

Curriculum Vitae

Date Prepared: November 20th, 2019
Name: Nathaniel G. Harnett, PhD
Office Address: McLean Hospital, Oaks Building Room 334, 115 Mill St, Belmont, MA, 02478
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Work Email: nharnett@mclean.harvard.edu
Place of Birth: Binghamton, NY, United States

Education:

2013	B.A. (Magna Cum Laude)	Psychology, Cognitive Neuroscience (Mentors: Brandy Bessette- Symons, Ph.D.; Hugh Stephenson, Ph.D.)	Ithaca College
2018	Ph.D.	Psychology, Behavioral Neuroscience (Mentor: David C. Knight, Ph.D.)	University of Alabama at Birmingham

Postdoctoral Training:

2018-	Research Fellow	Psychiatry/Neuroimaging (Mentor: Kerry J. Ressler M.D., Ph.D.)	Neurobiology of Fear Laboratory, McLean Hospital/Harvard Medical School
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Appointments at Hospitals/Affiliated Institutions:

08/01/2018-	Research Fellow	Division of Depression and Anxiety Disorders	McLean Hospital
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Professional Societies:

2008-	Psi Chi International Honor Society in Psychology	Member
2014-	Society for Neuroscience	Member
2019-	Society for Biological Psychiatry	Member
2019-	Anxiety and Depression Association of America	Member

Editorial Activities:

- **Ad hoc Reviewer**

Human Brain Mapping

Molecular Psychiatry

Neuroimage

Psychological Medicine

Honors and Prizes:

2009 - 2013	John Harcourt Scholarship	Ithaca College	Scholarship
2010	ALANA Outstanding Academic Achievement Award	Ithaca College	Scholarship
2011	ALANA Exceptional Academic Achievement Award	Ithaca College	Scholarship
2012	ALANA Superior Senior Gold Award	Ithaca College	Scholarship
2014, 2015, 2016	Psychology Department Travel Award	University of Alabama at Birmingham	Research
2014, 2016	Graduate Student Travel Award	University of Alabama at Birmingham	Research
2015	NSF Graduate Research Fellowship Honorable Mention	University of Alabama at Birmingham	Research
2015	HHMI Gilliam Fellowship for Advanced Study Nomination	University of Alabama at Birmingham	Research
2016	Roadmap Scholars Travel Award	University of Alabama at Birmingham	Research
2017	Three Minute Thesis (3MT®) Finalist	University of Alabama at Birmingham	Research
2018	Gregg Steele Outstanding Graduate Student in Behavioral Neuroscience	University of Alabama at Birmingham	Research
2018	Outstanding Graduate Student in the Department of Psychology	University of Alabama at Birmingham	Research
2019	ACNP Trainee Travel Award	American College of Neuropsychopharmacology	Research

2019	Alies Muskin Career Development Leadership Program	Anxiety and Depression Association of America	Research
2020	Chair's Choice 2020 Society of Biological Psychiatry Travel Fellowship Award	Society of Biological Psychiatry	Research

Report of Funded and Unfunded Projects

Past

08/01/2013-07/31/2016	Comprehensive Minority Faculty and Student Development Program Predoctoral Fellowship Role: PI Direct Costs: \$69,000
09/01/2016-08/31/2017	Ford Foundation Predoctoral Fellowship Role: PI Direct Costs: \$24,000
09/28/2017-09/27/2018	1F99NS105171 National Institute of Neurological Disorders and Stroke/NIH <i>A Multidimensional Neuroimaging Investigation of Posttraumatic Stress in Humans</i> Role: PI Direct Costs: \$38,644

Current

09/01/2018-08/31/2022	K00MH119603 National Institute of Mental Health/NIH <i>A Multidimensional Neuroimaging Investigation of Posttraumatic Stress in Humans</i> Role: PI Direct Costs: \$66,679/yr (\$266,716 total)
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Projects Submitted for Funding

Resubmitted	Integrating neuroimaging and brain gene expression for functional characterization of psychiatric GWAS National Institute of Mental Health R21 Role: Key personnel (PI: Nikolaos Daskalakis)
Submitted	Multimodal neuroimaging assessment of reward-processing deficits in PTSD National Institute of Mental Health R01 Role: Consultant (PI: Negar Fani)

Unfunded Current Projects

- 2018- Neuroanatomical consequences of racial disparities in trauma and stress during early development
Role: PI
Goal: The goal of this project is to understand the impact of racial disparities in environmental risk factors for psychiatric disorders (e.g., trauma and stress) on brain gray and white matter.

Report of Local Teaching and Training

Teaching of Students in Courses:

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| 2010-2013 | Teaching Assistant (Developmental psychology) | Ithaca College (10hrs/week) |
| 2011-2013 | Laboratory Assistant (Introduction to research methods) | Ithaca College (10hrs/week) |
| 2015 | Understanding (f)MRI: Physics and Practicalities. | UAB (2hr lecture) |

Formal Teaching of Residents, Clinical Fellows and Research Fellows (post-docs):

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| 2019, 2020 | MGH/McLean Trauma Psychiatry Didactics (PGY3) | McLean Hospital (2hrs per year) |
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Research Supervisory and Training Responsibilities:

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| 2013-2015 | Jordan C. Ladnier, B.S. (Undergraduate Student), 1 peer-reviewed publication | University of Alabama at Birmingham (5hrs/week) |
| 2014-2016 | Edward W. Ference III (Medical Student), 3 peer-reviewed publications, 5 research abstracts | University of Alabama at Birmingham (5hrs/week) |
| 2015 | Peyton Thetford (Undergraduate Student), 3 research abstracts | University of Alabama at Birmingham (1hr/week) |
| 2015-2017 | Danielle Hurst (Undergraduate student), 3 research abstracts | University of Alabama at Birmingham (5hrs/week) |
| 2018- | Nathalie Dumornay (Clinical Research Assistant), 3 research abstracts | McLean Hospital (2hrs/week) |
| 2019- | Karlye Phillips (Clinical Research Assistant) | McLean Hospital (1hrs/week) |
| 2019- | Kathryn Finegold (Clinical Research Assistant), 1 research abstract | McLean Hospital (2hrs/week) |

Formally Mentored Harvard Medical, Dental and Graduate Students:

2019-2020 Elizabeth Steuber (Harvard Medical School), *Mentoring role: research and professional development (2hrs/week)*

Local Invited Presentations:

No presentations below were sponsored by 3rd parties/outside entities

- 2017 Harnett, N. G. (October, 2017). Trauma and PTSD Susceptibility: Views from neuroimaging. Talk presented at the 2017 UAB 3MT® Finals, Birmingham, AL.
- 2018 Harnett, N. G. (March, 2018). The Brain and PTSD. Talk presented at the March 2018 UAB Graduate School Discoveries in the Making Seminar Series, Birmingham, AL.
- 2019 Harnett, N. G. (September, 2019). Race, negative life experiences, and the neural substrates of threat processing. Talk presented at the Center for Depression, Anxiety, and Stress Research Seminar Series, McLean Hospital, Belmont, MA.
- 2019 Harnett, N. G. (September, 2019). Race, negative life experiences, and the neural substrates of threat processing. Talk presented at Basic Neuroscience/William Carlezon Lab Meeting, McLean Hospital, Belmont, MA.
- 2020 Harnett, N. G. (February, 2019). Utilizing multimodal human neuroimaging to understand the neurobiology of susceptibility to posttraumatic stress. Talk presented at the Neuro-WIP Seminar Series, McLean Hospital, Belmont, MA.

Report of Regional, National and International Invited Teaching and Presentations

No presentations below were sponsored by 3rd parties/outside entities

Regional

- 2017 Harnett, N. G. (July, 2017). Using multiple MRI modalities to understand acute post-traumatic stress. Talk presented at the 2017 annual Alabama Advanced Imaging Consortium Imaging Retreat, Cheaha State Park, AL.

National

- 2018 Harnett, N. G. (September, 2018). DSPAN Scholar Experience. Talk presented as part of the 2018 DSPAN F99/K00 Transition Webinar hosted by NINDS/NIH.
- 2019 Harnett, N. G. (June, 2019). Multimodal structural brain imaging of recently traumatized individuals. Talk presented at the 2019 National Enhancement of Underrepresented Academic Leaders (NEURAL) conference, Birmingham AL.
- 2020 Harnett, N. G. (February, 2020). DSPAN Scholar Experience. Talk presented as part of the 2020 NIH Blueprint D-SPAN (F99/K00) Webinar hosted by NINDS/NIH.

Report of Scholarship

****Denotes mentored author**

Peer-Reviewed Scholarship in print or other media:

Research Investigations

1. **Harnett, N.G.**, Wheelock, M.D., Wood, K.H., **Ladnier, J.C., Mrug, S. & Knight, D.C. (2015). Affective State and Locus of Control Modulate the Neural Response to Threat. *NeuroImage*, 121, 217-226.
2. **Harnett, N.G.**, Shumen, J. R., Wagle, P. A., Wood, K. H., Wheelock, M. D., Banos, J. H., & Knight D.C. (2016). Neural Mechanisms of Human Temporal Conditioning. *Neurobiology of Learning and Memory*. 136, 97-104.
3. Goodman, A. M., Wheelock, M.D., **Harnett, N.G.**, Mrug, S., Granger, D.A., & Knight D.C. (2016). The hippocampal response to psychosocial stress varies with salivary uric acid level. *Neuroscience*, 17, 396-401.
4. Wheelock, M.D., **Harnett, N.G.**, Wood, K.H., Orem, T.R., Mrug, S., & Knight D.C. (2016). Prefrontal cortex activity is associated with biobehavioral components of the stress response. *Frontiers in Human Neuroscience*, 10.
5. **Harnett, N. G.**, Wood, K. H., **FERENCE, E. W. III, Reid, M. A., Lahti, A. C., Knight, A. J. & Knight D.C. (2017). Glutamate/glutamine concentrations in the dorsal anterior cingulate vary with Post-Traumatic Stress Disorder symptoms. *Journal of Psychiatric Research*, 91, 169-176.
6. Gossett, E.W., Wheelock, M.D., Orem, T.R., Goodman, A.M., **Harnett, N.G.**, Wood K.H., Mrug S., & Knight D.C. (2018). Anticipatory stress associated with functional magnetic resonance imaging: Implications for psychosocial stress research. *International Journal of Psychophysiology*, 125, 35-41.
7. Goodman, A. M., **Harnett, N. G.**, Wheelock, M.D., Hurst, D., Orem, T. R., Gossett, E. W., Dunaway, C. A., Mrug, S., & Knight D. C. (2018). Anticipatory prefrontal cortex activity underlies stress-induced changes in Pavlovian fear conditioning. *NeuroImage*, 174, 237-247.
8. **Harnett, N. G.**, **FERENCE, E. W. III, Wood, K. H., Wheelock, M. D., Knight, A. J. & Knight D.C. (2018). Post-traumatic stress acutely alters neural function during Pavlovian fear conditioning. *Cortex*, 109, 1-13.
9. Wheelock, M.D., Deshpande, R., **Harnett, N.G.**, Wood, K.H., Orem, T. R., Mrug, S., Granger, D. A., Deshpande, G., & Knight, D. C. (2018). Psychosocial stress reactivity is associated with decreased whole brain network efficiency and increased amygdala centrality. *Behavioral Neuroscience*, 132(6), 561-572.
10. **Harnett, N. G.**, **FERENCE, E. W. III, Knight, A. J. & Knight D.C. (2018). White matter microstructure varies with acute post-traumatic stress severity following medical trauma. *Brain Imaging and Behavior*, 1-13.
11. Orem, T. R., Wheelock, M. D., Goodman, A. M., **Harnett, N. G.**, Wood, K. H., Gossett, E. W., Granger, D. A., Mrug, S., & Knight, D. C. (2019). Amygdala and prefrontal cortex activity varies with individual differences in the emotional response to psychosocial stress. *Behavioral Neuroscience*, 113, 203-211.
12. **Harnett, N.G.**, Wheelock, M.D., Wood, K.H., Goodman, A. M., Mrug, S., Elliott, M., Schuster, M., Tortolero, S., & Knight, D.C. (2019). Negative life experiences contribute to racial differences in

the neural response to threat. *NeuroImage*. 202, 116806.

13. **Harnett, N. G.**, Stevens, J. S., Fani, N., van Rooij, S. J. H., Ely, T. D., Michopolous, V., Hudak, L., Rothbaum, A. O., Hinrichs, R., Winters, S. J., Jovanovic, T., Rothbaum, B. O., Nickerson, L. D., & Ressler, K. J. (Submitted). Acute posttraumatic symptoms are associated with multimodal neuroimaging structural covariance patterns. *Biological Psychiatry*.

Other peer-reviewed scholarship

1. Goodman, A. M., **Harnett, N. G.**, & Knight D.C. (2018). Pavlovian conditioned diminution of the neurobehavioral response to threat. *Neuroscience & Biobehavioral Reviews*, 84, 218-224.
2. Seligowski, A. V., **Harnett, N. G.**, Merker, J. B., & Ressler, K. J. (In Press). Nervous and endocrine system dysfunction in PTSD: An overview and consideration of sex as a biological variable. *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging*.
3. **Harnett, N. G.**, Goodman, A. M., & Knight, D. C. (Under review). PTSD-related neuroimaging abnormalities in brain function, structure, and biochemistry. *Experimental Neurology*.
4. **Harnett, N. G.** (Revise and Resubmit). Neurobiological consequences of racial disparities and environmental risks: A critical gap in understanding psychiatric disorders. *Neuropsychopharmacology*.

Reviews, chapters, monographs and editorials

1. **Harnett, N. G.**, Wood, K. H., Wheelock, M. D., Knight, A. J., and Knight, D. C. (2017). Anticipation and the Neural Response to Threat. In M. Nadin (Ed.), *Anticipation and Medicine*. Cham, Switzerland: Springer International Publishing, 219-228.
2. **Harnett, N. G.**, Seligowski, A. V., Pine, D., and Ressler, K. J. (In Press). Translational Neurobiological Approaches to Precision Medicine for Fear and PTSD. In L.M. Willians and L. Hack (Ed.), *Precision Psychiatry: Using neuroscience insights to inform personally tailored, measurement-based care*.

Thesis:

Harnett, N. G., Human neurobiology following trauma: Assessing brain function, structure, and biochemistry [thesis]. [Birmingham (AL)]. University of Alabama at Birmingham; 2018, pp. 1-186.

Abstracts, Poster Presentations and Exhibits Presented at Professional Meetings:

1. **Harnett N.**, DeRidder T., Auer, K., Stagg, C., Scott, P., Phillips, J. & Bessette-Symons, B. Ph.D. (2012). Did you see that? The influence of valence and arousal on memory. Poster presented at the 66th Eastern College Science Conference.
2. **Harnett N.**, Wheelock, M., Wood., K & Knight, D. C., Ph.D. (January, 2014). Individual Differences in the Emotional Response to Threat Talk presented at the 7th Annual Bridge to the Doctorate 2014

Winter Conference.

3. **Harnett N.**, Wheelock, M., Wood., K & Knight, D. C., Ph.D. (February, 2014). Emotional State Influences the Neural Response to Threat. Poster presented at the 2014 aPGAS Mid-Winter Conference.*2nd Place
4. **FERENCE, E, **Harnett, N**, Bishop, J, Setliff, M, Melton, S, Knight, D & Knight, A (October, 2014). Barriers to recruitment of patients with acute traumatic injury for neuroimaging studies. Poster presented at 2014 Dale J. Benos Medical Student Research Day.
5. Knight, A, **Harnett, N**, Wood, K, Wheelock, M, Bishop, J, **FERENCE, E, Setliff, M, Melton, S, Novack, T, Pitts, A, & Knight, D. (October, 2014). Neurobiological Stress Response in Acute Medical Trauma. Poster presented at 2014 Faculty Development Grant Program (FDGP) Poster Session.
6. **Harnett, N.G.**, Wheelock. M. D., Wood, K. H., Knight, D. C. (November, 2014). Affective state is associated with changes in the neural response to threat. Poster presented at the 2014 SfN Annual Meeting.
7. Wheelock. M. D., **Harnett, N.G.**, Wood, K. H., Knight, D. C. (November, 2014). Neuroendocrine response to psychosocial stress. Talk presented at the 2014 SfN Annual Meeting.
8. **Harnett N. G.**, Wood, K. H., Wheelock, M. D., **Ladnier, J. C., Mrug, S, & Knight, D. C. (January, 2014). Conditioned diminution of the unconditioned fear response is modulated by locus of control and affective state. Talk presented at the 8th Annual Bridge to the Doctorate 2015 Winter Conference.
9. **FERENCE, E, **Harnett, N**, Bishop, J, Setliff, M, Melton, S, Knight, D & Knight, A (April, 2015). Contribution of demographics and psychological risk factors to the expression of acute stress reactivity following acute medical trauma. Poster presented at 2015 American College of Physicians Internal Medicine Meeting.
10. Wheelock, M. D., Orem, T. R., **Harnett, N. G.**, Wood, K. H., Mrug, S., Knight, D. C. (June, 2015). Individual variability in the neuroendocrine response to acute stress. Poster presented at 2015 Organization for Human Brain Mapping Annual Meeting.
11. **Thetford, P. C., **Harnett, N. G.**, Wood, K. H., Wheelock, M. D., Mrug, S., FERENCE, E. W., and Knight, D. C. (2015, July). Racial Differences in Conditioned Fear Vary with Anxiety and Stress. Poster presented at the UAB Summer EXPO 2015, Birmingham, AL.
12. **Harnett, N. G.**, Ladnier, J. C., Wheelock, M. D., Wood, K. H., Schuster, M. A., Elliot, M. N., Tortolero, S., Mrug, S., & Knight, D. C. (October, 2015). Racial Differences in the Emotional Response to Aversive Threat. Poster presented at 2015 SfN Annual Meeting.
13. Wheelock, M. D., Rangaprakash, D., Orem, T. R., **Harnett, N. G.**, Wood ,K. H., Deshpande, G., Mrug ,S., & Knight, D. C. (October, 2015). Structural and functional connectivity associated with the neuroendocrine response to acute psychosocial stress. Poster presented at 2015 SfN Annual Meeting.
14. **FERENCE, E. W., **Harnett, N. G.**, Wheelock, M. D., Wood, K. H., **Thetford, P. C., Setliff, M. R., Knight, D. C., & Knight, A. J. (2016, February). Learning-Related Changes in the Functional MRI Response to Fear Conditioning after Acute Medical Trauma. Poster presented at 2016 Association of

Academic Psychiatrists Annual Meeting, Sacramento, CA.

15. **FERENCE, E. W., **HARNETT, N. G.**, Wheelock, M. D., Wood, K. H., **Thetford, P. C., Setliff, M. R., Knight, D. C., & Knight, A. J. (2015, September). Learning-Related Changes in the Functional MRI Response to Fear Conditioning after Acute Medical Trauma. Poster presented at 2015 Southeastern Medical Student Symposium, Nashville, TN.
16. Orem, T. R., Wheelock, M. D., **HARNETT, N. G.**, Wood, K. H., Goodman, A. M., Mrug, S., & Knight, D. C. (April, 2016). Neural Correlates of the Physiological Response to Acute Psychosocial Stress. Poster presented at 2016 National Conference on Undergraduate Research.
17. **Hurst, D. R., **HARNETT, N. G.**, Wheelock, M. D., Wood, K. H., Mrug, S., Knight, D. C. (2016, July). Sex Differences in the Emotional Response to Warning and Safety Cues. Poster presented at the University of Alabama at Birmingham Summer Undergraduate Research Expo, Birmingham, AL.
18. Goodman, A.M., **HARNETT, N.G.**, Wheelock M. D., Orem, T.R., Mrug, S., Granger, D.A., & Knight, D.C. (2016, November). Neural substrates underlying alterations in fear conditioning following acute stress. Poster presented at the 46th Annual Meeting of the Society for Neuroscience.
19. H.E. Dark, **N.G. HARNETT**, A. Goodman, M. Wheelock, S. Mrug, M.A. Schuster, M.N. Elliott, S. Tortolero, D.C. Knight. (2016, November). Stress-induced changes in resting state functional connectivity vary with history of violence exposure. Poster presented at the annual meeting of the Society for Neuroscience.
20. **HARNETT, N. G.**, Shumen, J. R., Wagle, P. A., Wood, K. H., Wheelock, M. D., Banos, J. H., & Knight, D. C. (2016, November). Neural mechanisms of human temporal fear conditioning. Poster presented at the annual meeting of the Society for Neuroscience.
21. Davis, E. S., Goodman, A. M., Orem, T. R., Wheelock, M. D., **HARNETT, N. G.**, Mrug, S., & Knight, D.C. (2016). Cumulative violence exposure and the psychosocial stress response. Poster presented at the UAB Undergraduate Research Fall Expo 2016.
22. Wood, K., Memon, R., Reid, M.A., Joop, A., Pilkington J., **HARNETT, N. G.**, DeRamus, T.P., Gerstenecker, A., Triebel, K., Bamman, M., & Amara, A. W. (June, 2017). Hippocampal neurochemistry is associated with cognitive performance in patients with Parkinson's disease. Poster presented at the 2017 Neuroimaging in Parkinson's Disease and Related Disorders Symposium.
23. Davis, E. S., Goodman, A. M., Orem, T. R., Wheelock, M. D., **HARNETT, N. G.**, Mrug, S., Knight, D. C. (July, 2017). Adolescent violence and its effects on emotional reactivity. Poster presented at the UAB Undergraduate Research Summer Expo 2017. Birmingham, A.L.
24. Dark, H. E., **HARNETT, N. G.**, Goodman, A. M., Wheelock, M. D., Mrug, S., Schuster, M. A., Elliott, M. N., Tortolero, S., & Knight, D. C. (November, 2017). Affective style modulates the relationship between cumulative violence exposure and change in functional connectivity after stress-induction. Poster presented at the 47th Annual Meeting of the Society for Neuroscience. Washington, D.C.
25. Davis, E. S., Goodman, A. M., Orem, T. R., Wheelock, M. D., **HARNETT, N. G.**, Mrug, S., Knight, D. C. (November, 2017). Self-reported stress, violence exposure, and neural activity. Poster presented at Society for Neuroscience Annual Conference, Washington, D.C.

26. Purcell, J. B., Goodman, A. M., **Harnett, N. G.**, Mrug, S., Elliott, M. N., Tortolero, S., Schuster, M. A., & Knight, D. C. (November, 2017). Investigating the effects of violence exposure, physical abuse, and sexual abuse on brain activity following exposure to psychosocial stress. Poster presented at the 47th Annual Meeting of the Society for Neuroscience. Washington, D.C.
27. Bell, K., **Harnett, N. G.**, Goodman, A. M., Mrug, S., Schuster, M. A., Elliott, M. N., Tortolero, S. R., & Knight, D. C. (November, 2017). The influence of environment during adolescence on white matter structure. Poster presented at the 47th Annual Meeting of the Society for Neuroscience. Washington, D.C.
28. Goodman, A. M., Wheelock M. D., **Harnett, N. G.**, Hurst, D. R., Orem, T. R., Deshpande, G., Mrug, S., & Knight, D. C. (November, 2017) Stress-induced changes in effective connectivity during the emotional response to threat. Poster presented at the 47th Annual Meeting of the Society for Neuroscience.
29. **Harnett, N. G.**, Ference, E. W., Wood, K. H., Reid, M. A., Wheelock, M. D., Lahti, A. C., Knight, A. J., & Knight, D. C. (November, 2017). Human Functional, Structural, and Biochemical Neuroimaging of Acute Post-Traumatic Stress. Poster presented at the 47th Annual Meeting of the Society for Neuroscience. Washington, D.C.
30. Purcell, J. B., **Harnett, N. G.**, Mrug, S., Elliott, M. N., Tortolero-Emery, S., Schuster, M. A., & Knight, D. C. (November, 2018). Alterations in gray matter volume of the prefrontal cortex, hippocampus, and amygdala persist into adulthood following alcohol, tobacco, and cannabis use during adolescence. Poster presented at the 48th Annual Meeting of the Society for Neuroscience. San Diego, C.A.
31. Bell, K., **Harnett, N. G.**, Mrug, S., Elliott, M. N. , Tortolero-Emery, S., Schuster M. A., & Knight D. C. (November, 2018). The influence of neighborhood disadvantage during adolescence on volume of the adult amygdala, hippocampus, and thalamus. Poster presented at the 48th Annual Meeting of the Society for Neuroscience. San Diego, C.A.
32. Davis, E., Goodman, A. M., Orem, T. R., **Harnett, N. G.**, Wheelock, M. D., Mrug, S., Schuster, M.A., Elliott, M. N., Tortolero, S. R., & Knight D. C. (November, 2018). Race, violence exposure, and the psychosocial stress response. Poster presented at the 48th Annual Meeting of the Society for Neuroscience. San Diego, C.A.
33. **Harnett, N. G.**, Wheelock, M. D., Wood, K. H., Goodman, A. M., Mrug, S., Elliott, M., Schuster, M., Tortolero-Emery, S., & Knight, D. C. (November, 2018). Negative life experiences contribute to racial differences in the neural response to threat. Poster presented at the 48th Annual Meeting of the Society for Neuroscience. San Diego, C.A.
34. Dark, H. E., **Harnett N. G.**, Goodman, A. M., Mrug, S., Schuster, M. A., Elliott, M. N., Tortolero, S., & Knight, D. C. (November, 2018). Functional connectivity influences stress-induced changes in autonomic arousal. Poster presented at the 48th Annual Meeting of the Society for Neuroscience. San Diego, C.A.
35. McGill, L., Hill, M., Marginean, V., Stevens, J., Lebois, L., Van Rooij, S., **Harnett, N.**, Jovanovic, T., Murty, V., Price, R., Stanek, J., Mintz, A., An, X.M., McLean, S.A., Ressler, K. Developing methods to achieve large-scale neuroimaging of trauma survivors: lessons from the AURORA Study. Poster Presentation at the 2019 Society for Biological Psychiatry Meeting, Chicago, IL, May 2019.

36. Nickerson, L. D., **Harnett, N. G.**, Li, H., Waters, A. B., & Silveri, M. M. (July, 2019). Multi-modal MRI data fusion reveals interactions between sex and alcohol use disorder in brain structure related to social processing. Poster presented at the 4th International Conference on Applications of Neuroimaging to Alcoholism. New Haven, C.T.
37. **Harnett, N. G.**, Stevens, J. S., Fani, N., Jovanovic, T., van Rooij, S. J. H., Ely, T., Nickerson, L. D., & Ressler, K. J. (October, 2019). Multimodal structural brain imaging of recently traumatized individuals. Poster presented at the 49th Annual Meeting of the Society for Neuroscience. Chicago, I.L.
38. Dark, H. E., **Harnett, N. G.**, Knight, A. J., & Knight, D. C. (October, 2019). Cortical and subcortical brain volume vary with acute posttraumatic stress symptoms after a medical trauma. Poster presented at the 49th Annual Meeting of the Society for Neuroscience. Chicago, I. L.
39. Lipari, N. R., Dark, H. E., **Harnett, N. G.**, Knight, A. J. & Knight, D. C. (November, 2019). Relationships between White Matter Microstructure, Neurochemistry, and Conditioned Fear Responses in Posttraumatic Stress. Poster presentation at the Annual Biomedical Research Conference for Minority Students (ABRCMS), Anaheim, CA.
40. **Harnett, N. G.**, Stevens, J. S., Fani, N., Jovanovic, T., van Rooij, S. J. H., Ely, T., Nickerson, L. D., Rothbaum, B. O., & Ressler, K. J. (December, 2019). Neuroanatomical correlates of acute traumatic stress reactivity revealed by multimodal magnetic resonance imaging. Poster presented at the 58th Annual Meeting of the American College of Neuropsychopharmacology. Orlando, F.L.
41. Chatzinakos, C., **Harnett, N.G.**, Bowlby, B.C., Nickerson, L.D., Ressler, K.J., Bacanu, S.A., & Daskalakis, N.P. (2019). Transcriptomic-LD-score regression (tLDSC). Talk presented at the American Society of Human Genetics 69th Annual Meeting, Rockville, M.D.
42. ****Dumornay, N. M., Lebois, L. A. M., Ressler, K. J., & Harnett, N. G.** (January, 2020) Racial differences in childhood adversity and brain structure. Poster presented at the 11th annual McLean Research Day, Belmont, MA.
43. **Harnett, N.**, Stevens, J., Fani, N., Lebois, L., van Rooij, S., Murty, V., Jovanovic, T., Mclean., S., & Ressler, K. (March, 2020). Prospective assessment of human white matter microstructure and the relation to posttraumatic outcomes. Poster presented at the 2020 Annual Meeting of the Anxiety and Depression association of American, San Antonio, TX.
44. **Harnett, N.**, Stevens, J., Fani, N., Lebois, L., van Rooij, S., Murty, V., Jovanovic, T., Mclean., S., & Ressler, K. (March, 2020). Prospective assessment of human white matter microstructure and the relation to posttraumatic outcomes. Symposium presented at the 2020 Annual Meeting of the Anxiety and Depression association of American, San Antonio, TX.
45. ****Steuber, E., Harnett, N.**, Seligowski, A., Roeckner, A., Jovanovic, T., Winters, S., Lebois, L., van Rooij, S., McLean, S., Murty, V., Ressler, K., & Stevens, J. (April, 2020). Thalamic volume and physiologic reactivity to threat cues during extinction interact to predict acute posttraumatic stress severity. Poster presented at the 2020 Harvard Psychiatry Research Day, Boston, MA.
46. ****Dumornay, N. M., Lebois, L. A. M., Ressler, K. J., & Harnett, N. G.** (May, 2020). Disparities in adversity during childhood contribute to racial differences in brain structure. Poster presented at the

75th Society of Biological Psychiatry meeting, New York City, NY.

47. **Harnett, N. G.**, van Rooij., S. J. H., Ely, T., Lebois, L. A. M., Jovanovic, T., Murty, V., Nickerson, L., Ressler, K., & Stevens, J. (May, 2020). Multimodal functional and structural neuroimaging captures variability in posttraumatic outcomes. Symposium presented at the 2020 Annual Meeting of the Society for Biological Psychiatry, New York City, NY.
48. **Finogold, K. E., **Dumornay, N. M., Lebois, L. A. M., Ressler, K. J., & **Harnett, N. G.** (May, 2020). The effects of childhood adversity on executive function and cognitive performance. Poster presented at the 75th Society of Biological Psychiatry meeting, New York City, NY.

Narrative Report

The central focus of my research is to understand the neurobiological mechanisms that underlie natural susceptibility, and resilience, to adverse posttraumatic outcomes. Specifically, despite the lifetime prevalence of trauma exposure exceeding ninety-percent in the United States, only around twenty-percent of traumatized individuals develop subsequent, chronic posttraumatic stress disorder (PTSD). The ultimate goal of my research is to characterize specific neural circuitry in humans that can be modulated to increase natural resilience to PTSD in the most vulnerable individuals. First, we have identified that fear neural circuitry in humans that includes the prefrontal cortex, hippocampus, and amygdala are critical for regulation of the emotional response to threat and that several types of stressors, including traumatic events, modulate the neural activity of this circuitry. *These results demonstrate that stress has observable effects on the neural circuitry critical for regulation of emotional responses in humans.* Second, we have shown that variability in acute traumatic stress reactivity is associated with variability in the function, structure, and biochemical properties of these regions. *These findings demonstrate individual variability in traumatic stress reactions are due in part to individual variability in brain processes.* My ongoing work utilizes multimodal data fusion approaches to look for neural signatures that combine data on brain function and structure that are related to traumatic stress reactions. Our current findings suggest these multimodal neural signatures may be identifiable in the early aftermath of trauma and predictive of the development of PTSD symptoms.

The findings of my research have had a considerable impact on how both my engagement in both mentoring and public communication. Trauma is pervasive in American life and the understanding of that fact afforded to me by my research has led greater consideration of the multitude of factors that may affect potential trainees and students. Consideration of the potential stressors, especially at the intersection of sex and race, has pushed me to adopt dynamic and mentee-directed mentoring styles to best meet the needs for an individual trainees professional development. Further, the public health relevance of my research has led me to actively engage in public communication of my findings. I have participated in several public outreach events through my training to provide an overview of our knowledge about PTSD and the brain to the general public and have maintained this participation. Given the impact trauma has on society, it is necessary to be mindful of its consequences both in terms of interacting and considering the development of trainees and providing up-to-date information to the general public.