

Stanford

Jeff Nirschl

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Bio

BIO

Jeff Nirschl, M.D., Ph.D. is an Instructor in Pathology at Stanford University, Stanford, CA with clinical expertise in Neuropathology. He completed his Ph.D. in Neuroscience at the University of Pennsylvania under the supervision of Dr. Erika Holzbaur. During his thesis research, he investigated axonal transport and genetic forms of parkinsonism. He also developed computational image analysis workflows for fluorescence microscopy and digital pathology. His research interests include molecular motors and the neuronal cytoskeleton, the regulation of axonal transport in neurodegeneration, digital pathology, and quantitative image analysis using machine learning.

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CLINICAL FOCUS

- Computer vision
- Digital pathology
- Machine learning
- Neurodegenerative Diseases
- Neuropathology
- Anatomic and Clinical Pathology

ACADEMIC APPOINTMENTS

- Instructor, Pathology

HONORS AND AWARDS

- ADRC REC Fellowship, Stanford Alzheimer's Disease Research Center (2022-2024)
- Weil Award for Best Paper on Experimental Neuropathology Presented at the Annual Meeting, American Association of Neuropathologists (2023)
- Saul Winegrad Award, Outstanding Dissertation in the Department of Neuroscience., University of Pennsylvania, Department of Neuroscience. (2018)
- William F. Jeffers Prize, Meritorious Research in the Field of Neurology, Perelman School of Medicine, University of Pennsylvania (2016)
- Ruth L. Kirschstein National Research Service Award F30-NS092227, National Institute of Neurological Disorders and Stroke (NINDS) (2015-2018)
- Hearst Foundation Fellowship, Hearst Foundation (2015)
- Barry M. Goldwater Scholar, National Scholarship in the Sciences, Engineering, and Mathematics, Barry Goldwater Scholarship and Excellence in Education Foundation (2010-2011)

- Rhodes Dunlap Scholar, University of Iowa (2010)
- Fenton Scholarship, University of Iowa (2010)
- Stanley Award for International Research, University of Iowa (2010)
- NSF Science, Technology, Engineering, and Mathematics Scholar, National Science Foundation, Distributed by Kirkwood Community College (2007-2008)

PROFESSIONAL EDUCATION

- Fellowship: Stanford University Pathology Fellowships (2023) CA
- Residency: Stanford University Pathology Residency (2023) CA
- Medical Education: Perelman School of Medicine University of Pennsylvania (2019) PA
- Fellow in Neuropathology, Stanford Healthcare , Neuropathology (2023)
- Residency in Anatomic Pathology, Stanford Healthcare , Anatomic Pathology (2021)

PATENTS

- Anant Madabhushi, Jeffrey John Nirschl, Andrew Janowczyk, Eliot G. Peyster, Michael D. Feldman, Kenneth B. Margulies. "United States Patent 10528848 Histomorphometric classifier to predict cardiac failure from whole-slide hematoxylin and eosin stained images", Case Western Reserve University, May 10, 2018

LINKS

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Publications

PUBLICATIONS

- **The fasciola cinereum of the hippocampal tail as an interventional target in epilepsy.** *Nature medicine*
Jamiolkowski, R. M., Nguyen, Q. A., Farrell, J. S., McGinn, R. J., Hartmann, D. A., Nirschl, J. J., Sanchez, M. I., Buch, V. P., Soltesz, I.
2024
- **Uncovering microstructural architecture from histology.** *bioRxiv : the preprint server for biology*
Georgiadis, M., Auf der Heiden, F., Abbasi, H., Ettema, L., Nirschl, J., Taghavi, H. M., Wakatsuki, M., Liu, A., Ho, W. H., Carlson, M., Doukas, M., Koppes, S. A., Keerweer, et al
2024
- **Orientation-invariant autoencoders learn robust representations for shape profiling of cells and organelles.** *Nature communications*
Burgess, J., Nirschl, J. J., Zanellati, M. C., Lozano, A., Cohen, S., Yeung-Levy, S.
2024; 15 (1): 1022
- **CDC42BPA::BRAF REPRESENTS A NOVEL FUSION IN DESMOPLASTIC INFANTILE GLIOMA**
Guinle, M., Nettnin, E. A., Nasajpour, E., Nirschl, J., Garcia, C. A., Vogel, H., Yeom, K., Prolo, L., Petritsch, C.
OXFORD UNIV PRESS INC.2023
- **MORPHOLOGY, MOLECULAR FEATURES, AND CLINICAL BEHAVIOR OF METHYLATION CLASS PLEOMORPHIC XANTHOASTROCYTOMA**
Dampier, C., Shah, N., Galbraith, K., Rajan, S., Vaubel, R., Ketchum, C., Costa, F., Ferman, S., Neto, O., Wadhwani, N., Lee, H., Mao, Q., Robinson, et al
OXFORD UNIV PRESS INC.2023
- **CLINICOPATHOLOGIC CHARACTERIZATION OF DIFFUSE PEDIATRIC-TYPE HIGH-GRADE GLIOMA, H3-WILDTYPE AND IDH-WILDTYPE: AN AGGRESSIVE AND GENOMICALLY COMPLEX GROUP OF TUMORS AFFECTING CHILDREN AND ADULTS**
Wu, Z., Turakulov, R., Chung, H., Dazelle, K., Abdullaev, Z., Costa, F., Neto, O., Wadhwani, N., Mao, Q., Robinson, L., Marshall, M., Frosch, M., Cathcart, et al
OXFORD UNIV PRESS INC.2023
- **TDP43 pathology in chronic traumatic encephalopathy retinas.** *Acta neuropathologica communications*

Phansalkar, R., Goodwill, V. S., Nirschl, J. J., De Lillo, C., Choi, J., Spurlock, E., Coughlin, D. G., Pizzo, D., Sigurdson, C. J., Hiniker, A., Alvarez, V. E., McKee, A. C., Lin, et al
2023; 11 (1): 152

• **Rapid Deployment of Whole Slide Imaging for Primary Diagnosis in Surgical Pathology at Stanford Medicine Responding to Challenges of the COVID-19 Pandemic** *ARCHIVES OF PATHOLOGY & LABORATORY MEDICINE*

Rojansky, R., Jhun, I., Dussaq, A. M., Chirieleison, S. M., Nirschl, J. J., Born, D., Fralick, J., Hetherington, W., Kerr, A. M., Lavezo, J., Lawrence, D. B., Lummus, S., Macasaet, et al
2023; 147 (3): 359-367

• **TDP-43 Proteinopathy in Retina of Chronic Traumatic Encephalopathy Patients**

Phansalkar, R., Nirschl, J., Goodwill, V., De Lillo, C., Choi, J., Coughlin, D., Pizzo, D., Sigurdson, C., Hiniker, A., Alvarez, V., McKee, A., Lin, J.
ELSEVIER SCIENCE INC.2023: S1475

• **Mitochondrial dysfunction in human hypertrophic cardiomyopathy is linked to cardiomyocyte architecture disruption and corrected by improving NADH-driven mitochondrial respiration.** *European heart journal*

Nollet, E. E., Duursma, I., Rozenbaum, A., Eggelbusch, M., Wust, R. C., Schoonvelde, S. A., Michels, M., Jansen, M., van der Wel, N. N., Bedi, K. C., Margulies, K. B., Nirschl, J., Kuster, et al
2023

• **"Disentangling" mitochondrial dysfunction in hypertrophic cardiomyopathy**

Nollet, E., Burdzina, A., Wust, R. I., Michels, M., Asselbergs, F. W., van der Wel, N., Bedi, K., Margulies, K., Nirschl, J., Kuster, D., van der Velden, J.
ELSEVIER SCI LTD.2022: S113-S115

• **Expanded analysis of high-grade astrocytoma with piloid features identifies an epigenetically and clinically distinct subtype associated with neurofibromatosis type 1.** *Acta neuropathologica*

Cimino, P. J., Ketchum, C., Turakulov, R., Singh, O., Abdullaev, Z., Giannini, C., Pytel, P., Lopez, G. Y., Colman, H., Nasrallah, M. P., Santi, M., Fernandes, I. L., Nirschl, et al
2022

• **A rare neuromyelitis optica mimic: Primary CNS histiocytic sarcoma.** *Multiple sclerosis (Hounds Mills, Basingstoke, England)*

Rogawski, D. S., Nirschl, J. J., McDonald, J., Nie, E., Schwartz, N. U., Vogel, H., Scott, B. J., Gold, C. A., Kipp, L. B.
2022; 28 (10): 1651-1654

• **Rapid Deployment of Whole Slide Imaging for Primary Diagnosis in Surgical Pathology at Stanford Medicine.** *Archives of pathology & laboratory medicine*

Rojansky, R., Jhun, I., Dussaq, A. M., Chirieleison, S. M., Nirschl, J. J., Born, D., Fralick, J., Hetherington, W., Kerr, A. M., Lavezo, J., Lawrence, D. B., Lummus, S., Macasaet, et al
2022

• **Primary central nervous system histiocytic sarcoma presenting as neuromyelitis optica**

Nirschl, J., Rogawski, D., McDonald, J., Nie, E., Schwartz, N., Scott, B., Gratzinger, D., Gold, C., Kipp, L., Vogel, H.
OXFORD UNIV PRESS INC.2022: 491

• **Biological data annotation via a human-augmenting AI-based labeling system.** *NPJ digital medicine*

van der Wal, D., Jhun, I., Laklouk, I., Nirschl, J., Richer, L., Rojansky, R., Theparee, T., Wheeler, J., Sander, J., Feng, F., Mohamad, O., Savarese, S., Socher, et al
2021; 4 (1): 145

• **Black and Blue: Eyes and Dyes**

Sobel, R., Nirschl, J., Hammer, P., Sanchez, R., Pershing, S., Louie, C., Lin, J.
OXFORD UNIV PRESS INC.2021: 579

• **Creatine transport and pathological changes in creatine transporter deficient mice.** *Journal of inherited metabolic disease*

Wawro, A. M., Gajera, C. R., Baker, S. A., Nirschl, J. J., Vogel, H. n., Montine, T. J.
2021

• **Actin cables and comet tails organize mitochondrial networks in mitosis.** *Nature*

Moore, A. S., Coscia, S. M., Simpson, C. L., Ortega, F. E., Wait, E. C., Heddleston, J. M., Nirschl, J. J., Obara, C. J., Guedes-Dias, P. n., Boecker, C. A., Chew, T. L., Theriot, J. A., Lippincott-Schwartz, et al
2021

• **In vitro amplification of pathogenic tau conserves disease-specific bioactive characteristics.** *Acta neuropathologica*

Xu, H., O'Reilly, M., Gibbons, G. S., Changolkar, L., McBride, J. D., Riddle, D. M., Zhang, B., Stieber, A., Nirschl, J., Kim, S., Hoxha, K., Brunden, K. R., Schellenberg, et al
2021

- **The development and convergence of co-pathologies in Alzheimer's disease.** *Brain : a journal of neurology*
Robinson, J. L., Richardson, H. n., Xie, S. X., Suh, E. n., Van Deerlin, V. M., Alfaro, B. n., Loh, N. n., Porras-Paniagua, M. n., Nirschl, J. J., Wolk, D. n., Lee, V. M., Lee, E. B., Trojanowski, et al
2020

- **Computational Histomorphometric Approach for Heart Transplant Rejection**
Atta-Fosu, T., Janowczyk, A., Nirschl, J., Lal, P., Feldman, M., Peyster, E., Margulies, K., Madabhushi, A.
NATURE PUBLISHING GROUP.2019

- **Kinesin-3 Responds to Local Microtubule Dynamics to Target Synaptic Cargo Delivery to the Presynapse.** *Current biology : CB*
Guedes-Dias, P. n., Nirschl, J. J., Abreu, N. n., Tokito, M. K., Janke, C. n., Magiera, M. M., Holzbaur, E. L.
2019; 29 (2): 268–82.e8

- **A deep-learning classifier identifies patients with clinical heart failure using whole-slide images of H&E tissue.** *PLoS one*
Nirschl, J. J., Janowczyk, A. n., Peyster, E. G., Frank, R. n., Margulies, K. B., Feldman, M. D., Madabhushi, A. n.
2018; 13 (4): e0192726

- **Amyotrophic lateral sclerosis-linked mutations increase the viscosity of liquid-like TDP-43 RNP granules in neurons.** *Proceedings of the National Academy of Sciences of the United States of America*
Gopal, P. P., Nirschl, J. J., Klinman, E. n., Holzbaur, E. L.
2017; 114 (12): E2466–E2475

- **Deep Learning Tissue Segmentation in Cardiac Histopathology Images DEEP LEARNING FOR MEDICAL IMAGE ANALYSIS**
Nirschl, J. J., Janowczyk, A., Peyster, E. G., Frank, R., Margulies, K. B., Feldman, M. D., Madabhushi, A., Zhou, S. K., Greenspan, H., Shen, D.
2017: 179–95

- **The impact of cytoskeletal organization on the local regulation of neuronal transport.** *Nature reviews. Neuroscience*
Nirschl, J. J., Ghiretti, A. E., Holzbaur, E. L.
2017; 18 (10): 585–97

- **#-Tubulin Tyrosination and CLIP-170 Phosphorylation Regulate the Initiation of Dynein-Driven Transport in Neurons.** *Cell reports*
Nirschl, J. J., Magiera, M. M., Lazarus, J. E., Janke, C. n., Holzbaur, E. L.
2016; 14 (11): 2637–52

- **Live-cell imaging of retrograde transport initiation in primary neurons.** *Methods in cell biology*
Nirschl, J. J., Holzbaur, E. L.
2016; 131: 269–76

- **Lipid Rafts Assemble Dynein Ensembles.** *Trends in biochemical sciences*
Nirschl, J. J., Ghiretti, A. E., Holzbaur, E. L.
2016; 41 (5): 393–94

- **LC3 Binding to the Scaffolding Protein JIP1 Regulates Processive Dynein-Driven Transport of Autophagosomes** *DEVELOPMENTAL CELL*
Fu, M., Nirschl, J. J., Holzbaur, E. L.
2014; 29 (5): 577-590

- **Automated quantification of locomotion, social interaction, and mate preference in Drosophila mutants.** *Journal of neurogenetics*
Iyengar, A., Imoehl, J., Ueda, A., Nirschl, J., Wu, C. F.
2012; 26 (3-4): 306-16