

Stephanie L. Leal

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Adjunct Assistant Professor, Department of Neurology, Houston Methodist Research Institute
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RESEARCH INTERESTS

My laboratory performs basic and translational research to understand how our memory system works, how this system goes awry in memory and mood disorders such as Alzheimer's disease and depression, and how we might be able to modify mood, memory, and underlying neural dysfunction in these disorders. We utilize interdisciplinary approaches toward understanding memory and factors that impact memory, including high-resolution imaging techniques, PET imaging of amyloid and tau pathology, neuroendocrine and salivary approaches, and novel experimental paradigms to understand brain-behavior relationships.

EMPLOYMENT

2019 - present, *Assistant Professor*, Psychological Sciences, Rice University, Houston, TX
2019 - present, *Adjunct Assistant Professor*, Neurology, Houston Methodist Research Institute, TX
2016 - 2019, *Postdoctoral Fellow*, Helen Wills Neuroscience Institute, University of California, Berkeley, CA
Advisor: William Jagust, M.D.

EDUCATION

2011 - 2016, Ph.D., Psychological & Brain Sciences, Johns Hopkins University, Baltimore, MD
Advisor: Michael Yassa, Ph.D.
Dissertation: "Emotional Modulation of Episodic Memory and Translational Applications to Aging and Depression-Related Cognitive Impairment"
2011 - 2013, M.A., Psychological & Brain Sciences, Johns Hopkins University, Baltimore, MD
2007 - 2011, B.S., Biopsychology, University of California, Santa Barbara, CA
Advisors: Michael Miller, Ph.D. & Aaron Ettenberg, Ph.D.

AWARDS & HONORS

2018, BrightFocus Foundation Travel Award, Int. Conference on Learning & Memory
2017, Alzheimer's Association Award for Young Scientists
2017, Sallie P. Asche Travel Award, Dallas Aging & Cognition Conference
2016 - 2018, NRSA F32 Research Fellowship Award (F32AG054116), UCSB
2015, Alzheimer's Association International Conference Travel Fellowship
2014, Fellowship, Summer Institute in Cognitive Neuroscience, UCSB
2013 - 2016, Pre-doctoral Fellowship, Research Training in Age-Related Cognitive Disorders
2013, Honorable Mention, NSF Graduate Research Fellowship Program
2012 - 2013, Walter L. Clark Student Collaborative Research Award, JHU
2011 - 2014, Robert S. and Dorothy L. Waldrop Graduate Fellowship, JHU
2011, Distinction in the Psychology Major, UCSB
2011, Exceptional Academic Performance in the Psychology Major, UCSB
2011, High Honors (top 6% upon graduation), UCSB
2009 - 2011, Dean's Honors, UCSB (all quarters)

RESEARCH SUPPORT

Under Review:

Alzheimer's Association

Leal, S.L. (PI)

Under review

Alzheimer's Association Research Grant to Promote Diversity (AARG-D)
"Retirement as a modifiable risk factor of Alzheimer's disease"

\$200,000 (Direct/Indirect)
Role: Principal Investigator

NIA R01 AG073232 **Leal, S.L. (PI)** **Under review**
"Identifying cognitive and neural mechanisms of emotional memory in late life depression to reveal modifiable targets for Alzheimer's disease."
\$2,184,985 (Direct); \$3,421,914 (Total), 25% effort
Role: Principal Investigator

Alzheimer's Association **Ballard, H. (PI)** **Under review**
Alzheimer's Association Research Fellowship
"Reproductive Aging and Alzheimer's Disease Risk: Brain-Behavior Outcomes"
\$145,568 (Direct/Indirect)
Role: Mentor

NIA F31 NRSA **Dicker, E. (PI)** **Under review**
Ruth L. Kirschstein National Research Service Award
Individual Predoctoral Fellowship, National Institute of Aging
"Inflammatory biobehavioral mechanisms underlying the association between emotion polyregulation and depression in spousal Alzheimer's disease caregivers"
\$111,446
Role: Co-Sponsor

Emotional Well-being and Health Data Analysis Award **Ferguson, L.A., Leal, S.L., Beier, M., Davenport, M., & Dicker, E. (MPI)** **Under review**
NIH Emotional Well-being Network and Stress Measurement Network
"The Effect of Retirement on Subjective Well-being and Interactions with Memory"
\$10,000
Role: Principal Investigator (Multi-PI)

Current / Awarded:

Brain & Behavior Research Foundation **Leal, S.L. (PI)** **2023-2025**
NARSAD Young Investigator Grant (#30897)
"The impact of antidepressants on emotional pattern separation and medial temporal lobe dynamics"
\$69,600 (Direct/Total)
Role: Principal Investigator

BrightFocus Foundation **Leal, S.L. (PI)** **2022-2025**
Alzheimer's Disease Research Grant
"Precise neurobiological profiling of the locus coeruleus and medial temporal lobe for the early detection of Alzheimer's disease"
\$299,943 (Direct/Total), 20% effort
Role: Principal Investigator

NIA F32 NRSA **Ballard, H. (PI)** **2023-2026**
Ruth L. Kirschstein National Research Service Award
Individual Postdoctoral Fellowship, National Institute of Aging
"Estrogen Declines with Menopause: Impacts on the Medial Temporal Lobe Network and Emotional Memory in Aging Females at Genetic Risk for Alzheimer's Disease"
\$211,494
Role: Sponsor

American Psychological Association **Morales-Calva, F. (PI)** **2023-2025**
APAGS Psychological Science Research Grant
2023 Diversity Grant
"Measuring the impact of ethnic and genetic risk factors of Alzheimer's disease on memory"
\$1,000
Role: Graduate Student Advisor

Rice University	Morales-Calva, F. (PI)	2023-2024
Social Sciences Research Institute, Pre-Dissertation Research Grant		
<i>"The Impact of Image Memorability on Memory and Applications to Aging"</i>		
\$3,000		
Role: Graduate Student Advisor		
National Science Foundation	Castro, M. (PI)	2022-2025
Graduate Research Fellowship Program		
Role: Graduate Student Advisor		
Rice University	Ballard, H. (PI)	2022-2024
Rice University Academy of Fellows		
<i>"Estrogen declines with menopause: impacts on the medial temporal lobe network and emotional memory in aging females at risk for Alzheimer's disease"</i>		
\$65,000		
Role: Senior Fellow/Mentor		
Rice University	Ferguson, L. (PI)	2022-2023
Social Sciences Research Institute, Pre-Dissertation Research Grant		
<i>"The effect of neuropsychiatric symptoms on the emotional modulation of memory in aging"</i>		
\$3,000		
Role: Graduate Student Advisor		
<u>Completed:</u>		
Rice University	Leal, S.L. (PI)	2021-2022
Social Sciences Research Institute Seed Grant		
<i>"The impact of education, lifetime cognitive activity, and retirement on memory in aging and in those at risk for Alzheimer's disease."</i>		
\$9,500		
Role: Principal Investigator		
Rice University	DeLucia, P. (PI)	2020-2021
Rice ENRICH Award		
<i>"Aging in Place with Cognitive Impairment: Toward User-Centered Assistive Technologies"</i>		
\$20,250 direct		
Role: Co-Investigator		
National Science Foundation	DeLucia, P. (PI)	2018-2022
REU Site: Translational Research in Psychological Sciences:		
Human Factors at Rice University.		
\$348,936		
Role: Senior Personnel/Mentor		
NIA F32 AG054116	Leal, S.L (PI)	2016-2018
Ruth L. Kirschstein National Research Service Award (NRSA)		
Individual Postdoctoral Fellowship, National Institute of Aging		
<i>"Effect of tau pathology on memory consolidation in cognitively normal aging"</i>		
\$52,542		
Role: Principal Investigator		
NIA T32 AG027668	Albert, M. (PI)	2013-2016
Predoctoral Fellowship, National Institute of Aging		
<i>"Research Training in Age-Related Cognitive Disorders"</i>		
\$66,000		
Role: Predoctoral fellow		

PUBLICATIONS

* = undergraduate trainee

** = graduate trainee

#NSF REU trainee

1. Ferguson, L.** & **Leal, S.L.** (2023). Neurobiology: basic concepts & disease implications. Invited book chapter contribution in *Mental Health in Lifestyle Medicine*.
2. Wu-Chung, E.L., **Leal, S.L.**, Denny, B.T., Cheng, S.L., Fagundes C.P. (2022). Spousal caregiving, widowhood, and cognition: A systematic review and a biopsychosocial framework for understanding the relationship between interpersonal losses and dementia risk in older adulthood. *Neuroscience & Biobehavioral Reviews*. 134, 104487.
3. Ferguson, L.A.** & **Leal, S.L.** (2022). Interactions of Emotion and Memory in the Aging Brain: Neural and Psychological Correlates. *Curr Behav Neurosci Rep*. 9, 47-57.
4. Granger, S., **Leal, S.L.**, Larson, M.S., Janecek, J., McMillan, L., Stern, H., & Yassa, M.A. (2021). Integrity of the Uncinate Fasciculus is Associated with Emotional Pattern Separation-Related fMRI Signals in the Hippocampal Dentate and CA3. *Neurobiology of Learning & Memory*, 177, 107359.
5. **Leal, S.L.**, Ferguson, L.A.**, Harrison, T.M., & Jagust, W.J. (2019). Development of a mnemonic discrimination task using naturalistic stimuli with applications to aging and preclinical Alzheimer's disease. *Learning & Memory*, 26(7), 219-228.
6. **Leal, S.L.** & Yassa, M.Y. (2019). Normal Cognitive and Brain Aging. *Oxford Handbooks on Aging*. Oxford University Press.
7. **Leal, S.L.**, Cunningham, T.J., Wirth, M., Yassa, M.A., & Payne, J.D. (2018). Post-encoding stress enhances mnemonic discrimination of negative stimuli. *Learning & Memory*, 25(12): 611-619.
8. **Leal, S.L.**, Lockhart, S.N, Maass, A., Bell, R.K., Jagust, W.J. (2018). Subthreshold amyloid predicts tau deposition in aging. *The Journal of Neuroscience*, 38(19): 4482-4489.
9. **Leal, S.L.** & Yassa, M.Y. (2018). Integrating new findings and examining clinical applications of pattern separation. *Nature Neuroscience*, 21(2):163-173.
10. **Leal, S.L.**, Landau, S.M., Bell, R.K., & Jagust, W.J. (2017). Hippocampal activation is associated with longitudinal amyloid accumulation and cognitive decline. *eLife*, 6:e22978.
11. **Leal, S.L.**, Noche, J.A., Murray, E.A., Yassa, M.A. (2017). Disruption of amygdala-entorhinal-hippocampal network in late-life depression. *Hippocampus*, 27(4):464-476.
12. Anderson, B.A., Chiu, M., DiBartolo, M.M., & **Leal, S.L.** (2017). On the distinction between value-driven attention and selection history: evidence from individuals with depressive symptoms. *Psychonomic Bulletin & Review*, 24(5):1-7.
13. Zheng, J., Anderson, K.L., **Leal, S.L.**, Shestyuk, A., Gulsen, G., Vadera, S., Mnatsakanyan, L., Hsu, F.P.K., Yassa, M.A., Knight, R.T., & Lin, J.J. (2017). Amygdala-Hippocampal Dynamics During Fearful Face Processing. *Nature Communications*.
14. **Leal, S.L.**, Noche, J.A., Murray, E.A., Yassa, M.A. (2016) Age-related individual variability in memory performance is associated with amygdala-hippocampal circuit function and emotional pattern separation. *Neurobiology of Aging*. 49, 9-19.
15. **Leal, S.L.**, Noche, J.A., Murray, E.A., Yassa, M.A. (2016). Positivity effect specific to older adults with subclinical memory impairment. *Learning & Memory*, 23(8), 415-421.
16. Reagh, Z.M., Ho, H.D., Noche, J.A., Chun, A., **Leal, S.L.**, Murray, E.A., & Yassa, M.A. (2016). Greater loss of object than spatial mnemonic discrimination in aged adults. *Hippocampus*, 26(4), 417-422.
17. **Leal, S.L.**, Yassa, M. (2015). Neurocognitive Aging and the Hippocampus Across Species. *Trends in Neuroscience*. 38(12), 800-812.
18. **Leal, S.**, Yassa, M. (2015). Chapter 2: The aging hippocampus: a cross species examination. *Preservation of Memory*. Psychology Press (Taylor and Francis).
19. **Leal, S.L.**, Yassa, M.A. (2014). Effects of aging on mnemonic discrimination of emotional information. *Behavioral Neuroscience*, 128(5), 539-547.
20. Anderson, B.A., **Leal, S.L.**, Hall, M.G., Yassa, M.A., Yantis, S. (2014). The attribution of value-based attentional priority in individuals with depressive symptoms. *Cognitive, Affective, and Behavioral Neuroscience*, 14(4), 1221-1227.
21. **Leal, S.L.**, Tighe, S.K., Jones, Craig K., Yassa, M.A. (2014). Pattern separation of emotional information in hippocampal dentate/CA3. *Hippocampus*. 24: 1146-1155.
22. **Leal, S.L.**, Tighe, S.K., & Yassa, M.A. (2014). Asymmetric effects of emotion on mnemonic interference. *Neurobiology of Learning & Memory*. 111: 41-48.
23. **Leal, S.L.**, Yassa, M.A. (2013) Perturbations of Neural Circuitry in Aging, Mild Cognitive Impairment, and Alzheimer's Disease. *Ageing Research Reviews*. 12(3): 823-831.

Preprints / Submitted / Under Review:

* = undergraduate trainee

** = graduate trainee

1. Mannion, R.[#], Harikumar, A., Morales-Calva, F.^{**}, & **Leal, S. L.** (2023, March 17; *under review*). A novel face-name mnemonic discrimination task with naturalistic stimuli. Retrieved from psyarxiv.com/4fbtv
2. Phillips, T.^{*}, Vas, R.^{*}, Ferguson, L. A.^{**}, Harikumar, A., Castro, M.^{**}, & **Leal, S. L.** (2022, September 24, *under review*). Effective antidepressant treatment is associated with reduced negative and enhanced neutral mnemonic discrimination in depression. <https://doi.org/10.31234/osf.io/xwt4j>
3. Hayes, B. K.^{*}, Harikumar, A., Ferguson, L. A.^{**}, Dicker, E. E.^{**}, Denny, B., & **Leal, S. L.** (2022, May 16; *under review*). Emotion Regulation Reduces Negativity Bias and Enhances Mnemonic Discrimination in Depression. <https://doi.org/10.31234/osf.io/6jn5w>
4. Petersen, C.M., DeLucia, P.R., Oswald, F.L., Kortum, P., **Leal, S.L.**, Pickens, S., & Hekel, B. (*under revision*). Aging in Place with Cognitive Impairment: Toward User-Centered Assistive Technologies. *The Journal of Disability and Rehabilitation: Assistive Technology*.

In Preparation:

1. Ferguson, L.^{**}, Harikumar, A., **Leal, S.L.** (*in prep*). Retirement associated with positivity bias during emotional mnemonic discrimination.
2. Morales-Calva, F.^{**} & **Leal, S.L.** (*in prep*). Image memorability impacts emotional mnemonic discrimination.
3. Vas, R., Phillips, T.O., Ferguson, L.A., Harikumar, A., & **Leal, S.L.** (*in prep*). High and low current perceived stress is associated with enhanced emotional mnemonic discrimination.

POSTERS

* = undergraduate trainee

** = graduate trainee

~high-school trainee

#NSF REU trainee

1. Clark, K.R.^{**}, Bolanos, G.C.^{*}, Buegler, J. B.^{*}, Bannis, C.^{*}, & **Leal, S.L.** (2023). Post-encoding music administration during a mnemonic discrimination task. *2023 International Conference on Learning and Memory*.
2. Castro, M.^{**}, Hayes, B.K.^{*}, Phillips, T.O.^{*}, Vas, R.^{*}, Harikumar, A., Ferguson, L.^{**}, & **Leal, S.L.** (2023). Multiple approaches towards the modulation of emotional memory in depression. *2023 International Conference on Learning and Memory*.
3. Sekili, M.^{*}, Morales-Calva, F.^{**}, Velgekar, A.^{*}, & **Leal, S.L.** (2023). Resilience of memorability in mnemonic discrimination and attention. *Rice Undergraduate Neuroscience Symposium (RUNS)*. *3rd place in poster competition
4. Morales-Calva, F.^{**}, Sekili, M.^{*}, Velgekar, A.^{*}, & **Leal, S.L.** (2022). Effects of image memorability on episodic mnemonic discrimination. *UT Health 28th Annual Neuroscience Poster Session*. *Won first place for poster presentation
5. Clark, K.R.^{**}, Bolanos, G.C.^{*}, & **Leal, S.L.** (2022). Post-Encoding Music Effects on Mnemonic Discrimination. *UT Health 28th Annual Neuroscience Poster Session*.
6. Castro, M.^{**}, Hayes, B.K.^{*}, Phillips, T.O.^{*}, Vas, R.^{*}, Harikumar, A., Ferguson, L.^{**}, & **Leal, S.L.** (2022). Multiple approaches towards the modulation of emotional memory in depression. *UT Health 28th Annual Neuroscience Poster Session*.
7. Morales-Calva, F.^{**}, Sekili, M.^{*}, Velgekar, A.^{*}, & **Leal, S.L.** (2022). Effects of image memorability on episodic mnemonic discrimination. *Society for Neuroscience Conference, San Diego, CA*. *Received a Trainee Professional Development Award
8. Clark, K.R.^{**}, Bolanos, G.C.^{*}, & **Leal, S.L.** (2022). Post-Encoding Music Effects on Mnemonic Discrimination. *Society for Neuroscience Conference, San Diego, CA*.
9. Ferguson, L.A.^{**}, Bannis, C.M.^{*}, Jagust, W., **Leal, S.L.** (2022). Neural correlates of a naturalistic mnemonic discrimination task with implications for Alzheimer's disease. *Society for Neuroscience Conference, San Diego, CA*. *Received a Trainee Professional Development Award
10. Castro, M.^{**}, Hayes, B.K.^{*}, Phillips, T.O.^{*}, Vas, R.^{*}, Harikumar, A., Ferguson, L.^{**}, & **Leal, S.L.** (2022). Multiple approaches towards the modulation of emotional memory in depression. *Society for Neuroscience Conference, San Diego, CA*.
11. Mannion, R.[#], Harikumar, A., **Leal, S.L.** (2022). Development of a novel and naturalistic face-name mnemonic discrimination task. *Society for Neuroscience Conference, San Diego, CA*.

12. Bannis, C.M.*, Ferguson, L.A.**, Clark, K.**, & Leal, S.L. (2022). The effect of amyloid and tau pathology on emotional mnemonic discrimination in cognitively normal older adults. **Bannis won master in poster presentations*
13. Mannion, R.#, Pena, A.*, Harikumar, A., **Leal, S.L.** (2022). Development of a face-name mnemonic discrimination task. *NEURON Conference*. Quinnipiac University, North Haven, CT.
14. Vas, R.*, Phillips, T.*, Ferguson, L.**, Harikumar, A., **Leal, S.L.** (2022). The Effect of Current Perceived Stress on Emotional Mnemonic Discrimination. *Rice Undergraduate Research Symposium*. Houston, TX.
15. Tipirneni, S.~ & **Leal, S.L.** (2022). The Effect of Emotion Recognition on Memory Recollection with Comparison of Human Emotion Recognition and Machine Learning. *Science and Engineering Fair of Houston*. Received Honorable Mention (4th place) and The Smiti Gandhi Research Star Award.
16. Tipirneni, S.~ & **Leal, S.L.** (2022).~ The Effect of Emotion Recognition on Memory Recollection with Comparison of Human Emotion Recognition and Machine Learning. *Galveston County Science and Engineering Fair*. Received 1st place in Behavioral Sciences and 1st place overall (9th grade division).
17. Peterson, C., DeLucia, P., Oswald, F., Kortum, P., **Leal, S.**, Pickens, S., Hekel, S. (2022). Aging in Place with Cognitive Impairment: Toward User-Centered Assistive Technologies. *HFES 66th International Annual Meeting*.
18. Ferguson, L.**, Harikumar, A., **Leal, S.L.** (2022). The effect of retirement on emotional mnemonic discrimination. *Cognitive Aging Conference*, Atlanta, GA.
19. Ferguson, L.**, Harikumar, A., **Leal, S.L.** (2022). The effect of retirement on emotional mnemonic discrimination. *Dallas Aging and Cognition Conference (virtual poster)*.
20. Ferguson, L.**, Harikumar, A.*, **Leal, S.L.** (2021). The effect of retirement on emotional mnemonic discrimination. *UT Health 27th Annual Neuroscience Poster Session*. **Won first place for poster presentation*
21. Vas, R.*, Phillips, T.O.*, Harikumar, A., Ferguson, L.**, **Leal, S.L.** (2021). The effect of current perceived stress on emotional mnemonic discrimination. *UT Health 27th Annual Neuroscience Poster Session*.
22. Dicker, E.**, **Leal, S.L.**, Fagundes, C., Denny, B. (2021). Exploring the interaction between emotion regulation and inflammation on changes in episodic memory in older adults. *Society for Neuroscience*.
23. Ferguson, L.**, Harikumar, A., **Leal, S.L.** (2021). Examining the effect of retirement and cognitive activity on mnemonic discrimination. *Society for Neuroscience*.
24. Hayes, B.*, Harikumar, A., Ferguson, L.**, **Leal, S.L.** (2021). The effect of emotion regulation on negative affect and emotional mnemonic discrimination. *Society for Neuroscience*.
25. Mannion, R.#, Pena, A.*, Harikumar, A., **Leal, S.L.** (2021). Development of a face-name mnemonic discrimination task. *Society for Neuroscience*.
26. Phillips, T.O.*, Vas, R.*, Harikumar, A., Ferguson, L.**, **Leal, S.L.** (2021). The effect of antidepressants on emotional mnemonic discrimination. *Society for Neuroscience*.
27. Vas, R.*, Phillips, T.O.*, Harikumar, A., Ferguson, L.**, **Leal, S.L.** (2021). The effect of current perceived stress on emotional mnemonic discrimination. *Society for Neuroscience*.
28. Ferguson, L.**, **Leal, S.L.**, Jagust, W.J. (2019). Regional distribution of longitudinal amyloid accumulation in cognitively normal older adults. *Society for Neuroscience*.
29. Ferguson, L.**, **Leal, S.L.**, Jagust, W.J. (2018). Using dynamic, contextually rich video stimuli as a more ecologically valid test of remembering and forgetting. *Society for Neuroscience*.
30. Granger, S., **Leal, S.L.**, Murray, E.A, Yassa, M.A. (2018). Structural integrity deficits of uncinate fasciculus predict medial temporal lobe activity during an emotional pattern separation task. *Society for Neuroscience*.
31. Granger, S., **Leal, S.L.**, Murray, E.A, Yassa, M.A. (2018). Structural integrity deficits in the uncinate fasciculus predict medial temporal lobe subfield activity during an emotional pattern separation task. *Cognitive Neuroscience Society*.
32. **Leal, S.L.**, Landau, S.M., Bell, R.K., & Jagust, W.J. (2017). Hippocampal activation is associated with longitudinal amyloid accumulation and cognitive decline. *Human Amyloid Imaging Conference*.
33. Zheng, J., Stevenson, R.F., Harriger, L.D., **Leal, S.L.**, Vadera, S., Yassa, M.A., & Lin, J.J. (2017). Depth electrode recording of the amygdala-hippocampal network during mnemonic discrimination of emotional scenes. *Cognitive Neuroscience Society*.

34. Stevenson, R.F., Zheng, J., **Leal, S.L.**, Chun, A.P., Vadera, S., Knight, R.T., Lin, J.J., & Yassa, M.A. (2016). High-frequency band activity in human hippocampal CA1 predicts the precision of spatial memory retrieval. *Society for Neuroscience*.
35. **Leal, S.L.**, Cunningham, T.J., Wirth, M., Yassa, M.A., & Payne, J.D. (2016). Stress enhances mnemonic discrimination of negative objects. *Cognitive Neuroscience Society*.
36. **Leal, S.L.**, Noche, J.A., Murray, E.A., & Yassa, M.A. (2015). High-resolution fMRI of hippocampal-amygdala dynamics during emotional memory discrimination in healthy aging and late-life depression. *Society for Neuroscience*.
37. Yassa, M.A., Stevenson, R.F., **Leal, S.L.**, Zheng, J., Roberts, J., Riley, J., Murray, E.A., & Lin, J.J. (2015). Intracranial EEG of hippocampal-amygdala dynamics during emotional memory discrimination. *Society for Neuroscience*.
38. Noche, J.A., **Leal, S.L.**, Murray, E.A., Yassa, M.A. (2015). Remembering emotional gist and detail information: individual differences in age-related memory loss. *Society for Neuroscience*.
39. Noche, J., **Leal, S.L.**, Yassa, M.Y. (2015). Age-related changes in emotional memory and forgetting: gist vs. detail. *2015 ICTS Translational Research Day*.
40. **Leal, S.**, Yassa, M. (2015). Effects of aging on mnemonic discrimination of emotional information. *ReMIND 6th Annual Emerging Scientists Symposium*.
41. **Leal, S.**, Yassa, M. (2014). Effects of aging on mnemonic discrimination of emotional information. *Society for Neuroscience*.
42. Carlos, K., **Leal, S.**, Roberts, J., Yassa, M. (2014). The effect of reward on discrimination in a visual pattern separation task. *UCI MSTP Retreat, Lake Arrowhead*.
43. Anderson, B. A., **Leal, S. L.**, Hall, M. G., Yassa, M. A., & Yantis, S. (2014). *The attribution of value-based attentional priority in individuals with depressive symptoms*. Paper presented at the annual Object Perception, Attention, and Memory (OPAM) conference, Long Beach, CA.
44. Partow, C., **Leal, S.L.**, & Yassa, M. (2014). The Relationship Between Sleep Hours, Emotional Memory, and Neurophysiological Response. *JHU PURA Recognition Ceremony*.
45. **Leal, S.L.**, Tighe, S.K., Jones, C.K, Yassa, M.A. (2013). High-resolution fMRI Reveals Amygdala and Hippocampal Dentate/CA3 Dynamics During Emotional Pattern Separation. *Society for Neuroscience*.
46. Tighe, S., **Leal, S.L.**, Stark, S.M., Stark, C.E., Yassa, M.A. (2013). Resting State fMRI Functional Connectivity in Individuals with Mild Cognitive Impairment. *International Neuropsychological Society*.
47. **Leal, S.**, Tighe, S., Stark, S.M., Stark, C.E., Yassa, M.A. (2013). Age-related alterations in intrinsic functional connectivity networks measured with resting state fMRI. *International Neuropsychological Society*.
48. **Leal, S.L.**, McNary, G., Levitt, E., & Yassa, M.A. (2012). A dual role for amygdala-mediated emotional modulation of hippocampal pattern separation. *Society for Neuroscience*.
49. Yassa, M.A., **Leal, S.L.**, McNary, G., & Levitt, E. (2012). Pattern separation of negative emotional stimuli is enhanced in depressed adults. *Society for Neuroscience*.
50. Tighe, S., **Leal, S.L.**, Stark, S., Stark, C., Lyketsos, C., & Yassa, M. (2012). Anterior cingulate connectivity in depressed, cognitively impaired older adults. *International College of Geriatric Psychoneuropharmacology*.

PRESENTATIONS

1. **Leal, S.L.** (2023). The Aging Brain: Can we prevent memory decline and AD? *The Village at Southampton (Senior Living Community)*.
2. **Leal, S.L.** (2023). Identifying the cognitive and neurobiological mechanisms underlying emotional memory in health and disease. *UCLA Psychology Speaker Series*.
3. **Leal, S.L.** (2023). Memory: A Neuroscientist's Study of Remembering and Forgetting. *Susanne M. Glasscock School of Continuing Studies: Midweek Medley*.
4. **Leal, S.L.** (2022). Toward more sensitive approaches for the early detection of Alzheimer's disease. *UCLA Dementia Colloquium Series*.
5. **Leal, S.L.** (2022). The Aging Brain: Can we prevent memory decline and AD? *Thomas A. Glazier Senior Education Center*.
6. **Leal, S.L.** (2022). The emotional modulation of memory in depression, aging, and preclinical Alzheimer's disease. *Texas A&M Institute for Neuroscience (TAMIN) seminar*.
7. **Leal, S.L.** (2021). Memory in Healthy Aging and Preclinical Alzheimer's Disease. *Association of Retired Rice University Faculty Conference on "Cognitive and Brain Health in Aging"*

8. **Leal, S.L.** (2021). Making lasting memories: the neural basis of remembering significant experiences. *NSF REU lecture at Rice University.*
9. **Leal, S.L.** (2021). Emotional modulation of pattern separation: clinical applications. *Society for Applied Research in Memory and Cognition (SARMAC) Conference.*
10. **Leal, S.L.** (2021). The Aging Brain: Examining memory changes in aging and Alzheimer's disease. *Association of Retired Rice University Faculty Conference on "Why Hearing Research Matters to Longevity and Communities".*
11. **Leal, S.L.** (2020). Making Lasting Memories: The Neural Basis of Remembering Significant Experiences. *CAMRI Seminar Series, Baylor College of Medicine.*
12. **Leal, S.L.** (2019). Core vulnerability of the medial temporal lobes: the influence of aging and depression on memory. *Rice University Cognitive & Health Tea.*
13. **Leal, S.L.** (2019). Making lasting memories: the neural basis of remembering significant experiences. *Rice University Colloquium.*
14. **Leal, S.L.** (2019). Making lasting memories: the neural basis of remembering significant experiences. *Northwestern Medicine, Mesulam Center for Cognitive Neurology and Alzheimer's Disease.*
15. **Leal, S.L.** (2019). Making lasting memories: the neural basis of remembering significant experiences. *Boston University Colloquium.*
16. **Leal, S.L.** (2018). Low levels of brain beta-amyloid predict tau deposition and memory decline in aging. *Human Amyloid Imaging Conference.*
17. **Leal, S.L.** (2017). Early accumulation of beta-amyloid drives tau deposition and memory decline in preclinical Alzheimer's disease. *Society for Neuroscience Conference.*
18. **Leal, S.L.** (2017). Hippocampal activation is associated with longitudinal amyloid accumulation and cognitive decline. *Dallas Aging & Cognition Conference.*
19. **Leal, S.L.** (2017). Hippocampal activation is associated with longitudinal amyloid accumulation and cognitive decline. Datablitz presented at the *Winter Conference for Neurobiology of Learning & Memory, Park City, UT.*
20. **Leal, S.L.** (2016). fMRI of hippocampal/amygdala interactions during memory performance in aging and depression in late life. *T32 Training Grant Presentation.*
21. **Leal, S.L.** (2015). fMRI of hippocampal/amygdala interactions and memory performance in depression and aging. *JHU Dementia Consortium Conference.*
22. **Leal, S.L.** (2014). Emotional modulation of memory in depression and cognitive aging. *UCI NeuroBlitz.*
23. **Leal, S.L.** (2014). Emotional modulation of memory: Alterations in the medial temporal lobe. *UCI NeuroBlitz.*
24. **Leal, S.L.** (2014). Emotional modulation of memory: Alterations in the medial temporal lobe. *Psychological & Brain Sciences Seminar.*
25. **Leal, S.L.** (2013). Pattern separation of emotional information. *Psychological & Brain Sciences Biopsychology Area Seminar.*
26. **Leal, S.L.** (2013). Amygdala-mediated emotional modulation of hippocampal pattern separation. *Psychological & Brain Sciences Seminar.*
27. **Leal, S.L.** (2013). Amygdala-mediated emotional modulation of hippocampal pattern separation. Datablitz presented at the *Winter Conference for Neurobiology of Learning & Memory, Park City, UT.*
28. **Leal, S.L.** (2012). Amygdala-mediated emotional modulation of hippocampal memory. *Psychological & Brain Sciences Biopsychology Area Seminar.*
29. **Leal, S.L.** (2012). Emotional modulation of hippocampal memory. *Psychological & Brain Sciences Cognitive Area Seminar.*
30. **Leal, S.L.** (2011). Emotional modulation of hippocampal memory in healthy and depressed adults. *Psychological & Brain Sciences Seminar.*

CHAired SYMPOSIA

Leal, S.L. (2017, November). Cognitive aging and memory. Symposium conducted at the *Society for Neuroscience* meeting. Washington, DC.

PROFESSIONAL ACTIVITIES

2022, NIMH K99/R00 Review Panel

2022 - present, NIH Brain Disorders and Related Neurosciences Fellowship Study Section (F01A)

2022 - present, Review Editor, *Frontiers of Aging Neuroscience (Neurocognitive Aging and Behavior)*

2020 - 2022, Guest Associate Editor, Frontiers in Human Neuroscience (Measures & Modulation of Brain Function for Symptom Management)

2019, NIH Study Section (Clinical Neuroscience & Neurodegeneration)

Reviewer:

Acta Psychology	Journal of Neuroscience
Aging, Neuropsychology, & Cognition	Learning & Memory
Alzheimer's & Dementia	Memory & Cognition
Annals of Neurology	Nature Communications
Attention, Perception, & Psychophysics	Nature Neuroscience
Behavioral Neuroscience	Neurobiology of Aging
Behavioral Brain Research	Neurobiology of Stress
Brain & Behavior	Neuroimage
Cognitive Neuroscience	Neurology
Cognitive, Affective, & Behavioral Neuroscience	Neuron
Frontiers in Psychology	Psychoneuroendocrinology
Hippocampus	Psychology & Aging
Human Brain Mapping	The American Journal of Geriatric Psychiatry

TEACHING

* = developed new course

Rice University

Spring 2023 PSYC 524: Memory (Graduate Core Course)*
Spring 2023 PSYC 310: Psychology of Aging
Fall 2022 Guest Lecture, Long-Term Memory, Foundations of Cognitive Neuroscience
Fall 2022 PSYC 308: Memory
Spring 2022 PSYC 308: Memory
Spring 2022 PSYC 310: Psychology of Aging
Fall 2021 PSYC 487/587: Functional Neuroanatomy*
Fall 2021 Guest Lecture, Episodic Memory, Advanced Cognitive Neuroscience: Higher Mental Functions
Fall 2020 PSYC 308: Memory*
Fall 2020 Guest Lecture, Long-Term Memory, Foundations of Cognitive Neuroscience
Spring 2020 PSYC 310: Psychology of Aging*
Fall 2019 Guest Lecture, Episodic Memory, Advanced Cognitive Neuroscience: Higher Mental Functions

University of California, Berkeley

Fall 2017 Guest Lecture, Memory and the Aging Brain, Cognitive Neuroscience

Johns Hopkins University

Spring 2014 Teaching Assistant, Foundations of Mind, Dr. Lisa Feigenson
Spring 2013 Guest Lecture, Emotion and Fear, Neurobiology of Learning and Memory
Spring 2013 Guest Lecture, False Memory, Neurobiology of Learning and Memory
Spring 2013 Teaching Assistant, Psychology of Aging, Dr. Michela Gallagher
Fall 2012 Teaching Assistant, Psychopharmacology, Dr. Linda Gorman
Spring 2012 Teaching Assistant, Functional Human Neuroanatomy, Dr. Susan Courtney

DEPARTMENTAL AND UNIVERSITY SERVICE

2022 - *present*, Member of the Diversity, Equity, and Inclusion Committee
2021 - *present*, Member of the Neuroscience Undergraduate Curriculum Committee
2021 - *present*, Cognitive, Affective, & Health Tea Coordinator
2020 - 2022, Member of University Committee on Fellowships and Awards
2021 - 2022, Cognitive & Affective Neuroscience Faculty Search Committee
2021 - 2022, Psychological Sciences Lecturer Search Committee
2011 - 2014, TA Committee for Psychological & Brain Sciences Department
2013 - 2014, Colloquium Committee for Psychological & Brain Sciences Department
2012 - 2014, Active Minds, President and Founder of Active Minds on the JHU campus
2012 - 2014, JHU Counseling Center Advisory Board
2009 - 2011, American Medical Student Association, Vice-President & Co-Founder on the UCSB campus

OUTREACH INVOLVEMENT

2020 - present, Member, Alzheimer's Association Care & Support Committee

Annual, Walk to End Alzheimer's, Alzheimer's Association

Leal, S.L. (2023). The Aging Brain: Can we prevent memory decline and AD? *The Village at Southampton (Senior Living Community)*

Leal, S.L. (2023). Memory: A Neuroscientist's Study of Remembering and Forgetting. *Susanne M. Glasscock School of Continuing Studies: Midweek Medley.*

Leal, S.L. (2022). The Aging Brain: Can we prevent memory decline and AD? *Thomas A. Glazier Senior Education Center.*

Leal, S.L. (2021). Memory in Healthy Aging and Preclinical Alzheimer's Disease. *Association of Retired Rice University Faculty Conference on "Cognitive and Brain Health in Aging"*

Leal, S.L. (2021). The Aging Brain: Examining memory changes in aging and Alzheimer's disease. *Association of Retired Rice University Faculty Conference on "Why Hearing Research Matters to Longevity and Communities"*.

MENTORSHIP

*=award/funding

Postdoctoral Mentor:

Hannah Ballard (2022 - present)

*Rice University Academy Fellowship (2022-2024)

*NRSA F32 (2023-2026)

Primary Graduate Mentor:

Lorena Ferguson (2020 - present)

*SSRI Pre-Dissertation Award (2022-2023)

*Trainee Professional Development Award (Society for Neuroscience)

*SSRI Graduate Student Conference Travel Grant (LEARNMEM)

Kayla Clark (2021 - present)

*SSRI Graduate Student Conference Travel Grant (Society for Neuroscience)

Fernanda Morales-Calva (2021 - present)

*Fulbright Scholar (2021-2024)

*SSRI Graduate Student Conference Travel Grant (Society for Neuroscience)

*Trainee Professional Development Award (Society for Neuroscience)

*SSRI Pre-Dissertation Award (2023-2024)

*LEARNMEM NIH Travel Fellowship (International Conference on Learning and Memory)

*2023 Diversity Grant of the Psychological Science Research Grant (APAGS)

Madelyn Castro (2022 - present)

*Graduate Studies Dean's Fellowship (2022)

*NSF GRFP (2022-2025)

*SSRI Graduate Student Conference Travel Grant (Society for Neuroscience)

Co-Mentor/Master's Student Mentor:

Eva Dicker (2020 - present, Co-Mentor with Dr. Bryan Denny) – Starting as tenure-track Assistant Professor at Seattle University in 2023

*NRSA F31 (pending, 2023-2025)

*SSRI Dissertation Research Improvement Grant (2023-2024)

Nessa Kim (2019 - 2022, Human Factors Master's Program) – Now pursuing at PhD at Rice University

Undergraduate Research Mentor / Research Assistant:

Alexis Bailey (2022 - present) – Starting Baylor College of Medicine M.D. Program in 2023

Aditi Velgekar (2022 - present)

*Maurin Fellowship (2022)

*Nominated for Janessa Shapiro Award

Michelle Sekili (2022 - present)

*Cognitive Science Summer Fellowship (2022)

*3rd place in poster competition at RUNS

*Nominated for Janessa Shapiro Award

Jacob Buergler (2022 - *present*)

*Nominated for Janessa Shapiro Award

Renae Mannion (2021 - *present*)

*NSF REU program fellow (2021 & 2022)

Chandler Bannis (2022)

*Summer Undergraduate Research Fellowship

Gabriel Bolanos (2022)

Rishi Vas (2019 - 2022) – Starting Columbia Medical School Program in 2023

Brandon Hayes (2019 - 2021) – Starting UC Davis Graduate Program in 2023

Taylor Phillips (2019 - 2021) – Research Assistant at the University of Pennsylvania

Rose Click (2019 - 2020)

Ashley Pena (2019 - 2020)

High School Mentor:

Sreeja Tirpirmeni (2021 - *present*)

*Honorable Mention (4th place) at The Science & Engineering Fair of Houston

*The Smiti Gandhi Research Star Award at The Science & Engineering Fair of Houston

*1st place in Behavioral Sciences at The Galveston County Science & Engineering Fair

*1st place overall (9th grade division) at The Galveston County Science & Engineering Fair

Service on Master's Committees

Eva Dicker, Psychological Sciences, Rice University

Lydia Wu, Psychological Sciences, Rice University

Pauline Goodson, Psychological Sciences, Rice University

Lorena Ferguson, Psychological Sciences, Rice University (Chair)

Yu Lu, Psychological Sciences, Rice University

Service on PhD Committees

Eva Dicker, Psychological Sciences, Rice University

Osip Nikiforov, The Shepherd School of Music, Rice University