hub; https://uwescience.github.io/dstc-2021/).

9/2019 Organizer and lead instructor: workshop on data science training and collaboration in Hispanic-Serving Institutions (West Big Data Hub and HSI STEM Hub; https://uwescience.github.io/2019-09-16-dstc-workshop/).

2019 & 2020 Co-organizer (with Andrew Doyle): "Deep Learning in Human Brain Mapping", educational course at the annual meeting of the Organization for Human Brain Mapping

5/2015 Brainhacking 101. Organization for Human Brain Mapping annual meeting.

3/2014 Python for Neuroscience Workshop, University of Nottingham, UK.

10/2012 Reproducible Research in Neuroimaging Workshop. Stanford Center for Cognitive and Neurobiological Imaging.

8/2007 Matlab and the Psychophysics Toolbox, Department of Psychology, UC Berkeley.

Mentorship

Postdocs

2023 – Kelly Chang

2020 – 2022 Adam Richie-Halford. Currently Research and Development Scientist at Stanford.

2020 – 2021 Manjari Narayan (with Jason Yeatman). Currently Machine Learning Scientist at Dyno Therapeutics.

2016 – 2019 Michael Beyeler (with Ione Fine). Currently Assistant Professor at the University of California, Santa-Barbara.

2017 – 2018 Anisha Keshavan (with Jason Yeatman). Currently Senior Data Scientist at Octave Biosciences.

2016 – 2017 Dongfang Zhao (With Magda Balazinska). Currently Assistant Professor at the University of Nevada, Reno.

PhD students

As principal advisor

2022 – John Kruper (NSF Graduate Research Fellowship recipient)

2021 – McKenzie Hagen (DOE Computational Science Graduate Fellowship recipient)

As secondary advisor

2017 – Ezgi Yücel (with Ione Fine)

2022 – Vaishnavi Mohan (with Ione Fine)

Post-baccalaureate students

2022 – 2024 Teresa Gomez (NIH research fellowship)

2020 – 2022 John Kruper (UW Institue of Neuroengineering post-baccalaureate fellowship recipient).

2020 – 2021 David Bloom.

PhD committee membership

2021 – 2023 Shervin Sahba, UW Physics
2022 Kelly Chang, UW Department of Psychology
2019 – 2020 Parmita Mehta, UW Computer Science and Engineering.
2017 – 2020 Chad Curtis, UW Department of Chemical Engineering.
2017 Kivan Polimis, UW Department of Sociology.

Google Summer of Code Open Source Software Interns

Summer 2016 Shahnawaz Ahmed (DIPY).
Summer 2015 Rafael Neto-Henriques (DIPY).

Research interns and undergraduate students

2023 Qiqi Liang (Biology undergraduate student), Isaac Crane (Highschool student intern).
2022 Joanna Qiao (Psychology independent study).
2021 Leqi Teng (Psychology Honors Student), Cecilia Barnes (HCDE independent study).

Additional mentorship

2022 Academic Data Science Alliance individual mentorship: Emily Grabowski.
2023 – African Brain Data Network mentorship: Fidelis Bayor (Ghana), Ibeachu Chinagorom (Nigeria), Safiya Hanwa (Nigeria)

Public Outreach

2023 – Lectures about early life brain development to small groups of parents through the Program for Early Parent Support (PEPS) Seattle.

Service

At the University of Washington

2020 – Department of Psychology, Graduate Training Committee
2020 – Department of Psychology, Graduate Admissions Committee
2020 – Department of Psychology, Data Science Liaison
2022 – Department of Psychology, Data-intensive Research Committee
2020 – Co-Director, Center for Human Neuroscience
2023 Mary Gates Fellowship reviewer
2023 Chair, organizing committee for the eScience 15-year anniversary symposium
2017 – 2020 Chair, University of Washington eScience Institute Special Interest Group on Neuroinformatics.
2016 – 2017 Organizer of the ImageXD workshop series on image processing across domains (http://www.imagexd.org/).
2016 – 2022 Software Carpentry Instructor Trainer: training and certifying instructors for Software Carpentry.
2016 – Course Director: Summer Institute in Neuroimaging and Data Science (https://neurohackademy.org).
2017 – 2018 Chair, University of Washington eScience Institute Working Group on Reproducibility and Open Science.

At national and international organizations

2024 – Member, Scientific Committee, International Society for Tractography

2021 – Member, Advisory Committee for USC-based Reproducible Rehabilitation (ReproRehab) research education program https://www.reprorehab.usc.edu/

2022 – 2024 Member, Brain Imaging Data Structure (BIDS) steering grop

2020 – 2024 Chair, International Neuroinformatics Coordinating Facility Training and Education Committee.

2021 Chair, "Data Science and Neuroinformatics" symposium at the International Neuroinformatics Coordination Facility Assembly

2018 – 2022 Member, Organization for Human Brain Mapping Education Committee.

2020 – 2022 Deputy Chair, International Neuroinformatics Coordinating Facility Training and Education Committee.

2017 – 2024 Member of the International Neuroinformatics Coordinating Facility Training and Education Committee.

2017 Chair (with Olivia Guest) mini-symposium in neuroscience, *Scientific Computing in Python* conference.

2016 – 2019 Co-PI of the Western Big Data Innovation Hub.

2014 Chair (with Franco Pestilli): "The White Matter Matters: Diffusion MRI in Vision Science". Symposium at the Vision Sciences Society annual meeting.

2012 – Software Carpentry Instructor.

Editorial board member, *Scientific Data* (2021 -); Program committee member for *Pattern Recognition in Neuroimaging* (2015, 2016), *Scientific Computing in Python* (2016, 2017).

Reviewer for *Annals of Applied Statistics*, *PLoS One*, *Human Brain Mapping*, *Journal of Cognitive Neuroscience*, *Frontiers in Human Neuroscience*, *Frontiers in Abnormal Psychology*, *Journal of Open Research Software*, *Neuroimage*, *Journal of Vision*, *F1000 Research*, *Journal of Neuroimaging*, *Current Opinion in Neuroscience*, *Psychophysiology*, *Scientific Data*, *Proceedings of the National Academy of Science, USA*, *Neuroinformatics*, *PLoS Computational Biology*, *eLife*, *IOVS*, *Nature Communications*, *Biological Psychiatry*, *Imaging Neuroscience*, *Ophthalmology Science*, *Aperture Neuro*.

Grant reviewer for *NIH*, *NSF*, *Academic Data Science Alliance*, *Chan Zuckerberg Initiative*, *U.S.-Israel Binational Science Foundation (BSF)*.

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