

JAMES (JIMMY) DOOLEY

Department of Psychological and Brain Sciences
University of Iowa

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EDUCATION

University of Chicago	06/2009
<u>B.A. Biology and Psychology</u>	
Honors advisor: Dr. Brian Prendergast	
University of California, Davis	09/2015
<u>Ph.D. Neuroscience</u>	
Advisor: Dr. Leah Krubitzer	
Dissertation: <i>Anatomical connections of parietal cortex and visual acuity in <i>Monodelphis domestica</i>: Insights into the brain organization of the mammalian ancestor.</i>	
Committee: Gregg Recanzone, Karen Bales, Kenneth Britten, Leah Krubitzer, Brian Trainor	

CURRENT AND PREVIOUS POSITIONS

Assistant Research Scientist, University of Iowa, Dr. Mark Blumberg	2021 – Present
Postdoctoral Fellow, University of Iowa, Dr. Mark Blumberg	2016 – 2021
Graduate Student/PhD Candidate, UC Davis, Dr. Leah Krubitzer	2010 – 2015
Rotation Student, UC Davis, Drs. Barbara Chapman and Brian Trainor	2009 – 2010
Research Assistant, University of Chicago, Dr. Brian Prendergast	2007 – 2009

RESEARCH SEMINARS ATTENDED

Gordon Research Conference, Thalamocortical Interactions	February 2020
Cold Spring Harbor Neural Data Science	July 2017
Gordon Research Conference, Sleep Regulation and Function	March 2016, 2018
Barcelona Cognition, Brain, and Technology Summer School	September 2014

ACADEMIC AWARDS AND SPECIAL RECOGNITION

Postdoctoral Research Fellow Excellence Award	2020
<i>Awarded to one postdoctoral researcher at the University of Iowa whose research performance and scholarly activity makes a significant contribution to the field.</i>	
Ling-Lie Chau Graduate Student Award for Brain Research	2015
<i>Awarded to a high-achieving graduate student at the UC Davis Center for Neuroscience to enhance educational attainment.</i>	

GRANT SUPPORT

Ruth L. Kirschstein National Research Service Award (NRSA) – F32 NS101858	4/1/17 to 3/31/20	\$177,222
<i>Mechanisms for processing expected sensory feedback in early development</i>		
Vision Training Grant – 2T32 EY015387	10/1/14 to 9/30/15	\$44,955
Achievement Reward for College Scientists	9/1/13 to 6/30/14	\$10,000
<i>Effects of early bilateral enucleation on neocortical development</i>		
Vision Training Grant – T32 EY015387	10/1/11 to 9/30/12	\$42,776
Miscellaneous small awards	2013 to present	\$12,550

PEER-REVIEWED PUBLICATIONS

Submitted

Dooley JC, Sokoloff G, and Blumberg, MS. (*Submitted*). Developmental onset of a cerebellar-dependent forward model of movement in motor thalamus. Preprint available at [bioRxiv](#).

Published

1. Glanz RM, **Dooley JC**, Sokoloff G, and Blumberg MS (*In press*). Sensory coding of limb kinematics in motor cortex across a key developmental transition. *Journal of Neuroscience*.
2. Sokoloff G, **Dooley JC**, Glanz RM, Yen RY, Hickerson MM, Evans LG, Laughlin HM, Apfelbaum KS, and Blumberg MS. (2021). Twitches emerge postnatally during quiet sleep in human infants and are synchronized with sleep spindles. *Current Biology*.
3. Gómez LJ, **Dooley JC**, Sokoloff G, and Blumberg, MS. (2021) Parallel and serial sensory processing in developing primary somatosensory and motor cortex. *Journal of Neuroscience*.
4. **Dooley JC***, Glanz RM*, Sokoloff G, and Blumberg MS (2020) Self-generated whisker movements drive state-dependent sensory input to developing barrel cortex. *Current Biology*. 30: 2404–2410. PMID: PMC7314650
5. Blumberg MS, **Dooley JC**, and Sokoloff G (2020) The developing brain revealed during sleep. *Current Opinion in Physiology*. 15: 14–22.
6. **Dooley JC**, Sokoloff G, and Blumberg MS (2019) Behavioral states modulate sensory processing in early development. *Current Sleep Medicine Reports*. 5:112–117. PMID: PMC6818957
7. **Dooley JC**, Krubitzer LA (2019) Alterations in cortical and thalamic connections of somatosensory cortex following early loss of vision. *Journal of Comparative Neurology*. 527: 1675–1688. PMID: PMC6465163
8. **Dooley JC**, Blumberg MS (2018) Developmental "awakening" of primary motor cortex to the sensory consequences of movement. *eLife*. 7:e41841. PMID: PMC6320070
9. Blumberg MS, **Dooley JC** (2017) Phantom Limbs, Neuroprosthetics, and the Developmental Origins of Embodiment. *Trends in Neurosciences*. 40:603–612. PMID: PMC5623093
10. **Dooley JC**, Donaldson MS, and Krubitzer LA (2017) Cortical plasticity following stripe rearing in the marsupial *Monodelphis domestica*: neural response properties of V1. *Journal of Neurophysiology*. 117:566–581. PMID: PMC5288476
11. **Dooley JC**, Franca JG, Seelke AMH, Cooke DF, and Krubitzer LA (2015) Evolution of mammalian sensorimotor cortex: Thalamic projections to parietal cortical areas in *Monodelphis domestica*. *Frontiers in Neuroanatomy*. 8: 163. PMID: PMC4286717
12. Seelke AMH, **Dooley JC**, and Krubitzer LA (2014) Photic preferences of the short-tailed opossum (*Monodelphis domestica*). *Neuroscience*. 269: 273–280. PMID: PMC4020983
13. Seelke AMH, **Dooley JC**, and Krubitzer L (2014) The cellular composition of the marsupial neocortex. *Journal of Comparative Neurology*. 522: 2286–2298. PMID: PMC4090354
14. Krubitzer L and **Dooley JC** (2013) Cortical plasticity within and across lifetimes: How can development inform us about phenotypic transformation? *Frontiers in Human Neuroscience*. 7:620. PMID: PMC3793242
15. **Dooley JC**, Franca JG, Seelke AMH, Cooke DF, Krubitzer LA (2013) A connection to the past: *Monodelphis domestica* provides insight into the organization and connectivity of the brains of early mammals. *Journal of Comparative Neurology*. 521: 3877–3897. PMID: PMC3959876

16. Laredo SA, Landeros RV, **Dooley JC**, Steinman MQ, Orr V, Silva AL, Crean KK, Robles CF, and Trainor BC (2013) Nongenomic effects of estradiol on aggression under short day photoperiods. *Hormones and Behavior*. 64: 557–565. PMID: PMC3851015
17. Seelke AMH, **Dooley JC**, and Krubitzer LA (2013) Differential changes in the cellular composition of the developing marsupial brain. *Journal of Comparative Neurology*. 521: 2602–2620. PMID: PMC3934569
18. **Dooley JC**, Nguyen HM, Seelke AMH, and Krubitzer L (2012) Visual acuity in the short-tailed opossum (*Monodelphis domestica*). *Neuroscience*. 223: 124–130. PMID: PMC3708803
19. **Dooley JC** and Prendergast BJ (2012) Photorefractoriness and energy availability interact to permit facultative timing of spring breeding. *Behavioral Ecology*. 23: 1049–1058. PMID: PMC3431115
20. Seelke AMH, **Dooley JC**, and Krubitzer LA (2012) The emergence of somatotopic maps of the body in S1 in rats: the correspondence between functional and anatomical representation. *PLoS One*. 7: e32322. PMID: PMC3290658

Links to all these publications can be found on my [Google Scholar](#) profile.

*These authors contributed equally to this work.

BOOK CHAPTERS

1. **Dooley, JC** (2018) Neocortex. In: Vonk, J and Shackelford, TK (eds.) *Encyclopedia of Animal Cognition and Behavior*. Springer, Cham.

ORAL PRESENTATIONS

Inside Scientific [invited webinar](#): “Sensorimotor Network Development During Early Postnatal Life in the Awake and Sleeping Brain.” September 2, 2021.

Psychological and Brain Sciences Brown Bag. “Predicting the present: Twitches during active sleep reveal the developmental origins of ‘now.’” University of Iowa. February 2021.

Tucker Davis Technologies invited webinar. “Myoclonic twitches during REM sleep drive neural activity in motor thalamus and motor cortex in preweanling rats.” [Online Webinar](#). November 11, 2020.

International Society for Developmental Psychobiology. “Differences in state-dependent responses to sensory feedback in motor cortex in developing rats.” Washington, DC. November, 2017.

Neuroscience Graduate Group Exit Seminar. “Evolution of the mammalian sensory motor cortex and plasticity following early enucleation.” University of California, Davis. September 2015.

Psychology Brown Bag. “Somatosensory connectivity and plasticity in the developing short-tailed opossum neocortex.” Department of Psychology, University of California, Davis. January, 2015.

Psychology Data Blitz. “Evolution of mammalian sensorimotor cortex: Thalamic projections to primary somatosensory cortex in *Monodelphis domestica*.” Department of Psychology, University of California, Davis. November, 2014.

ARCS Foundation Luncheon, invited student speaker. Fairmont Hotel, San Francisco, CA. October, 2014.

Special Seminar. “Somatosensory connectivity and plasticity in the developing short-tailed opossum neocortex.” Department of Psychology, University of Iowa, Iowa City, IA. September, 2014.

Barbara Chapman Scientific Research Symposium. "Multisensory plasticity in the developing short-tailed opossum neocortex following cortical insult." Buehler Alumni Center, University of California, Davis. April, 2014.

Psychology Data Blitz. "Multisensory plasticity in the developing short-tailed opossum neocortex following cortical insult." Department of Psychology, University of California, Davis. October, 2013.

Special Seminar. "Multisensory plasticity in the developing short-tailed opossum neocortex." Princeton University. October, 2013.

Center for Neuroscience Retreat. "Visual plasticity in the short-tailed opossum." Marconi Conference Center. September, 2013.

Neurolunch. "Plasticity following early V1 lesions in *Monodelphis domestica*." Center for Neuroscience, University of California, Davis. May, 2012.

Psychology Brown Bag. "Can cortical plasticity be directed following early loss of vision." Department of Psychology, University of California, Davis. February, 2012.

Vision Research Symposium. "The effect of early visual loss and environment on cross-modal plasticity in *Monodelphis domestica*." Center for Visual Sciences, University of California, Davis. January, 2012.

POSTER PRESENTATIONS

Whitehead K, Mistry N, Koskela T, Rupawala M, Meek J, Fabrizi L, **Dooley JC**, Blumberg MS. Face and limb movements in very pre-term human infants. British Neuroscience Association, April, 2021.

Dooley JC, Sokoloff S, Blumberg MS. Developmental emergence of REM-sleep-associated theta in sensory thalamus and motor cortex in preweanling rats. Gordon Research Conference: Thalamocortical Interactions, Ventura, CA. February, 2020.

Dooley JC, Sokoloff S, Blumberg MS. Sensory feedback from myoclonic twitches during active sleep continues to activate sensorimotor structures beyond early infancy. Society for Neuroscience, October, 2019.

Gómez LJ, **Dooley JC**, Sokoloff S, Blumberg MS. Functional divergence of sensory responses in developing sensorimotor cortex. Society for Neuroscience, November, 2018.

Dooley JC and Blumberg MS. Sensory "awakening": A rapid developmental transition in state-dependent responses in primary motor cortex. Society for Neuroscience, March, 2018.

Dooley JC and Blumberg MS. Differences in state-dependent responses to sensory feedback in motor cortex of developing rats. Society for Neuroscience, November, 2017.

Dooley JC, Donaldson MS, and Krubitzer LA. Changes in thalamic connectivity of primary somatosensory cortex resulting from early bilateral enucleations in the short-tailed opossum (*Monodelphis domestica*). Society for Neuroscience, November, 2015.

Dooley JC and Krubitzer LA. Effects of early, pervasive exposure to stripes on visual acuity and visual response properties in the short-tailed opossum. Society for Neuroscience, November, 2014.

Dooley JC and Krubitzer LA. Changes in the functional organization of the neocortex following lesions to visual cortex early in development. International Society for Developmental Neurobiology; Society for Neuroscience, November, 2014.

Dooley JC and Krubitzer LA. Changes in cortical connectivity of primary somatosensory cortex following early loss of vision in the short-tailed opossum (*Monodelphis domestica*). Society for Neuroscience, November, 2013. 70.05

Laredo SA, Villalon Landeros R, Orr V, Silva AL, **Dooley JC**, Crean KK, Steinman MQ, and Trainor BC. Photoperiodic regulation of non-genomic effects of estradiol on aggression. Society for Neuroscience, October, 2012. 385.13

Dooley JC, Nguyen HM, Seelke AMH, and Krubitzer LA. Visual response properties of visual cortex in short-tailed opossums (*Monodelphis domestica*). Society for Neuroscience, October, 2012. 571.27

Seelke AMH, **Dooley JC**, and Krubitzer LA. Differential Distribution of Neurons within the Neocortex of Short-Tailed Opossums (*Monodelphis domestica*). Society for Neuroscience, October, 2012. 894.04

Dooley JC, Luu J, Grunewald B, and Krubitzer LA. Tactile discrimination abilities in short-tailed opossums (*Monodelphis domestica*). Society for Neuroscience, November, 2011. 517.23

Landeros RV, Silva AL, **Dooley JC**, Paredes LF, and Trainor BC. Effects of endogenous estradiol on aggressive behavior in male *Peromyscus californicus* mice housed in short day photoperiod. Society of Behavioral Neuroendocrinology, November, 2011.

Dooley JC and Prendergast BJ. Food restriction delays expression of the seasonal interval timer controlling reproductive development in Siberian Hamsters. University of Chicago honors day poster session, June, 2009.

PRESENTATION AWARDS

Gordon Research Symposium Committee's Award	2018
1st place, Best Student Project, Barcelona Cognition Brain, and Technology Summer School	2014
Honorable Mention in UC Davis Interdisciplinary Graduate and Professional Symposium poster contest (people's choice)	2014
2nd place in UC Davis Interdisciplinary Graduate and Professional Symposium poster contest	2014
2nd place in UC Davis Center for Neuroscience poster contest	2013

TRAVEL AWARDS

Gordon Research Symposium Travel Award	2020
University of Iowa Postdoctoral Association Travel Award	2019
University of Iowa Postdoctoral Association Travel Award	2017
Travel award to attend the International Society for Developmental Neurobiology meeting	2017
UC Davis Graduate Student Travel Award	2014
UC Davis Center for Visual Science Travel Fellowship	2014
Travel award to attend the International Society for Developmental Neurobiology meeting	2014
Full scholarship to attend Barcelona Cognition, Brain, and Technology Summer School	2014
UC Davis Center for Vision Sciences Travel Fellowship	2013

COURSES TAUGHT

Teaching Assistant:

Course Name	Knowledge	Enthusiasm	Accessibility	Overall	
Introduction to Psychobiology	4.7	4.8	4.7	4.5	Spring 2014
Comparative Neuroanatomy	4.9	4.9	4.9	4.9	Winter 2013
Physiological Psychology	4.9	4.9	4.9	4.9	Winter 2011

Course Organizer:

Ethics Topics in Neuroscience **Spring 2013, 2014**

Guest Lecturer:

Sensory Transduction	PSC 101, Spring 2014, Winter 2015
Cross Modal Plasticity	PSC 121, Winter 2015, Fall 2015
The Visual System	PSC 121, Spring 2015
Multimodal Plasticity	PSC 121, Spring 2015
The Visual and Motor Systems	PSC 101, Spring 2014

DEPARTMENTAL SERVICE

Member of t-shirt design committee	2011, 2013
Designed Center for Neuroscience t-shirt	September 2013
Student member of Neuroscience Graduate Group Executive Committee	2013-2014
DeLTA Center interdisciplinary grant referee	May 2017

JOURNAL REFEREE

Neuroscience
 Current Biology
 Scientific Reports
 eNeuro
 Neuron

PROFESSIONAL ORGANIZATIONS

Society for Neuroscience, Member
 International Society for Developmental Psychobiology
 Sleep Research Society

COMMUNITY OUTREACH

Presented Neuroanatomy as part of Brain Awareness Week **2010 – 2014**

Gave a guest lecture on Comparative Neuroscience and the Visual System at
Indercum High School

January 2014

Presented interactive comparative neuroanatomy station at California Academy
of Sciences

June 2014