# CURRICULUM VITAE


## Daniel J. Miller

Assistant Professor

*University of Illinois at Urbana-Champaign*
Dept. Evolution, Ecology, and Behavior
Beckman Institute
School of Integrative Biology

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## EDUCATION

2011-2017: **Vanderbilt University, Nashville TN, USA**
Ph.D., Psychological Science
Thesis: *Quantitative analysis of the evolution and reorganization of microstructure in primates*
Advisor: Jon H. Kaas, Ph.D.

2009–2011: **The George Washington University, Washington D.C., USA**
M.A., Biological Anthropology
Thesis: *Prolonged myelination in human neocortical evolution*
Advisor: Chet C. Sherwood, Ph.D.

2003-2007: **Saint Louis University, Saint Louis MO, USA**
B.A., Anthropology & Philosophy
Thesis: *Social norms regarding moral and instrumental modes of reasoning are shared across industrial and non-industrial societies*.
Advisors: Katherine C. MacKinnon, Ph.D. & Michael Barber, Ph.D.

## POSITIONS HELD:

2021– **University of Illinois at Urbana-Champaign, Urbana IL, USA**
Assistant Professor, Department of Evolution, Ecology, & Behavior

2019–2021: **University of Western Ontario, London ON, Canada**
Tier 1 BrainsCAN Postdoctoral Fellow
Advisors: Ali Khan, Ph.D. & Blake Butler, Ph.D.

2017–2019: **Yale University, New Haven CT, USA**
Postdoctoral Fellow in Neuropsychiatry (NIMH)
Advisor: Nenad Sestan, M.D., Ph.D.

2014–2016: **Vanderbilt University, Nashville TN, USA**
Predoctoral Fellow in Vision Science (NEI)
Advisor: Jon H. Kaas, Ph.D.

2011–2017: **Vanderbilt University, Nashville TN, USA**
Research Assistant
Advisor: Jon H. Kaas, Ph.D.

2011–2011 **University of Texas Southwestern Medical Center, Dallas TX, USA**
Research Assistant
Advisor: Genevieve Konopka, Ph.D.

2010–2010 **Emory University, Atlanta GA, USA**
Research Assistant
Advisor: Todd M. Preuss, Ph.D.

2009–2011: **The George Washington University, Washington D.C., USA**
Research Assistant
Advisor: Chet C. Sherwood, Ph.D.

## GRANTS & SUPPORT

**Total Funding to Date:** **$540,429 (USD)**

2020–2022 **BrainsCAN Accelerator Grant**
Departments of Psychology, Medical Biophysics
Title: *Neuroplasticity during recovery of attentional function after parietal stroke in nonhuman primates*
Principal Applicant: Dr. Corey A. Baron
Co-applicant: Butler BE; Everling S; Khan AR; **Miller DJ**
University of Western Ontario $69,273

2020–2021 **BrainsCAN Postdoctoral Fellow Collaborative Grant**
Title: *Investigating the role of vasculature in modulating functional laminar ultra-high-field magnetic resonance imaging of the cat auditory cortex*
Co-Applicants: **Miller DJ**, Haast RM; Levine AT; Varela-Mattatal, GE.
Sponsors: Drs. Blake Butler; Ali Khan
University of Western Ontario $3,788

2019–2022: **BrainsCAN Tier 1 Postdoctoral Fellowship**
Departments of Psychology, Medical Biophysics
University of Western Ontario
Title: *Validation and application of structural markers of primary auditory cortex to study crossmodal plasticity*
Role: Tier 1 Fellow $170,455

2019–2021 **Research Western Postdoctoral Fellowship**
Department of Psychology
University of Western Ontario
Title: *Validation of structural markers to study crossmodal plasticity in cat auditory cortex*
Role: Fellow (partial acceptance) $68,182

2017-2018 **National Institutes of Mental Health**
Biological Sciences Training Program in Psychiatry
Yale University School of Medicine
Title: *Impact of ASD-related gene mutations on the cellular anatomy and regulatory landscape of the developing cerebral cortex*
Role: Fellow $47,483

2016-2017 **Department of Psychological Sciences**
Vanderbilt University
Role: Graduate Teaching Assistant $28,768

2016-2017 **Vanderbilt Institute for Digital Learning**
Vanderbilt University
Title: *Enhancing online learning with real-time feedback*
Role: Fellow $5,500

2016 **Vanderbilt Institute for Digital Learning Macrogrant**
Vanderbilt University
Title: *Learning anatomy through digital platforms*
PI: Jon H. Kaas
Role: Project Manager $9,852

2016-2017 **The Student Ambassador Scholarship**
The Entrepreneur Center in Nashville, TN
Title: *Innovative approaches to diagnostic brain imaging*
Role: Fellow $1,700

2015 **Graduate Student Research Award**
Vanderbilt University
Title: *Quantitative structural mapping of the primate cerebral cortex*
Role: Principle Investigator $2,395

2015-2016 **National Eye Institute**
Psychological Sciences Training Program in Vision Science
Vanderbilt University
Title: *Anatomical and physiological organization of the dorsal visual system in primates*
Role: Fellow $30,490

2014–2015 **National Eye Institute**
Psychological Sciences Training Program in Vision Science
Vanderbilt University
Title: *Anatomical and physiological organization of the dorsal visual system in primates*
Role: Fellow $30,490

2013–2014 **Department of Psychological Sciences**
Vanderbilt University
Role: Graduate Teaching Assistant $28,768

2012–2013 **Department of Psychological Sciences**
Vanderbilt University
Role: Graduate Teaching Assistant $28,768

2011 **Shirley H. and Robert L. Richards Endowment Scholarship**
George Washington University (declined)
Role: Fellow $4,000

2010-2011 **Department of Anthropology**
George Washington University
Role: Graduate Teaching Assistant $26,553

2010 **The Lewis N. Cotlow Research Fund**
Title: *Role of CA2 in brain connectivity and plasticity in human evolution*
Role: Principle Investigator $1,300

## AWARDS AND HONORS

2018 Editorial Board Member, *Journal of Neuroscience Methods*
2011 Entrusted: Yakovlev-Gibson Brain Collection; by Kathleen Gibson
2007 Saint Louis University: Dean's List & *Magna cum laude*

## PUBLICATIONS

**Total Citations to Date: 727**

2020 Stepniewska I, **Miller DJ**, Friedman R, Kaas JH
Interactions within and between parallel parietal-frontal networks involved in complex motor behaviors in prosimian galagos and a squirrel monkey. *Journal of Neurophysiology*. 123(1):34-56.

2019 **Miller DJ**, Bhaduri A, Sestan N, Kriegstein A
Shared and derived features of cellular diversity in the human cerebral cortex. *Current Opinions in Neurobiology*. 56:117-124.

2018 Zhu Y, Sousa AMM, Gao T, Skarica M, Li M, Santpere G, Esteller-Cucala P, Juan D, Ferrandez L, Gulden FO, Yang M, **Miller DJ**, Marques-Bonet T, Kawasawa YI, Zhao H, Sestan N
Spatio-temporal transcriptomic divergence across human and macaque brain development. *Science*. 14;362(6420).

2016 Liao CC, Qi H, Reed JL, **Miller DJ**, Kaas JH
Congenital foot deformation alters the topographic organization in the primate somatosensory system.
*Brain Structure and Function* 221(1):383-406.

2015 Herculano-Houzel S, von Bartheld CS, **Miller DJ**, Kaas JH
How to count cells: the advantages and disadvantages of the isotropic fractionator compared with stereology.
*Cell Tissue Research*. 360(1):29-42.

2015 Cooke DF, Stepniewska I, **Miller DJ**, Kaas JH, Krubitzer L

Reversible deactivation of motor cortex reveals functional connectivity with posterior parietal cortex in the prosimian galago (*Otolemur garnetti*). *Journal of Neuroscience* 35(42):14406-22.

2014 **Miller DJ**, Balaram P, Young NA, Kaas JH
Three counting methods agree on cell and neuron number in chimpanzee primary visual cortex.
*Frontiers in Neuroanatomy* 8:36.

2013 **Miller DJ**, Konopka G
Evolution and development of language, in *Advances in Evolutionary Developmental Biology* (ed J. T. Streelman), John Wiley & Sons Inc., Hoboken, NJ, USA.

2013 **Miller DJ**, Lackey EP, Hackett TA, Kaas JH
Development of myelination and cholinergic innervation in the central auditory system of a prosimian primate (*Otolemur garnetti*).
*Journal of Comparative Neurology* 521(16):3804-16.

2012 **Miller DJ**, Duka T, Stimpson CD, Schapiro SJ, Baze WB, McArthur MJ, Fobbs AJ, Sousa AM, Sestan N, Wildman DE, Lipovich L, Kuzawa CW, Hof PR, Sherwood CC.
Prolonged myelination in human neocortical evolution.
*Proceedings of the National Academy of Science U S A*. 109(41):16480-5.

2011 Minor Contributing Editor for *Wiley-Blackwell Encyclopedia of Human Evolution* (ed B.A. Wood), John Wiley & Sons Inc., Hoboken, NJ, USA.

## INTELLECTUAL PROPERTY

2020 **Anatolution 3.0**: a web-hosted platform for the active statistical learning of central nervous system microstructure morphometrics (University of Western Ontario)

2016 **Anatolution 2.0**: a web-hosted platform for training in anatomical studies of the central nervous system (Vanderbilt Institute for Digital Learning)

2015 **Anatolution 1.0**: a software application for 3D light microscopy image stack acquisition within user-defined regions (Vanderbilt University)

## TRAINING

### *Mentoring Experience*

*Doctoral Theses*

1. Naila Rahman, University of Western Ontario (2020 Summer – 2024 Spring)
   Title: *Microstructural MRI in a mouse model of mild traumatic brain injury*.

*Master's Theses*

1. Austin Robertson, University of Western Ontario (2020 Fall – 2022 Spring)

Title: *Stereological analysis of myelin in the core and belt areas of the cat (*Felis catus*)*.
2. Kevin Borsos, University of Western Ontario (2021 Spring – 2022 Spring)
Title: *Deep learning microstructure and cellular morphology in 3D optical microscopy image volumes in the cat cerebral cortex (*Felis catus*)*.

*Undergraduate Honors Theses (n=9)*

1. Facundo Lodo, University of Western Ontario (2020 Spring – 2022 Spring)
Title: *Morphological and compositional plasticity of the auditory cortex following deafening in the cat (*Felis catus*).*
2. Siqi Han, University of Western Ontario (2020 Spring – 2022 Spring)
Title: *Cellular composition of the cuneate nucleus during development in the primate.*
3. Simran Singh, University of Western Ontario (2020 Summer – 2021 Spring)
Title: *Supervised machine learning of the cellular composition of the auditory cortex in the cat (*Felis catus*)*.
4. Soojung Yu, University of Western Ontario (2019 Fall – 2020 Spring)
Title: *Changes in the connectivity of the inferior colliculus to the medial geniculate nucleus in cats (*Felis catus*) following deafness*.
5. Del MacGowan, University of Western Ontario (2019 Fall – 2020 Spring)
Title: *Changes in the connectivity of the medial geniculate nucleus to the auditory cortex in cats (*Felis catus*) following deafness*.
6. Anna Huang, Vanderbilt Undergraduate (2014 Fall – 2018 Spring)
Title: *Evolution of the cellular composition of primary visual cortex in primates*
7. Richa Bijlani, Vanderbilt Undergraduate (2015 Spring – 2017 Spring)
Title: *Myelination of primary and secondary sensory fields in primates*
8. Roshan Poudel, Vanderbilt Undergraduate (2014 Fall – 2017 Spring)
Title: *Transneuronal atrophy of the cuneate nucleus after dorsal column lesion*
9. Elizabeth P. Lackey, Vanderbilt Undergraduate (2012 Fall – 2014 Spring)
Title: *Development of myelination in the galago auditory system*

*Research Internships (n=23)*

1. Rohil Gupta, University of Waterloo (2021 Spring & Summer)
2. Bilal Amin, University of Western Ontario (2020 Spring, 2021 Spring & Summer)
3. Nikhil Patel, University of Western Ontario (2020 Spring)
4. Julia Schmid, University of Western Ontario (2020 Summer)
5. Camille LeBlanc, University of Western Ontario (2019 Fall – 2020 Spring)
6. Nicole Paradis, Vanderbilt Undergraduate (2017 Spring – 2017 Summer)
7. Nivetha Vijayakumar, Vanderbilt Undergraduate (2016 Spring – 2017 Spring)
8. Ritika Jain, Vanderbilt Undergraduate (2016 Spring – 2017 Spring)
9. Andrew Yackzan, Vanderbilt Undergraduate (2016 Spring – 2017 Spring)
10. Jessica Leung, Vanderbilt Undergraduate (2016 Spring – 2017 Spring)
11. Dorothy Keissler, Vanderbilt Undergraduate (2016 Spring – 2017 Spring)
12. Joseph Wang, Vanderbilt Undergraduate (2015 Fall – 2016 Spring)
13. David Li, Vanderbilt Undergraduate (2015 Fall – 2016 Spring)
14. Andrew Marx, Vanderbilt Undergraduate (2015 Fall – 2016 Spring)
15. Shuaipeng Zhang, Vanderbilt Undergraduate (2015 Fall – 2016 Spring)

16. Nathan Honold, Vanderbilt Undergraduate (2015 Fall – 2016 Spring)
17. John Clifton, Vanderbilt Undergraduate (2015 Summer – 2017 Spring)
18. Rahul Pathak, Vanderbilt Undergraduate (2014 Spring – 2015 Spring)
19. Rohit Nair, Vanderbilt Undergraduate (2013 Fall – 2015 Spring)
20. Brooke F. Ealey, Vanderbilt Undergraduate (2013 Fall – 2015 Spring)
21. Anthony Cai, Vanderbilt Undergraduate (2014 Spring)
22. Ryan Stahr, Vanderbilt Undergraduate (2013 Spring)
23. Ashley Wade-Vuturo, Vanderbilt Undergraduate (2012 Fall – 2013 Spring)

## PROFESSIONAL SERVICE

**Publons profile**: https://publons.com/researcher/1300545/daniel-james-miller/

Editorial board member, Journal of Neuroscience Methods
Ad hoc article reviewer, Microscopy Research and Technique
Ad hoc article reviewer, Journal of Visualized Experiments
Ad hoc article reviewer, Frontiers in Systems Neuroscience
Ad hoc article reviewer, Journal of Neural Regeneration Research

## PROFESSIONAL SOCIETIES

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|---|---|
| 2013 | Member; The J.B. Johnston Club |
| 2013 | Member; American Psychological Association |
| 2012 | Member; The Cajal Club |
| 2011 | Member; American Association for the Advancement of Science |
| 2010 | Member; Society for Neuroscience |
| 2009 | Member; American Association of Biological Anthropologists |