

Brittany K. Taylor, Ph.D.

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Boys Town National Research Hospital

PROFESSIONAL EXPERIENCE

Years	Title	Location
2021 – Present	Director, Neurodiversity Laboratory <i>Institute for Human Neuroscience</i>	Boys Town National Research Hospital
2021 – Present	Assistant Clinical Professor <i>Dept. Pharmacology and Neuroscience</i>	Creighton University

EDUCATION

Year	Degree	University
2017	Ph.D. in Applied Developmental Sciences	Colorado State University
2014	M.S. in Family and Developmental Studies	Colorado State University
2012	B.S. in Psychology Concentration: Mind, Brain, and Behavioral Sciences	Colorado State University

RESEARCH TRAINING

Years	Title	Location
2018 – 2021	Postdoctoral Research Associate <i>MEG Center, DICoN Lab</i>	University of Nebraska Medical Center
2017 – 2018	Postdoctoral Research Fellow <i>Center for Neurobehavioral Research</i>	Boys Town National Research Hospital
2012 – 2017	Graduate Research Assistant <i>Brainwaves Research Lab</i>	Colorado State University
2012 – 2017	Graduate Research Assistant <i>Brain-Computer Interface Lab</i>	Colorado State University
2016 – 2017	Graduate Research Assistant <i>Center for Analytics, Learning, and Teaching</i>	Colorado State University
2016 – 2017	Learning Analyst <i>CSU Research and Analytics</i>	Colorado State University

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2015 – 2016	Graduate Research Assistant <i>Brain Aging: Intervention & Neuroimaging Lab</i>	Colorado State University
2009 – 2011	Undergraduate Research Assistant, Lab Coordinator <i>Adult Development and Aging Project Lab</i>	Colorado State University

PROFESSIONAL SERVICE

Activity	Organization
Invited Reviewer	Developmental Neuropsychology Journal of the American Academy of Child and Adolescent Psychiatry (JAACAP) Journal of Clinical Medicine NeuroImage OTJR: Occupation, Participation and Health Psychological Medicine Psychophysiology Science Advances
Poster Judge	Celebrate Undergraduate Research and Creativity Symposium Front Range Neuroscience Group
Brain Awareness Week Volunteer	The Dana Foundation, Society for Neuroscience

PEER-REVIEWED PUBLISHED ARTICLES

28. *Ott, L. R., *Schantell, M., Willett, M. P., Johnson, H. J., Eastman, J. A., Okelberry, H. J., Wilson, T. W., [Taylor, B. K.](#), & May, P. E. (In Press). Construct validity of the NIH Toolbox cognitive domains: A comparison with conventional neuropsychological assessments. Accepted for publication at *Neuropsychology* on March 7, 2022.
27. Heinrichs-Graham, E., Walker, E. A., [Taylor, B. K.](#), *Menting, S. C., Eastman, J. A., Frenzel, M. R., & McCreery, R. W. (In Press). Auditory experience modulates theta activity serving fluid intelligence throughout the frontoparietal executive function network. Accepted for publication at *Brain Communications* on February 28, 2022.
26. *Rempe, M. P., *Spooner, R. K., [Taylor, B. K.](#), Eastman, J. A., Schantell, M., Embury, C. M., Heinrichs-Graham, E., Wilson, T. W. (In Press). Alpha oscillations in the left

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perisylvian cortices support semantic processing and predict performance. Accepted for publication at *Cerebral Cortex* January 28, 2022.

25. **Taylor, B. K.**, Frenzel, M. R., Eastman, J. A., Embury, C. M., Wang, Y.-P., Stephen, J. M., & Wilson, T. W. (2022). Individual differences in amygdala volume predicts changes in functional connectivity between subcortical and cognitive control networks throughout adolescence. *NeuroImage*, 247, 118852. <https://doi.org/10.1016/j.neuroimage.2021.118852>
24. Lin, M-H., Davies, P. L., **Taylor, B. K.**, Prince, M. A., & Gavin, W. J. (2022). Modeling electrophysiological measures of decision-making and performance monitoring processing in neurotypical children engaging in a speeded flanker task. [online ahead of print] *Psychophysiology*, e13972. <https://doi.org/10.1111/psyp.13972>
23. *Ott, L. R., *Penhale, S. H., **Taylor, B. K.**, Lew, B. J., Wang, Y-P. Calhoun, V. D., Stephen, J. M., & Wilson, T. W. (2021). Spontaneous neural dynamics undergo unique age- and sex-related changes during adolescent development. *NeuroImage*, 244, 118552. <https://doi.org/10.1016/j.neuroimage.2021.118552>
22. *Spooner, R. K., **Taylor, B. K.**, L'Heureux, E., Schantell, M., Arif, Y., May, P., Morsey, B., Wang, T., Ideker, T., Fox, H. S., & Wilson, T. W. (2021) Stress-induced aberrations in sensory processing predict cognitive decline in healthy aging adults. *Aging*, 13, 19996-20015. <https://doi.org/10.18632/aging.203433>
21. *Spooner, R. K., **Taylor, B. K.**, Ahmad, I. M., Dyball, K., Emanuel, K., Fox, H. S., Stauch, K. L., Zimmerman, M. C., & Wilson, T. W. (2021) Neural oscillatory activity serving sensorimotor control is regulated by superoxide-sensitive features of the mitochondrial redox environment. *PNAS*, 118, e2104569118. <https://doi.org/10.1073/pnas.2104569118>
20. *Schantell, M., **Taylor, B. K.**, Lew, B. J., O'Niell, J. L., May, P. E., Swindells, S., Wilson, T. W. (2021). Gray matter volumes discriminate cognitively impaired and unimpaired people with HIV. *NeuroImage Clinical*, 31, 102775. <https://doi.org/10.1016/j.nicl.2021.102775>
19. *Trevarrow, M. O., Lew, B. J., Hoffman, R. M., **Taylor, B. K.**, Wilson, T. W., & Kurz, M. J. (2021). Altered somatosensory cortical activity is associated with cortical thickness in adults with cerebral palsy: multimodal evidence from MEG/sMRI. *Cerebral Cortex*, bhab293. <https://doi.org/10.1093/cercor/bhab293>
18. *Spooner, R. K., **Taylor, B. K.**, Mosgfehg, C. M., Ahmad, I. M., Dyball, K. N., Emanuel, K., Schlichte, S. L., Schantell, M., May, P. E., O'Niell, J., Kubat, M., Bares, S. H., Swindells, S., Fox, H. S., Stauch, K. L., Wilson, T. W., Case, A. J., & Zimmerman, M. C. (2021). Neuroinflammatory profiles regulated by the redox environment predict cognitive dysfunction in persons living with HIV: A cross-sectional study. *EBioMedicine*, 80, 103487. <https://doi.org/10.1016/j.ebiom.2021.103487>

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17. [Taylor, B. K.](#), Frenzel, M. R., Johnson, H. J., Willett, M. P., White, S. F., Badura Brack, A. S., & Wilson, T. W. (2021). Increases in stressors prior to- versus during the COVID-19 pandemic in the United States are associated with depression among middle-aged mothers. Accepted for publication in *Frontiers in Psychology*, *12*, 706120. <https://doi.org/10.3389/fpsyg.2021.706120>
16. *Fung, M. H., [Taylor, B. K.](#), Lew, B. J., Frenzel, M. R., Eastman, J. A., Wang, Y-P., Calhoun, V. D., Stephen, J. M., & Wilson, T. W. (2021). Sexually dimorphic development in the cortical oscillatory dynamics serving early visual processing. *Developmental Cognitive Neuroscience*, *50*, 100968. <https://doi.org/10.1016/j.dcn.2021.100968>
15. *Spooner, R. K., Arif, Y., [Taylor, B. K.](#), & Wilson, T. W. (2021). movement-related gamma synchrony differentially predicts behavior in the presence of visual interference. *Cerebral Cortex*: bhab141. <https://doi.org/10.1093/cercor/bhab141>
14. [Taylor, B. K.](#), Eastman, J. A., Frenzel, M. R., Embury, E. M., Wang, Y-P., Calhoun, V. D., Stephen, J. M., & Wilson, T. W. (2021) Neural oscillations underlying selective attention function follow sexually divergent developmental trajectories during adolescence. *Developmental Cognitive Neuroscience*, *49*, 100961. <https://doi.org/10.1016/j.dcn.2021.100961>
13. *Casagrande, C. C., *Lew, B. L., [Taylor, B. K.](#), Spooner, R. K. O-Niell, J., Schantell, M. D., Wiesman, A. I., May, P. E., Swindells, S., & Wilson, T. W. (2021) Examining the impact of HIV-infection on human somatosensory processing and inhibitory functioning through a multimodal neuroimaging approach. *Human Brain Mapping*, *42*, 2851-2861. <https://doi.org/10.1002/hbm.25408>
12. [Taylor, B. K.](#), Eastman, J. A., Frenzel, M. R., Embury, E. M., Wang, Y-P., Badura Brack, A., Stephen, J. M., Calhoun, V. D., & Wilson, T. W. (2020). Subclinical levels of anxiety and post-traumatic stress predict rate of cortical thinning during adolescence. *The Journal of the American Academy of Child and Adolescent Psychiatry*. <https://doi.org/10.1016/j.jaac.2020.11.020>
11. *Trevarrow, M. P., Kleinsmith, J., [Taylor, B. K.](#), Wilson, T. W., & Kurz, M. J. (2020). The somatosensory cortical activity in individuals with cerebral palsy displays an aberrant developmental trajectory. *The Journal of Physiology*. <https://doi.org/10.1113/JP280400>
10. [Taylor, B. K.](#), Frenzel, M., Eastman, J. A., Wiesman, A. I., Wang, Y-P., Calhoun, V. D., Stephen, J. M., & Wilson, T. W. (2020) Reliability of the NIH Toolbox Cognitive Battery in children and adolescents: A three-year longitudinal examination. *Psychological Medicine*, *9* 1-10. <https://doi.org/10.1017/s0033291720003487>

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9. Heinrichs-Graham, E., [Taylor, B. K.](#), Wang, Y-P., Stephen, J. M., Calhoun, V. D., & Wilson, T. W. (2020). Parietal oscillatory dynamics mediate developmental improvement in motor performance. *Cerebral Cortex* 30, 6405-6414. <https://doi.org/10.1093/cercor/bhaa199>
8. *Fung, M. H., [Taylor, B. K.](#), Frenzel, M. R., Eastman, J. A., Wang, Y.-P., Calhoun, V. D., Stephen, J. M., & Wilson, T. W. (2020). Pubertal testosterone tracks the developmental trajectory of neural oscillatory activity serving visuospatial attention. *Cerebral Cortex*, 30, 5960-5971. <https://doi.org/10.1093/cercor/bhaa169>
7. [Taylor, B. K.](#), Embury, C. M., Heinrichs-Graham, E., Frenzel, M., Eastman, J. A., Wiesman, A. I., Wang, Y-P., Calhoun, V. D., Stephen, J. M., & Wilson, T. W. Neural oscillatory dynamics serving abstract reasoning in typically-developing children and adolescents. (2020). *Developmental Cognitive Neuroscience*, 42, 100770. <https://doi.org/10.1016/j.dcn.2020.100770>
6. Leiker, E. K., Meffert, H., Thornton, L. C., [Taylor, B. K.](#), Aloï, J., Abdel-Rahim, H., Shah, N., Tyler, P. M., White, S. F., Blair, K. S., Filbey, F., Pope, K., Dobbertin, M., & Blair, R. J. R. (2019). Alcohol use disorder and cannabis use disorder symptomatology in adolescents are differentially related to dysfunction in brain regions supporting face processing. *Psychiatry Research: Neuroimaging*, 292, 62-71. <https://doi.org/10.1016/j.psychresns.2019.09.004>
5. [Taylor, B. K.](#), Gavin, W. J., Grimm, K. J., Prince, M. A., Lin, M-H. & Davies, P. L. (2019). Towards a unified model of event-related potentials as phases of stimulus-to-response processing. *Neuropsychologia*, 132, 107128. <https://doi.org/10.1016/j.neuropsychologia.2019.107128>
4. Blair, K. S., Aloï, J., Crum, K., Meffert, H., White, S. F., [Taylor, B. K.](#), Leiker, E. K., Thornton, L. C., Tyler, P. M., Shah, N., Johnson, K., Abdel-Rahim, H., Lukoff, J., Dobbertin, M., Pope, K., Pollak, S., & Blair, R. J. R. (2019). Association of different types of childhood maltreatment with emotional responding and response control among youths. *JAMA Network Open*, 2, e194604. <https://doi.org/10.1001/jamanetworkopen.2019.4604>
3. [Taylor, B. K.](#), Gavin, W. J., Grimm, K. J., Passantino, D. E., & Davies, P. L. (2018). Modeling the interrelationships between brain activity and trait attention measures to predict individual differences in reaction times in children during a Go/No-Go task. *Neuropsychologia*, 109, 222-231. <https://doi.org/10.1016/j.neuropsychologia.2017.12.025>
2. Burzynska, A. Z., Finc, K., [Taylor, B. K.](#), Knecht, A. M., & Kramer, A. F. (2017). The dancing brain: Structural and functional signatures of expert dance training. *Frontiers in human neuroscience*, 11, 566. <https://doi.org/10.3389/fnhum.2017.00566>

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1. **Taylor, B. K.**, Gavin, W. J., & Davies, P. L. (2016). The test-retest reliability of the contingent negative variation (CNV) in children and adults. *Developmental Neuropsychology*, 41, 162-175. <https://doi.org/10.1080/87565641.2016.1170835>

*Mentored Trainee

PUBLICATIONS UNDER REVIEW

10. *Trevarrow, M. P., **Taylor, B. K.**, Reelfs, A. M., Wilson, T. W., & Kurz, M. J. Aberrant movement-related somatosensory cortical activity mediates the extent of the mobility impairments in persons with cerebral palsy. Submitted to *The Journal of Physiology* on January 25, 2022.
9. *Ott, L. R., *Penhale, S. H., *Picci, G., **Taylor, B. K.**, Frenzel, M. R., Eastman, J. A., Wang, Y., Calhoun, V. D., Stephen, J. M., Wilson, T. W. Developmental changes in endogenous testosterone have sexually-dimorphic effects on spontaneous cortical dynamics. Submitted to *Neuropsychopharmacology* on January 19, 2022.
8. *Spooner, R. K., **Taylor, B. K.**, Ahmad, I. M., Dyball, K., Emanuel, K., O’Niell, J., Kubat, M., Swindells, S., Fox, H. S., Bares, S. H., Stauch, K. L., Zimmerman, M. C., & Wilson, T. W. Mitochondrial redox environments predict sensorimotor brain-behavior dynamics in adults with HIV. Submitted to *Brain* on January 6, 2022.
7. *Picci, G., Christopher-Hayes, N. J., Petro, N. M., **Taylor, B. K.**, Eastman, J. A., Frenzel, M. R., Wang, Y-P., Stephen, J. M., Calhoun, V. D., & Wilson, T. W. Amygdala and hippocampal subregions mediate outcomes following trauma during typical development: Evidence from T2-weighted structural MRI. Submitted to *Neurobiology of Stress* on December 19, 2021.
6. Marklin, M., Brown, J., **Taylor, B. K.**, Brack, A. B., Merfeld, L., & Badura-Brack, A. S. Moral injury, depression, age, and political ideology predict womanist identity development stages. Submitted to *Sex Roles* on November 11, 2021.
5. **Taylor, B. K.**, Eastman, J. A., Frenzel, M. F., Wang, Y-P., Calhoun, V. D., Stephen, J. M., & Wilson, T. W. Longitudinal changes in neurophysiological processing underlying abstract reasoning in adolescence. Invited to resubmit at *NeuroImage* on February 13, 2022.
4. *Fung, M. H., **Taylor, B. K.**, Spooner, R. K., Frenzel, M. R., Johnson, H. J., Willett, M. P., Badura-Brack, A. S., White, S. F., & Wilson, T. W. Cortisol changes in healthy children and adolescents in response to the COVID-19 pandemic. Submitted to *Developmental Science* on December 1, 2021.
3. *Picci, G., **Taylor, B. K.**, Killanin, A. D., Eastman, J. A., Frenzel, M. R., Wang, Y-P., Stephen, J. M., Calhoun, V. D., & Wilson, T. W. Left amygdala structure mediates

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longitudinal associations between exposure to threat and long-term psychiatric symptomatology in youth. Submitted to *Human Brain Mapping* on December 18, 2021.

2. *Fung, M. H., *Rahman, R. L., **Taylor, B. K.**, Frenzel, M. R., Eastman, J. A., Wang, Y-P., Calhoun, V. D., Stephen, J. M., & Wilson, T. W. The impact of pubertal DHEA on the development of visuospatial oscillatory dynamics. Submitted to *Human Brain Mapping* on January 11, 2022.
1. **Taylor, B. K.**, Fung, M. H., Frenzel, M. R., Johnson, H. J., Willett, M. P., Badura-Brack, A. S., White, S. F., & Wilson, T. W. Increases in circulating cortisol during the COVID-19 pandemic are associated with changes in perceived positive and negative affect among adolescents. Revision resubmitted at *Research on Child and Adolescent Psychopathology* on January 5, 2022.

*Mentored Trainee

NON-PEER REVIEWED PUBLICATIONS

3. **Taylor, B. K.** (2017). *Phases of systematic brain processing differentially relate to cognitive constructs of attention and executive function in typically-developing children: A latent variable analysis*. (Doctoral Dissertation), Colorado State University, Fort Collins, CO. Retrieved from <https://search-proquest-com.ezproxy2.library.colostate.edu/docview/1961606283?accountid=10223>
2. Forney, E. M., Anderson, C. W., Gavin, W. J., Davies, P. L., Roll, M. C., & **Taylor, B. K.** (2015). Echo state networks for modeling and classification of EEG in mental task BCI. *Technical Report, Department of Computer Science, Colorado State University, Fort Collins, CO, CS-15-102*. doi: 10.13140/RG.2.1.3983.1445
1. ***Cabral, B. K.** (2014). *The test-retest reliability of the contingent negative variation (CNV) in children and adults before and after removing aberrant CNV segments*. (Master's Thesis), Colorado State University, Fort Collins, CO. Retrieved from <http://hdl.handle.net/10217/83880>

*Maiden name

PUBLICATIONS IN PREPARATION

4. *Penhale, S. H., *Ott, L. R., *Picci, G., **Taylor, B. K.**, Frenzel, M. R., Eastman, J. A., Wang, Y., Calhoun, V. D., Stephen, J. M., Wilson, T. W. *Impact of salivary DHEA levels on spontaneous cortical dynamics throughout development*

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3. **Taylor, B. K.**, Wilson, T. W., & Miller, G. E. *Chronic home radon exposure is specifically associated with increases in circulating C-reactive protein and interleukin-1 β among children and adolescents.*
2. **Taylor, B. K.**, Gavin, W. J., Grimm, K. J., & Davies, P. L. *Differential neurophysiological indices of learning in children versus adults following practice on a Go/No-Go task.*
1. Gavin, W. J., **Taylor, B. K.**, Lin, M.-H., & Davies, P. L. *Comparing adults to children in a model accounting for trait – and state-based variance in sequential latent measures of event-related potential (ERP) components.*

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CONFERENCE PRESENTATIONS AND PUBLISHED ABSTRACTS

- Kurz, M. J., Baker, S. E., **Taylor, B. K.**, & Corr, B. (2022). *Motor practice related change in cortices of persons with cerebral palsy.* Abstract submitted to the 76th annual meeting of the American Academy of Cerebral Palsy and Developmental Medicine, Las Vegas, NV.
- *Busboom, M. T., Hoffman, R. M., Spooner, R. K., **Taylor, B. K.**, Baker, S. E., Trevarrow, M. P., Wilson, T. W., & Kurz, M. J. (2022). *Persons with cerebral palsy with less sensorimotor cortical flexibility might be more susceptible to distracting visual stimuli.* Abstract submitted to the 76th annual meeting of the American Academy of Cerebral Palsy and Developmental Medicine, Las Vegas, NV.
- *Penhale, S. H., *Ott, L. R., Lew, B. J., **Taylor, B. K.**, Wang, Y., Calhoun, V. D., Stephen, J. M., & Wilson, T. W. (2021). *Spontaneous cortical activity undergoes unique age- and sex- related changes during the transition to adolescence.* *Psychophysiology*, 58, S1. doi: 10.1111/psyp.13928, *presented at the 2021 Society for Psychophysiological Research (virtual), at the 2021 Organization for Human Brain Mapping Conference (virtual), and at the Boys Town National Research Hospital Student Research Day Omaha, Nebraska*
- *Rempe, M. P., *Spooner, R. K., **Taylor, B. K.**, Eastman, J. A., Schantell, M., Embury, C. M., Heinrichs-Graham, E., & Wilson, T. W. (2021). *Alpha oscillations in the left perisylvian cortices support semantic processing and predict performance.* Poster presented at the annual meeting of the Organization for Human Brain Mapping, virtual conference.
- *Fung, M. H., *Rahman, R. L., **Taylor, B. K.**, Frenzel, M. R., Eastman, J. A., Wang, Y-P., Calhoun, V. D., Stephen, J. M., & Wilson, T. W. (2021). *DHEA influences visuospatial oscillatory development during puberty.* Poster presented at the annual meeting of the Organization for Human Brain Mapping, virtual conference.
- *Fung, M. H., **Taylor, B. K.**, & Wilson, T. W. (2021). *Cortisol Changes in Youth in Response to the COVID-19 Pandemic.* Presentation delivered at the Boys Town National Research Hospital Student Research Presentation Day, Boys Town, NE.

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- *Ott, L. R., *Penhale, S., H., [Taylor, B. K.](#), & Wilson, T. W. (2021). *Spontaneous cortical activity undergoes unique age- and sex-related changes during the transition to adolescence*. Poster presented at the Boys Town National Research Hospital Student Research Presentation Day, Boys Town, NE.
- Gavin, W. J., [Taylor, B. K.](#), Lin, M.-H., & Davies, P. L. (2020). Comparing adults to children in a model accounting for trait- and state-based variance in sequential latent measures of event-related potential (ERP) components. *Psychophysiology*, 57, S69. doi: 10.1111/psyp.13670, Poster presented at the 60th annual meeting of the Society for Psychophysiological Research, Vancouver, BC, and at the first annual College of Health and Human Sciences Research Day, Fort Collins, CO.
- Badura-Brack, A., [Taylor, B.](#) Kayl, A., Marklin, M., Frenzel, M., Stephen, J., Wang, Y.-P., Calhoun, V., & Wilson, T. (2020). *Psychological symptoms mediate the relationship between trauma exposure and resting-state functional connectivity in children*. Abstract accepted for poster presentation at the 32nd annual meeting of the Association for Psychological Science, Chicago, IL. *Conference cancelled due to COVID-19 pandemic
- [Taylor, B. K.](#), Eastman, J. A., Frenzel, M. R., Embury, E. M., Wang, Y.-P., Badura Brack, A. S., Stephen, J. M., Calhoun, V. D., & Wilson, T. W. (2020). Early anxiety, depressive, and post-traumatic stress symptoms impact cortical thinning trajectories throughout adolescence. *Biological Psychiatry*, 87, S165. doi: 10.1016/j.biopsych.2020.02.437, Abstract accepted for poster presentation at the 75th annual meeting of the Society of Biological Psychiatry, New York, NY. *Conference cancelled due to COVID-19 pandemic
- [Taylor, B.](#), Embury, C., Heinrichs-Graham, E., Wiesman, A., Wang, Y-P., Calhoun, V., Stephen, J., & Wilson, T. (2019). Neural oscillatory dynamics serving abstract reasoning in typically-developing children and adolescents. *Psychophysiology*, 56, S55. doi: 10.1111/psyp.13502, presented at the 59th annual meeting of the Society for Psychophysiological Research, Washington, DC.
- [Taylor, B.](#), Gavin, W., Lin, M-H., & Davies, P. L. (2019). Understanding the unique contributions of state- and trait-based variance in ERP measurements. *Psychophysiology*, 56, S81. doi: 10.1111/psyp.13502, presented at the 59th annual meeting of the Society for Psychophysiological Research, Washington, DC.
- Lin, M-H., Davies, P., [Taylor, B.](#), & Gavin, W. (2019). Modeling neural processes of event-related potential (ERP) components from stimulus to response on a Flanker task in typically-developing children. *Psychophysiology*, 56, S100. doi: 10.1111/psyp.13502, presented at the 59th annual meeting of the Society for Psychophysiological Research, Washington, DC.

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- Dobbertin, M., Blair, K. S., Tyler, P., Thornton, L., Meffert, H., White, S., **Taylor, B.**, Leiker, E., Shah, N., Johnson, K., Abdel-Rahim, H., & Pope, K. (2019). T8. The association of heightened threat processing and self-harm behavior. *Biological Psychiatry*, 85(10), S132. doi: 10.1016/j.biopsych.2019.03.221, presented at the 74th annual meeting of the Society of Biological Psychiatry, Chicago, IL.
- Blair, J., **Taylor, B.**, Thornton, L., Meffert, H., White, S., Tyler, P., ... & Mobley, A. (2018). T6. Neural Activations Differentiate Five Subtypes of Anxiety Defined by the SCARED. *Biological Psychiatry*, 83(9), S131. doi: 10.1016/j.biopsych.2018.02.342, presented at the 74th annual meeting of the Society of Biological Psychiatry, Chicago, IL.
- Blair, J., Blair, K., Aloji, J., White, S., Meffert, H., Tyler, P., Thornton, L., **Taylor, B.**, Leiker, E., Shah, N., Abdel-Rahim, H., & Pope, K. (2018). O28. Differential Development Impacts of Different Sub-Types of Abuse and Neglect on Systems Engaged in Task Performance and Emotional Responding. *Biological Psychiatry*, 83(9), S119-S120. doi: 10.1016/j.biopsych.2018.02.314, presented at the 38th annual meeting of the Anxiety and Depression Association of America, Washington, D.C., and at the 73rd annual meeting of the Society of Biological Psychiatry, New York, NY
- Gavin, W. J., **Taylor, B. K.**, & Davies, P. L. (2017). A Unified Model of Event-Related Potentials as Phases of Stimulus-to-Response Processing. *Psychophysiology*, 54, S139. doi: 10.1111/psyp.12950, presented at the 57th annual meeting of the Society for Psychophysiological Research, Vienna, Austria, and at the 15th annual meeting of the Front Range Neuroscience Group, Fort Collins, CO
- *The, S., **Taylor, B. K.**, Mascarenhas, J. C., Davies, P. L., Gavin, W. J., Forney, E. M., & Anderson, C. W. (2017). *Classification accuracy of the P300 speller in the homes*. Poster presented at the annual Celebrate Undergraduate Research and Creativity Symposium, Fort Collins, CO.
- *Bicket, A., Lin, M-H., **Taylor, B. K.**, Gavin, W. J., & Davies, P. L. (2016, 2017). *Response inhibition represented by the N200 in adults in a Go-NoGo task*. Poster presented two annual Celebrate Undergraduate Research and Creativity Symposia, Fort Collins, CO, and at the 14th annual meeting of the Front Range Neuroscience Group, Fort Collins, CO.
- *Gomez-Wulschner, L. E., **Taylor, B. K.**, Davies, P. L., & Gavin, W. J. (2016). *Basic word processing and recognition in bilingual and monolingual individuals*. Poster presented at the annual Celebrate Undergraduate Research and Creativity Symposium, Fort Collins, CO, and at the 14th annual meeting of the Front Range Neuroscience Group, Fort Collins, CO.
- Taylor, B. K.**, Davies, P. L., & Gavin, W. J. (2016). Structural equation modeling indicates varying roles of attention in children performing a Go-NoGo task across sessions.

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Psychophysiology, 53, S80. www.sprweb.org, presented at the 56th annual meeting of the Society for Psychophysiological Research, Minneapolis, MN.

Forney, E., Anderson, C., Davies, P., Gavin, W., Roll, M., Crasta, J., **Taylor, B.** (2016). *Detecting P300 ERPs with convolutional networks*. Poster presented at the 6th International Brain-Computer Interface Meeting, Pacific Grove, CA.

*Hoogs, H. L., **Taylor, B. K.**, Davies, P. L., & Gavin, W. J. (2016). *Age and sustained attention in children and adults during a visual Go-NoGo task*. Poster presented at the annual Celebrate Undergraduate Research and Creativity Symposium, Fort Collins, CO.

*Klippenstein, J., *Gill, J., **Taylor, B.**, Finc, K., Johnson, C., Kramer, A., & Burzynska, A. (2016). *MODERN: Studying brain structure and function in professional dancers with MRI*. Poster presented at the 2016 Molecular, Cellular, and Integrated Neurosciences Symposium, Fort Collins, CO.

Forney, E., Anderson, C., Ryzhkov, I., Gavin, W., Davies, P., Roll, M., Crasta, J., **Taylor, B.**, & Vafaei, F. (2016). *CEBL3: A new software platform for EEG analysis and rapid prototyping of BCI technologies*. Poster presented at the 6th International Brain-Computer Interface Meeting, Pacific Grove, CA.

*Johnson, S. J., Gavin, W. J., Davies, P. L., Boles, R. E., **Taylor, B. K.**, & Bellows L. L. (2016). Parents' estimations of 4-7-y-old children's food neophobia and eating temperament compared with observations of children's food refusals: Longitudinal findings of the Colorado LEAP study. *The FASEB Journal*, 30 (1 Supplement), 1155-22. doi: 10.1096/fj.1530-6860, Symposium presentation delivered at the 80th annual American Society for Nutrition Scientific Sessions meeting on Experimental Biology, San Diego, CA.

*Hogan, B. L., Hoogs, H. L., **Taylor, B. K.**, Lin, M-H., Gavin, W. J., & Davies, P. L. (2015). *The test-retest reliability of N1 and N2 in adults during a flanker task*. Poster presented at the 13th annual meeting of the Front Range Neuroscience Group, Fort Collins, CO.

*The, S., *Bicket, A., **Taylor, B. K.**, Lin, M-H., Davies, P. L., & Gavin, W. J. (2015). *Test-retest reliability of the P300 in adults during a flanker task*. Poster presented at the 13th annual meeting of the Front Range Neuroscience Group, Fort Collins, CO.

*Dungan, S., Crasta, J. E., **Taylor, B. K.**, Davies, P. L., & Gavin, W. J. (2015). *Sensory gating in children with high functioning autism*. Poster presented at the annual Celebrate Undergraduate Research and Creativity Symposium, Fort Collins, CO.

Taylor, B. K., Davies, P. L., & Gavin, W. J. (2015). *Phases of systematic brain processing successfully predict task-specific behaviors*. Poster presented at the 2nd annual Graduate Student Showcase, Fort Collins, CO, and at the 13th annual meeting of the Front Range Neuroscience Group, Fort Collins, CO.

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Taylor, B. K., Davies, P. L., & Gavin, W. J. (2015). Differential strategies in children and adults during a visual Go-NoGo task across two sessions. *Psychophysiology*, *52*, S105. doi: 10.1111/psyp.12495, presented at the 55th annual meeting of the Society for Psychophysiological Research, Seattle, WA.

Taylor, B. K., Breeding, C., Forney, E. M., Anderson, C. W., Davies, P. L., & Gavin, W. J. (2014). *A simple classification routine for event-related brain-computer interfaces*. Poster presented at the 12th annual meeting of the Front Range Neuroscience Group, Fort Collins, CO.

Taylor, B. K., Davies, P. L., & Gavin, W. J. (2014). The test-retest reliability of the visually-evoked contingent negative variation in children and adults. *Psychophysiology*, *51*, S17. doi: 10.1111/psyp.12280, presented at the 2014 Molecular, Cellular, and Integrated Neuroscience Symposium, Fort Collins, CO., at the 11th annual meeting of the Front Range Neuroscience Group, Fort Collins, CO., and at the 54th annual meeting of the Society for Psychophysiological Research, Atlanta, GA.

Gavin, W. J., **Taylor, B. K.**, Segalowitz, S. J., & Davies, P. L. (2014). A trial-by-trial distribution-based, outlier-rejection approach to creating averaged ERPs for contingent negative variation paradigms. *Psychophysiology*, *51*, S17. doi: 10.1111/psyp.12280, presented at the 54th annual meeting of the Society for Psychophysiological Research, Atlanta, GA.

*Johnson, B. T., **Taylor, B. K.**, Davies, P. L., & Gavin, W. J. (2014). Performance monitoring while varying working memory load. *Psychophysiology*, *51*, S17. doi: 10.1111/psyp.12280, presented at the 54th annual meeting of the Society for Psychophysiological Research, Atlanta, GA

*The, K. J., **Taylor, B. K.**, Crasta, J. E., Lin, M., Forney, E. M., Anderson, C. W., Davies, P. L., & Gavin, W. J. (2014). Brain computer interface classifier parameters are influenced by practice: Results from a P300 speller. *Psychophysiology*, *51*, S17. doi: 10.1111/psyp.12280, presented at the 54th annual meeting of the Society for Psychophysiological Research, Atlanta, GA

*Dungan, S., **Taylor, B. K.**, Gavin, W. J., & Davies, P. L. (2014). *Relating behavioral measures to neurological measures of sustained attention in children*. Poster presented at the annual Celebrate Undergraduate Research and Creativity Symposium, Fort Collins, CO.

*The, K. J., **Taylor, B. K.**, Crasta, J. Lin, M., Davies, P. L., & Gavin, W. G. (2014). *P300 matrix speller: Rate, accuracy, and effects of practice*. Poster presented at the annual Celebrate Undergraduate Research and Creativity Symposium, Fort Collins, CO.

*Johnson, B. T., **Taylor, B. K.**, Davies, P. L., & Gavin, W. J. (2013). *Error monitoring and working memory load: Presence and alteration of a late positivity in stimulus-locked*

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ERPs. Poster presented at the 11th annual meeting of the Front Range Neuroscience Group, Fort Collins, CO.

Taylor, B. K., Forney, E. M., Gavin, W. J., Anderson, C. W., & Davies, P. L. (2013). The role of attention in predicting individual success operating non-invasive brain-computer interfaces. *Psychophysiology*, *50*, S71. doi: 10.1111/psyp.12120, presented at the 5th International Brain-Computer Interface Meeting, Pacific Grove, CA.

Anderson, C. W., Gavin, W. J., Forney, E. M., **Taylor, B. K.**, & Davies, P. L. (2013). A comparison of EEG systems with brain-computer interfaces in home environments. *Psychophysiology*, *50*, S6. doi: 10.1111/psyp.12100, presented at the 9th annual meeting of the Front Range Neuroscience Group, Fort Collins, CO, and at the 2013 Molecular, Cellular, and Integrated Neuroscience Symposium, Fort Collins, CO., and at the 5th International Brain-Computer Interface Meeting, Pacific Grove, CA.

Forney, E. M., Anderson, C. W., Gavin, W. J., Davies, P. L., & **Taylor, B. K.** (2012, 2013). *Non-invasive brain-computer interfaces using echo state networks*. Poster presented at the 9th annual meeting of the Front Range Neuroscience Group, Fort Collins, CO, and at the 2013 Molecular, Cellular, and Integrated Neuroscience Symposium, Fort Collins, CO.

*Mentored Trainee

INVITED PRESENTATIONS

Taylor, B. K., Embury, C. M., Heinrichs-Graham, E., Frenzel, M., Wiesman, A. I., & Wilson, T. W. *Neural Oscillatory Mechanisms Serving Abstract Reasoning*. Presentation delivered for the EPSCOR Dev-CoG monthly virtual meeting, May 21, 2019.

Burns, S., & **Taylor, B. K.** *Flipped classroom research at CSU: What have we learned?* Workshop delivered at the 38th annual Professional Development Institute program hosted by the Institute for Learning and Teaching at Colorado State University, Fort Collins, CO, January 10, 2017.

Taylor, B. K. *Understanding neural plasticity in the context of cognitive training and exercise: an introduction to Art Kramer's work*. Molecular, Cellular, and Integrated Neuroscience seminar series for first-year doctoral students, NB 793 at Colorado State University, Fort Collins, CO, September 26, 2016.

Taylor, B. K., Lin, M., Davies, P. L., & Gavin, W. J. *From stimulus to response: How attention and executive function differentially relate to phases of brain activity during decision-making behaviors in children*. Human Development and Family Studies Seminar Series, Colorado State University, Fort Collins, CO, March 25, 2016.

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Taylor, B. K. *How we can use functional and structural neuroimaging methodologies to understand healthy development and aging.* Molecular, Cellular, and Integrated Neuroscience seminar series for first-year doctoral students, NB 793 at Colorado State University, Fort Collins, CO, November 16, 2015.

GRANTS AND FUNDING

Current Funding

P20 GM144641, Wilson (PI)

03/2022 – 02/2027

NIH/NIGMS

“The Center for Pediatric Brain Health”

This award initiates a Center of Biomedical Research Excellence (CoBRE) focusing on pediatric neuroscience research. The Center includes an administrative core that oversees a dynamic collection of supporting programs, an advanced Neural Quantification Core Facility, four major research projects led by NIH-defined early-stage investigators, and an established cohort of senior investigators.

Role: Research Project Leader – Principal Investigator

R01 MH121101, Wilson (PI)

08/2019 – 05/2024

NIH/NIMH

“Developmental Multimodal Imaging of Neurocognitive Dynamics (Dev-MIND)”

This award supports an accelerated, multimodal, longitudinal neuroimaging study of 6-15 year-old typically-developing youth to verify the unitarity of RDoC constructs. All 310 participants complete annual visits consisting of neuropsychological assessments, MEG imaging, fMRI, and sMRI.

Role: Co-Investigator

R01 MH118013 & S1, Wilson & Becker (MPI)

08/2018 – 04/2023

NIH/NIMH (parent), NIH/NIA (supplement)

“Multimodal Imaging of NeuroHIV Dynamics (MIND): An Omaha-Pittsburgh Consortium”

This award uses MEG, sMRI, fMRI, DTI, and 7-Tesla GABA MRS to evaluate the neuro-circuitry, -dynamics, and -chemistry underlying cognitive impairment in HIV-infected adults and uninfected controls. A supplement (S1) has recently allowed us to broaden this study to include groups with Alzheimer’s and MCI.

Role: Co-Investigator

S10 OD028751, Wilson (PI)

07/2021 – 07/2022

NIH

“New MEG System for Improved Quantification of Human Brain Dynamics”

This award affords the purchase of a brand new, state-of-the-art magnetoencephalography system, the MEGIN Triux Neo, and its associated 2-layer active-shielded magnetically-shielded

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room, helium recycler, and all necessary computers and electronics for stimulus presentation and data recording. The system will be housed within the Institute for Human Neuroscience at Boys Town National Research Hospital.

Role: Co-Investigator

Completed Funding

P20 GM130447, Wilson (PI)

07/2020 – 01/2021

NIH/NIGMS

“Cognitive Neuroscience of Development and Aging (CoNDA) Center”

This award initiates a Center of Biomedical Research Excellence (CoBRE) focusing on human neuroscience research across the lifespan. The Center includes an administrative core that oversees a dynamic collection of supporting programs, an advanced Neuroimaging Acquisition and Analysis Core Facility, four major research projects led by NIH-defined early-stage investigators, and an established cohort of senior investigators.

“Radon toxicity in child and adolescent development”

This mini grant, awarded through the CoNDA Center, funded a pilot study exploring the neurotoxic effects of home radon exposure on structural and functional brain development in 6-13 year-old typically-developing children. Families were provided with home radon testing kits, and all youth underwent neuropsychological testing, MEG imaging, and s/fMRI.

Role: Mini Grant Awardee – Principal Investigator

Intramural research grant, Davies (PI)

10/2015 – 06/2016

Colorado State University, Department of Occupational Therapy

“Developing a biobehavioral model to explain the dynamic inter-relationships between neurophysiological measures and behavioral measures of executive functions in children”

This award supported doctoral dissertation efforts: the study examined neural dynamics underlying high order cognition and learning in a sample of 150 typically developing children ages 8-12 years-old. Participants completed three lab visits comprising electroencephalography, neuropsychological assessment, and functional assessments.

Role: Co-Principal Investigator

Pending Funding

S10 OD032468, Wilson (PI)

02/2022 – 01/2023

NIH

“Wearable magnetoencephalography (MEG): The next-generation of dynamic human neuroimaging”

This award affords the purchase of a brand new, state-of-the-art optically-pumped magnetometry (OPM) system, and its associated magnetically-shielded room, field nulling coils, and all necessary computers and electronics for stimulus presentation and data recording. The

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system will be housed within the Institute for Human Neuroscience at Boys Town National Research Hospital.

Role: Co-Investigator

Impact Score: 10

L40 ES034598, Taylor (PI)

08/2022 – 07/2024

NIEHS

“Cognitive, Immunological, and Neurophysiological Consequences of Home Radon Exposure in Children and Adolescents”

This award through the NIH Division for Loan Repayment and the National Institute for Environmental Health Sciences provides the investigator with federal student loan forgiveness for up to two years, equaling 50% of the investigator’s total current student loan debt.

Role: Principal Investigator

Impact Score: TBD

AWARDS AND HONORS

Year	Award/Honor
2019	Society for Psychophysiological Research Family Care Grant
2016	George A. Morgan Dissertation Award
2016	College Honors – College of Veterinary Medicine and Biomedical Sciences <i>*Awarded to an undergraduate student mentee for his poster at the 2016 Celebrate Undergraduate Research and Creativity Symposium</i>
2015	College of Health and Human Science: Excellence in Research and Scholarship Award <i>*Awarded for poster presentation at the 2015 Graduate Student Showcase</i>
2012	Marian Adams Fellowship
2012	University Graduate Fellowship

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TECHNICAL PROFICIENCIES

Neuroimaging/Neurophysiological Data Collection and Processing

Electroencephalography/Magnetoencephalography:

ActiView/LabView
BCI2000
BESA Statistics/Research/MRI
Brain Vision Analyzer
E-Prime
NeuroElf

Magnetic Resonance Imaging:

Analysis of Functional Neuroimages (AFNI)
FMRIB Software Library (FSL)
Freesurfer
SPM

Coding/Scripting Languages and Software

Proficient:

Matlab
Visual Basic
MPlus
Bash
T-shell

Experience:

SQL
R Statistical Software
C++
C-shell

Data Management and Statistical Analysis

Matlab
Microsoft Access Database and Excel
MPlus
R Statistical Software
Remark Office
Statistical Package for the Social Sciences (SPSS)

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TEACHING EXPERIENCE

Year	Semester	Course No.: Title	Role
2021	Spring	NSC 932: Neurobiology II: Systems Neuroscience <i>Enrollment: 7</i>	Co-Instructor
2016	Fall	HDFS310: Infant and Child Development in Context <i>Enrollment: 102</i>	Instructor
2016	Summer	HDFS 350: Applied Research Methods <i>Enrollment: 6</i>	Instructor
2014	Fall	HDFS 350: Applied Research Methods <i>Enrollment: 75 per section in 2 sections</i>	Co-Instructor
2013	Spring	HDFS 350: Applied Research Methods <i>Enrollment: 75</i>	Teaching Assistant
2009	Fall	PSY100: Introduction to Psychology <i>Enrollment: 150 per section in 2 sections</i>	Teaching Assistant

CLINICAL EXPERIENCE

Years	Title	Location
2010 – 2012	Certified Cognitive Skills Trainer	LearningRx

PROFESSIONAL TRAININGS

Year	Training	Instructors
2019	Informal Course Audit: NSC932 – Neurobiology II: Systems Neuroscience	Tony Wilson, PhD
2017	Informal Course Audit: PSY792F – Advanced Seminar: Structural Equation Modeling	Mark Prince, PhD

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2016 Independent Study: Using structural and functional magnetic resonance neuroimaging techniques to understand human brain development and training-induced plasticity Agnieszka Burzynska, PhD

PROFESSIONAL TRAININGS (continued)

Year	Training	Instructors
2015	Workshop: Multilevel Modeling for Psychophysiological Data	Elizabeth Page-Gould, PhD
2015	Workshop: Structural Equation Modeling for Multi-Group Longitudinal Data	Kevin Grimm, PhD
2014	Internship: Administering clinical neuropsychological assessments to children and adults	Patricia Davies, PhD, OTR, FAOTA
2013	Workshop: BCI2000	Christian Potes, MSc; Jeremy Hill, DPhil; Peter Brunner, PhD; Christoph Guger, PhD; Robert Oostenveld, PhD; and Gerwin Schalk, PhD

BEHAVIORAL ASSESSMENT ADMINISTRATION AND SCORING

Proficient:

Clinical Observations of Motor and Postural Skills (COMPS)
d2 Test of Attention
Stroop Task
Test of Everyday Attention (TEA)
Test of Everyday Attention for Children (TEA-Ch)
Wechsler Abbreviated Scale of Intelligence (WASI)
Wisconsin Card Sorting Task
Woodcock-Johnson Test of Cognitive Abilities

Experience:

Bayley Scales of Infant Development
Gray Oral Reading Test (GORT)
Kaufman ABC
NIH Toolbox Cognitive Battery
Wechsler Intelligence Scale for Children (WISC)
Wechsler Preschool and Primary Scale of Intelligence (WPPSI)
Wide Range Assessment of Learning and Memory (WRAML-2)