

# Daniel Gustavson

Curriculum vitae

June 2021

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## EDUCATION

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- 2016                      Ph.D. in Cognitive Psychology, with Graduate Certificate in Behavioral Genetics & Graduate Certificate in Quantitative Methods for Behavioral Sciences, University of Colorado Boulder, Department of Psychology and Neuroscience
- 2013                      M.A. in Cognitive Psychology, University of Colorado Boulder, Department of Psychology and Neuroscience
- 2011                      B.A. in Psychology, University of Colorado Boulder, Department of Psychology and Neuroscience

Dissertation: Gustavson, D. E. (2016). *Investigating the cognitive underpinnings of procrastination: An intervention study and a longitudinal analysis* (Doctoral dissertation). [https://scholar.colorado.edu/psyc\\_gradetds/100](https://scholar.colorado.edu/psyc_gradetds/100)

## EMPLOYMENT

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- 2020 – present            **Research Instructor.** Department of Medicine, Division of Genetic Medicine, Vanderbilt University Medical Center.
- 2019                      **Staff Scientist.** Department of Otolaryngology, Vanderbilt University Medical Center.
- 2016 – 2019              **Postdoctoral Scholar.** Department of Psychiatry, University of California, San Diego. Advisor: William Kremen
- 2016                      **Postdoctoral Research Associate.** Institute for Behavioral Genetics, University of Colorado Boulder. Advisors: Naomi Friedman, Scott Vrieze

2010 – 2016           **Graduate Research Assistant and Teaching Assistant.** Department of Psychology & Neuroscience and Institute for Behavioral Genetics, University of Colorado Boulder. Advisors: Akira Miyake, Naomi Friedman

2009 – 2010           **Undergraduate Research Assistant and Teaching Assistant.** Department of Psychology & Neuroscience, University of Colorado Boulder. Advisor: Akira Miyake

## **PUBLICATIONS**

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### **Peer-Refereed Journal Articles:**

44. **Gustavson, D. E.**, Jak, A. J., Elman, J. A., Panizzon, M. S., Franz, C. E., Gifford, K. A., Reynolds, C. A., Toomey, R., Lyons, M. J., & Kremen, W. S. (2021). Comparison of subjective cognitive decline with objectively-measured cognitive change from middle to early old age. *Journal of Alzheimer's Disease, in press*
43. **Gustavson, D. E.**, Coleman, P. L., Iversen, J. R., Maes, H. H., Gordon, R. L., & Lense, M. (*in press*). Mental health and music engagement: Review, framework, and guidelines for future studies. *Translational Psychiatry*. (Preprint: <https://doi.org/10.31234/osf.io/erv9c>)
42. **Gustavson, D. E.**, Panizzon, M. S., Kremen, W. S., Reynolds, C. A., Nygaard, M., Wod, M., Catts, V. S., Lee, T., Gatz, M., & Franz, C. E. (2021). Genetic and environmental influences on semantic verbal fluency across midlife and later life. *Behavior Genetics*, *51*, 99-109. <https://doi.org/10.1007/s10519-021-10048-w>. PMID: PMC7933104
41. Mallard, T. T., Savage, J. E., Johnson, E. C., Huang, Y., Edwards, A. C., Hottenga, J. J., Grotzinger, A. D., **Gustavson, D. E.**, Jennings, M. V., Anokhin, A., Dick, D. M., Edenberg, H. J., Kramer, J. R., Lai, D., Meyers, J. L., Pandey, A. K., Harden, K. P., Nivard, M. G., de Geus, E. J. C., Boomsma, D. I., Agrawal, A., Davis, L. K., Clarke, T., Palmer, A. A., & Sanchez-Roige, S. (2021). Item-level genome-wide association study of the Alcohol Use Disorder Identification Test in three population-based cohorts. *American Journal of Psychiatry, advance online publication*. <https://doi.org/10.1176/appi.ajp.2020.20091390>. PMID: 33985350
40. Sanderson-Cimino, M., Panizzon, M. S., Elman, J. A., Tu, X., **Gustavson, D. E.**, Puckett, O., Cross, K., Notestine, R., Hatton, S. N., Eyler, L. T., McEvoy, L. K., Hagler, D. J., Neale, M. C., Gillespie, N. A., Lyons, M. J., Franz, C. E., Fennema-Notestine, C., & Kremen, W. S. (2021). Periventricular and deep abnormal white matter differ in associations with cognitive performance at midlife. *Neuropsychology*. <https://doi.org/10.1037/neu0000718>. PMID: 33970659
39. Elman, J. A., Puckett, O. K., Beck, A., Fennema-Notestine, C., Cross, L. K., Dale, A. M., Eglit, G. M. L., Eyler, L. T., Gillespie, N. A., Granholm, E. L., **Gustavson, D. E.**, Hagler, D. J., Hatton, S. N., Hauger, R., Jak, A. J., Logue, M. W., McEvoy, L. K., McKenzie, R.

- E., Neale, M. C., Panizzon, M. S., Reynolds, C. A., Sanderson-Cimino, M., Toomey, R., Tu, X., Nathan, W., McKenna, E. W., Xian, H., Lyons, M. J., Franz, C. E., & Kremen, W. S. (2021). MRI-Assessed locus coeruleus integrity is heritable and associated with multiple cognitive domains, mild cognitive impairment, and daytime dysfunction, *Alzheimer's & Dementia, advance online publication*. <https://doi.org/10.1002/alz.12261>. PMID: 33580733
38. Ditmars, H. L., Logue, M. W., Toomey, R., McKenzie, R. E., Franz, C. E., Panizzon, M. S., Reynolds, C. A., Cuthbert, K. N., Vandiver, R., **Gustavson, D. E.**, Eglit, G. M. L., Elman, J. A., Sanderson-Cimino, M., Williams, M. E., Andreassen, O. A., Dale, A. M., Eyler, L. T., Fennema-Notestine, C., Gillespie, N. A., Hauger, R. L., Jak, A. J., Neale, M. C., Tu, X., Whitsel, N. Xian, H., Kremen, W. S., Lyons, M. J. (2021). Associations between depression and cardiometabolic health: A 27-Year Longitudinal Study. *Psychological Medicine*, 1-11. <https://doi.org/10.1017/S003329172000505X>. PMID: 33431106
37. **Gustavson, D. E.**, Friedman, N. P., Fontanillas, P., Elson, S. L., 23andMe Research Team, Palmer, A., & Sanchez-Roige, S. (2020). The latent genetic structure of impulsivity and its relation to internalizing psychopathology. *Psychological Science*, 31, 1025-1035. <https://doi.org/10.1177/0956797620938160>. PMCID: PMC7427138
36. **Gustavson, D. E.**, Elman, J. A., Panizzon, M. S., Franz, C. E., Zuber, J., Reynolds, C. A., Jacobson, K. C., Xian, H., Toomey, R., Lyons, M. J., & Kremen, W. S. (2020). Association of baseline semantic fluency and progression to mild cognitive impairment, *Neurology*, 95, e973-e983. <https://doi.org/10.1212/WNL.0000000000010130>. PMCID: PMC7668546.
35. **Gustavson, D. E.**, Elman, J. A., Sanderson-Cimino, M., Franz, C. E., Panizzon, M. S., Jak, A. J., Reynolds, C. A., Neale, M. C., Lyons, M. J., & Kremen, W. S. (2020). Extensive memory testing improves prediction of progression to MCI in late middle age. *Alzheimer's & Dementia: Diagnosis, Assessment, & Disease Monitoring*, 12, e12004. <https://doi.org/10.1002/dad2.12004>. PMCID: PMC7148418
34. **Gustavson, D. E.**, Lurquin, J. H., Michaelson, L. E., Barker, J. E., Carruth, N. P., von Bastian, C. C., & Miyake, A. (2020). Lower general executive function is primarily associated with trait worry: A latent variable analysis of negative thought/affect measures. *Emotion*, 20, 557-571. <https://doi.org/10.1037/emo0000584>. PMCID: PMC6713624
33. Stevens, S. M., **Gustavson, D. E.**, Fang, B., Tu, X., Logue, M., Lyons, M. J., Reynolds, C. A., Kremen, W. S., & Franz, C. E. (2020). Predicting health-related quality of life in trauma-exposed men in late midlife: A 20-year longitudinal study. *International Journal of Environmental Research and Public Health*, 17, 4554. <https://doi.org/10.3390/ijerph17124554>. PMCID: PMC7345107
32. Walters, C. E., Nitin, R., Margulis, K., Boorom, O., **Gustavson, D. E.**, Bush, C. T., Davis, L. K., Below, J. E., Cox, N. J., Camarata, S. M., & Gordon, R. L. (2020). APT-DLD: A new

- phenotyping algorithm for identifying cases of developmental language disorder in large-scale electronic health record systems. *Journal of Speech, Language and Hearing Research*, 63, 3019-3035. [https://doi.org/10.1044/2020\\_JSLHR-19-00397](https://doi.org/10.1044/2020_JSLHR-19-00397). PMID: 32791019
31. Xian, H., Boutwell, B., Reynolds, C. A., Lew, D., Logue, M., **Gustavson, D. E.**, Kavish, N., Panizzon, M. S., Tu, X., Toomey, R., Puckett, O., Elman, J. A., Jacobson, K. C., Lyons, M. J., Kremen, W. S., & Franz, C. E. (2020). Genetic underpinnings of increased BMI and its association with late midlife cognitive abilities. *Journal of Gerontology and Geriatric Medicine*, 6, 1-11. <https://doi.org/10.1177/2333721420925267>. PMID: PMC7268925
30. Slayday, R., **Gustavson, D. E.**, Elman, J. A., Beck, A., McEvoy, L., Tu, X., Fang, B., Hauger, R., Lyons, M., McKenzie, R., Sanderson-Cimino, M., Xian, H., Kremen, W. S., & Franz, C. E. (2020). Interaction between alcohol consumption and apolipoprotein E (ApoE) genotype with cognition in middle-age men. *Journal of the International Neuropsychological Society*. <https://doi.org/10.1017/S1355617720000570>. PMID: 32662384
29. Elman, J. A., Panizzon, M. S., **Gustavson, D. E.**, Franz, C. E., Sanderson-Cimino, M. E., Lyons, M. J., & Kremen, W. S. (2020). A $\beta$ -positivity predicts cognitive decline but cognition predicts progression to A $\beta$ -positivity. *Biological Psychiatry*, 87, 819-828. <https://doi.org/10.1016/j.biopsych.2019.12.021> PMID: PMC7166153
28. Friedman, N. P., Hatoum, A. S., **Gustavson, D. E.**, Corley, R. P., Hewitt, J. K., & Young, S. E. (2020). Executive functions and impulsivity are genetically distinct and independently predict psychopathology: Results from two adult twin studies. *Clinical Psychological Science*, 8, 519-538. <http://doi.org/10.1177/2167702619898814>. PMID: PMC7983400
27. **Gustavson, D. E.**, Franz, C. E., Panizzon, M. S., Lyons, M. J., & Kremen, W. S. (2019). Internalizing and externalizing psychopathology in middle age: Genetic and environmental architecture and stability of symptoms over 15 to 20 years. *Psychological Medicine*, 1-9. <http://doi.org/10.1017/S0033291719001533> PMID: PMC6938573
26. **Gustavson, D. E.**, Panizzon, M. S., Franz, C. E., Reynolds, C. A., Corley, R. P., Hewitt, J. K., Lyons, M. J., Kremen, W. S., & Friedman, N. P. (2019). Integrating verbal fluency with executive functions: Evidence from twin studies in adolescence and middle age. *Journal of Experimental Psychology: General*, 148, 2104-2119. <http://dx.doi.org/10.1037/xge0000589> PMID: PMC6754807
25. **Gustavson, D. E.**, Franz, C. E., Kremen, W. S., Carver, C. S., Corley, R. P., Hewitt, J. K. & Friedman, N. P. (2019). Common genetic influences on impulsivity facets are related to goal management, psychopathology, and personality. *Journal of Research in Personality*, 79, 161-175. <https://doi.org/10.1016/j.jrp.2019.03.009> PMID: PMC6857631

24. **Gustavson, D. E.**, Franz, C. E., Panizzon, M. S., Reynolds, C. A., Xian, H., Toomey, R., Lyons, M. J., & Kremen, W. S. (2019). Genetic and environmental associations between executive functions, trait anxiety, and depression symptoms in middle age. *Clinical Psychological Science*, 7, 127-142. <https://doi.org/10.1177/2167702618805075>. PMID: PMC6433407.
23. **Gustavson, D. E.**, Hatton, S. N., Elman, J. A., Panizzon, M. S., Franz, C. E., Hagler, D. J., Fennema-Notestine, C., Eyler, L., McEvoy, L., Neale, M. C., Gillespie, N., Dale, A. M., Lyons, M. J., & Kremen, W. S. (2019). Predominantly global genetic influences on individual white matter tract microstructure. *Neuroimage*, 184, 871-880. <http://doi.org/10.1016/j.neuroimage.2018.10.016>. PMID: PMC6289256
22. Kremen, W. S., Panizzon, M. S., Elman, J. A., Granholm, E. L., Andreassen, O. A., Dale, A. M., Gillespie, N. A., **Gustavson, D. E.**, Logue, M. W., Lyons, M. J., Neale, M. C., Reynolds, C. A., Whitsel, N., & Franz, C. E. (2019). Pupillary dilation responses as a midlife indicator of risk for Alzheimer's disease: Association with Alzheimer's disease polygenic risk. *Neurobiology of Aging*, 83, 114-121. <https://doi.org/10.1016/j.neurobiolaging.2019.09.001>. PMID: PMC6931134
21. Elman, J. A., Panizzon, M. S., Logue, M. W., Gillespie, N. A., Neale, M. C., Reynolds, C. A., **Gustavson, D. E.**, Rana, B. K., Andreassen, O. A., Dale, A. M., Franz, C. E., Lyons, M. J., & Kremen, W. S. (2019). Genetic risk for coronary heart disease alters the influence of Alzheimer's genetic risk on mild cognitive impairment. *Neurobiology of Aging*, 237.e5-237.e12. <https://doi.org/10.1016/j.neurobiolaging.2019.06.001>. PMID: PMC6899214.
20. Eyler, T. L., Elman, J. A., Hatton, S. N., Gough, S., Mischel, A. K., Hagler, D. J., Franz, C. E., Docherty, A., Fennema-Notestine, C., Gillespie, N., **Gustavson, D. E.**, Lyons, M. J., Neale, M. C., Panizzon, M. S., Dale, A. M., Kremen, W. S. (2019). Resting state abnormalities of the default mode network in mild cognitive impairment: A systematic review and meta-analysis. *Journal of Alzheimer's Disease*, 70, 107-120. <https://doi.org/10.3233/JAD-180847>. PMID: PMC6697380.
19. Kremen, W. S., Beck, A., Elman, J. A., **Gustavson, D. E.**, Tu, X. M., Sanderson-Cimino, M. E., Panizzon, M. S., Vuoksima, E., Toomey, R., Fennema-Notestine, C., Hagler, D. J., Dale, A. M., Lyons, M. J., & Franz, C. E. (2019). Influence of young adult cognitive ability and additional education on later life cognition. *Proceeding of the National Academy of Sciences*, 116, 2021-2026. <https://doi.org/10.1073/pnas.1811537116>. PMID: PMC6369818
18. Logue, M. W., Panizzon, M. S., Elman, J. A., Gillespie, N. A., Hatton, S., **Gustavson, D. E.**, Andreassen, O. A., Dale, A. M., Franz, C. E., Lyons, M. J., Neale, M. C., Reynolds, C. A., Tu, X., & Kremen, W. S. (2019). Use of an Alzheimer's disease polygenic risk score to identify mild cognitive impairment in adults in their 50s. *Molecular Psychiatry*, 24, 421-430. <https://doi.org/10.1038/s41380-018-0030-8>. PMID: PMC6110977

17. Sanderson-Cimino, M., Panizzon, M. S., Elman, J. A., **Gustavson, D. E.**, Franz, C. E., Reynolds, C. A., Toomey, R., Lyons, M. J., & Kremen, W. S. (2019). Genetic and environmental architecture of processing speed across midlife. *Neuropsychology*, *33*, 862-871. <http://doi.org/10.1037/neu0000551>. PMID: PMC6710143
16. Franz, C. E., Hatton, S. N., Hauger, R. L., Kredlow, M. A., Eyler, L., McEvoy, L. K., Fennema-Notestine, C., Hagler, D. J., Jacobson, K. C., McKenzie, R. E., Panizzon, M. S., **Gustavson, D. E.**, Xian, H., Toomey, R., Beck, A., Stevens, S., Tu, X., Lyons, M. L., & Kremen, W. S. (2019). Posttraumatic stress symptom persistence across 24 years: Association with brain structures. *Brain Imaging and Behavior*, 1-13. <https://doi.org/10.1007/s11682-019-00059-x>. PMID: PMC6722032
15. **Gustavson, D. E.**, Panizzon, M. S., Elman, J. A., Franz, C. E., Beck, A., Reynolds, C. A., Jacobson, K. C., Xian, H., Toomey, R., Lyons, M. J., & Kremen, W. S. (2018). Genetic and environmental influences on verbal fluency in middle age: A longitudinal twin study. *Behavior Genetics*, *48*, 361-373. <https://doi.org/10.1007/s10519-018-9910-6>. PMID: PMC29922985
14. **Gustavson, D. E.**, du Pont, A., Whisman, M. A., & Miyake, A. (2018). Evidence for transdiagnostic repetitive negative thinking and its association with rumination, worry, and depression and anxiety symptoms: A commonality analysis. *Collabra*, *4*, 1-18. <https://doi.org/10.1525/collabra.128>. PMID: PMC6370308.
13. **Gustavson, D. E.**, Panizzon, M. S., Elman, J. A., Franz, C. E., Reynolds, C. A., Jacobson, K. C., Friedman, N. P., Xian, H., Lyons, M. J., & Kremen, W. S. (2018). Stability of genetic and environmental influences on executive functions in midlife. *Psychology and Aging*, *33*, 219-231. <https://doi.org/10.1037/pag0000230>. PMID: PMC5905725.
12. **Gustavson, D. E.**, Panizzon, M. S., Franz, C. E., Friedman, N. P., Reynolds, C. A., Jacobson, K. C., Xian, H., Lyons, M. J., & Kremen, W. S. (2018). Genetic and environmental architecture of executive functions in midlife, *Neuropsychology*, *32*, 18-30. <https://doi.org/10.1037/neu0000389>. PMID: PMC5814340.
11. Davies, G., Lam, M., Harris, S. E., ... **Gustavson, D. E.**, ... Lencz, T., & Deary, I. J. (2018). Study of 300,486 individuals identified 148 independent genetic loci influencing general cognitive function. *Nature Communications*, *9*, 1-16. <https://doi.org/10.1038/s41467-018-04362-x>. PMID: PMC5974083.
10. Reineberg, A. D., **Gustavson, D. E.**, Benca, C., Banich, M. T., & Friedman, N. P. (2018). The relationship between resting state network connectivity and individual differences in executive functions. *Frontiers in Psychology*, *9*, 1600. <https://doi.org/10.3389/fpsyg.2018.01600>. PMID: PMC6134071.
9. Elman, J. A., Jak, A. J., Panizzon, M. S., Tu, X., Chen, T., Reynolds, C. A., **Gustavson, D. E.**, Franz, C. E., Hatton, S. N., Jacobson, K. C., Toomey, R., McKenzie, R., Xian, H., Lyons, M. J., & Kremen, W. S. (2018). Underdiagnosis of mild cognitive impairment: A

- consequence of ignoring practice effects. *Alzheimer's & Dementia: Diagnosis, Assessment & Disease Monitoring*, 10, 372-381.  
<https://doi.org/10.1016/j.dadm.2018.04.003>. PMID: PMC6039708.
8. **Gustavson, D. E.**, du Pont, A., Hatoum, A. S., Rhee, S. H., Kremen, W. S., Hewitt, J. K., & Friedman, N. P. (2017). Genetic and environmental associations between procrastination and internalizing/externalizing psychopathology, *Clinical Psychological Science*, 5, 798-815. <https://doi.org/10.1177/2167702617706084>. PMID: PMC5831260.
  7. **Gustavson, D. E.**, Stallings, M. C., Corley, R. P., Miyake, A., Hewitt, J. K., & Friedman, N. P. (2017). Executive functions and substance use: Relations in late adolescence and early adulthood. *Journal of Abnormal Psychology*, 126, 257-270.  
<https://doi.org/10.1037/abn0000250>. PMID: PMC5305429.
  6. **Gustavson, D. E.**, & Miyake, A. (2017). Academic procrastination and goal accomplishment: A combined experimental and individual differences investigation. *Learning and Individual Differences*, 54, 160-172. <https://doi.org/10.1016/j.lindif.2017.01.010>. PMID: PMC5608091.
  5. **Gustavson, D. E.**, Altamirano, L., Johnson, D., Miyake, A., & Whisman, M. A. (2017) Is set shifting really impaired in trait anxiety? Only when switching away from an effortfully established task set. *Emotion*, 17, 88-101. <https://doi.org/10.1037/emo0000212>. PMID: PMC5243939.
  4. **Gustavson, D. E.**, & Miyake, A. (2016). Trait worry is associated with difficulties in working memory updating. *Cognition and Emotion*, 30, 1289-1303.  
<https://doi.org/10.1080/02699931.2015.1060194>. PMID: PMC6118341.
  3. Lurquin, J. H., Michaelson, L. E., Barker, J. E., **Gustavson, D. E.**, von Bastian, C. C., Carruth, N. P., & Miyake, A. (2016). No evidence of the ego-depletion effect across task characteristics and individual differences: A pre-registered study. *PloS one*, 11, e0147770. <https://doi.org/10.1371/journal.pone.0147770>. PMID: PMC4749338.
  2. **Gustavson, D. E.**, Miyake, A., Hewitt, J. K., & Friedman, N. P. (2015). Understanding the cognitive and genetic underpinnings of procrastination: Evidence for shared genetic influences with goal management and executive function abilities. *Journal of Experimental Psychology: General*, 144, 1063-1079.  
<https://doi.org/10.1037/xge0000110>. PMID: PMC4658242.
  1. **Gustavson, D. E.**, Miyake, A., Hewitt, J. K., & Friedman, N. P. (2014). Genetic relations among procrastination, impulsivity, and goal-management ability: Implications for the evolutionary origin of procrastination. *Psychological Science*, 25, 1178-1188.  
<https://doi.org/10.1177/0956797614526260>. PMID: PMC4185275.

#### **Publications Under Review:**

**Gustavson, D. E.**, Friedman, N. P., Stallings, M. C., Reynolds, C. A., Coon, H., Hewitt, J. K., Wadsworth, S., & Gordon, R. G. (*revise and resubmit*). Musical instrument engagement in adolescence predicts verbal ability four years later: A twin and adoption study. (Preprint available at <https://doi.org/10.31234/osf.io/bajy9>)

**Gustavson, D. E.**, Reynolds, C. A., Corley, R. A., Wadsworth, S. J., Hewitt, J. K., & Friedman, N. P. (*submitted*). Genetic associations between executive functions and intelligence: A combined twin and adoption study.

von Bastian, C. C., Blais, C., Brewer, G. A., Gyurkovics, M., Hedge, C., Kalamala, P., Meier, M. E., Oberauer, K., Rey-Mermet, A., Rouder, J. N., Souza, A. S., Bartsch, L. M., Conway, A. R. A., Draheim, C., Engle, R. W., Friedman, N. P., **Gustavson, D. E.**, Koch, I., Redick, T. S., Smeekens, B. A., Whitehead, P. S., Wiemers, E. A. (*under review*). Advancing the understanding of individual differences in attentional control: Theoretical, methodological, and analytical considerations.

Whitsel, N. Reynolds, C. A., Buchholz, E., Pahlen, S., Pierce, R. C., Hatton, S., Elman, J. A., Gillespie, N. A., **Gustavson, D. E.**, Puckett, O. K., Dale, A. M., Eyler, L. T., Fennema-Notestine, C., Hagler, D. J., Hauger, R. L., McEvoy, L., McKenzie, R., Neale, M. C., Panizzon, M. S., Sanderson-Cimino, M., Toomey, R., Tu, X. M., Williams, M., Bell, T., Xian, H., Lyons, M. J., Kremen, W. S., & Franz, C. E.. (*submitted*). Long-term associations of cigarette smoking in early midlife with predicted brain aging from midlife to late life. *American Journal of Public Health*

Eglit, G., Elman, J. A., Panizzon, M. S., Sanderson-Cimino, M., Williams, M. E., Dale, A. M., Eyler, L. T., Fennema-Notestine, C., Gillespie, N. A., **Gustavson, D. E.**, Hatton, S. N., Hagler, D. J., Hauger, R. L., Jak, A. J., Logue, M. W., McEvoy, L., K., McKenzie, R. E., Neale, M. C., Puckett, O., Reynolds, C. A., Toomey, R., Tu, X., M., Whitsel, N., Xian, H., Lyons, M. L., Franz, C. E., Kremen, W. S. (*submitted*). Paradoxical cognitive reserve: Cognitive trajectories from earlier to later adulthood. *Neurobiology of Aging*

Niarchou, M., **Gustavson, D. E.**, Sathirapongsasuti, J. F., Anglada-Tort, M., Eising, E., Bell, E., McArthur, E., Straub, P., the 23andMe Research Team, McAuley, J. D., Capra, J. A., Ullen, F., Creanza, N., Mosing, M. A., Hinds, D., Davis, L., K., Jacoby, N., & Gordon, R. L. (*in preparation*). Unravelling the genetic architecture of musical rhythm: A large-scale genome-wide association study of beat synchronization.

### **Selected Publications in Preparation:**

**Gustavson, D. E.**, Kane, M., Carruth, N., Miyake, A. (*in preparation*). Evaluating an objective measure of academic procrastination using submission times in learning management systems.



Beck, A., Stevens, S., **Gustavson, D. E.**, Lyons, M. J., Elman, J. A., Kremen, W. S. & Franz, C. E. (*revise and resubmit*). Early adult urbanicity, childhood socioeconomic status, and cognitive ability four decades later. *American Journal of Epidemiology*

Vojinovic, D., Hayward, C., Smith, J. A., Zhao, W., ... **Gustavson, D. E.**, ... Debette, S., J., Jukema, W., & Mosley, T. H. (*in preparation*). Genetic determinants of general cognitive function and their association to circulating metabolites: A cross-omics study.

## **AWARDS AND HONORS**

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- 2016 Dosier/Muenzinger Award for Basic Research: Department of Psychology & Neuroscience, University of Colorado Boulder
- 2014 The Lindon Eaves Award for Best Student Poster (Presented at the International Workshop on Statistical Genetic Methods for Human Complex Traits)
- 2010 Summa Cum Laude Honors, B.A. in Psychology, University of Colorado Boulder

## **GRANTS AND FELLOWSHIPS**

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- 2020-present *The Role of Executive Functions in Cognitive Aging and Risk for Mild Cognitive Impairment* (R03 AG065643). Vanderbilt University Medical Center. Role: Principal Investigator
- 2018-2019 *SES Health Gradients in Late Life: Testing Models of Gene-Environment Interplay in an International Twin Consortium* (R01 AG059329). University of California, San Diego. Role: Co-investigator
- 2016 Behavioral Genetics Association International Travel Award. \$500
- 2015 Behavioral Genetics Association Travel Award. \$100 + Conference Registration.
- 2015 Department of Psychology and Neuroscience Graduate Student Travel/Conference Grant (University of Colorado Boulder). \$400
- 2013 Department of Psychology and Neuroscience Graduate Student Travel/Conference Grant (University of Colorado Boulder). \$400
- 2012 Department of Psychology and Neuroscience Graduate Student Travel/Conference Grant (University of Colorado Boulder). \$400
- 2010 Undergraduate Research Opportunity Fund, University of Colorado Boulder. \$2400

## PRESENTATIONS

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### Session chair

- 2019 *Neuropsychology: Novel Methods for Detecting Cognitive Change* (July 2019). Alzheimer's Association International Conference, Los Angeles, CA.

### Papers presented at conferences

- 2021 Nayak, S. **Gustavson, D. E.**, Wang, Y., Below, J. E., Gordon, R. L. & Magne, C. (June 2021) Validation of a novel speech rhythm perception test: Convergence with musical rhythm and language and reading difficulties. Poster presentation at the Rhythm Production and Perception Workshop, 2021
- 2021 **Gustavson, D. E.**, Reynolds, C. A., Hohman, T. J., Jefferson, A. L., Elman, J. A., Panizzon, M. S., Lyons, M. J., Franz, C. E., & Kremen, W. S (July 2021). Alzheimer's disease polygenic scores predict changes in executive function across 12 years in late middle age. Abstract submitted to the Alzheimer's Association International Conference.
- 2020 **Gustavson, D. E.**, Friedman, N. P., Reynolds, C. A., & Gordon, R. (October 2020). Distinct genetic influences on musical instrument, singing, and dance engagement in early adolescence and their associations with substance use behaviors. Poster presentation at the World Congress for Psychiatric Genetics, October, 2020.
- 2020 Mallard, T. T., Savage, J. E., Johnson, E. C., Huang, Y., **Gustavson, D. E.**, Jennings, M. V., Clarke, T., Palmer, A. A., & Sanchez-Roige, S. (October 2020). Multivariate GWAS elucidates the genetic architecture of alcohol consumption and misuse, corrects biases, and reveals novel associations with disease. Poster presentation at the World Congress for Psychiatric Genetics, October, 2020
- 2020 **Gustavson, D. E.**, Hewitt, J. K., Friedman, N. P., & Gordon, R. L. (*postponed*). Distinct genetic influences on engagement with musical instruments, singing, and dancing in early adolescence and their associations with vocabulary and executive functions 5 years later. Talk presentation at Neurosciences and Music VII, Aarhus, Denmark, June 2020. *Delayed due to Covid-19*.
- 2020 **Gustavson, D. E.**, Panizzon, M. S., Kremen, W. S., Reynolds, C. A., Pahlen, S., Nygaard, M., Wod, M., Catts, V. S., Lee, T., Gatz, M., & Franz, C. E. (July 2020). Genetic and environmental influences on semantic verbal fluency across midlife, *Alzheimer's & Dementia*, 16, e037410. Virtual poster presentation at the

Alzheimer's Association International Conference.  
<https://doi.org/10.1002/alz.037410>

- 2020 **Gustavson, D. E.**, Wang, Y., Below, J., Cox, N., Magne, C., Gordon, R.L. (June 2020). Investigating the biological basis of speech rhythm sensitivity with internet-based, scalable approaches. Poster presentation at Sixth Annual BRAIN Initiative Investigators Meeting, virtual conference, June 1-2, 2020.
- 2019 **Gustavson, D. E.**, Panizzon, M. S., Elman, J., Franz, C. E., Jak, A. J., Sanderson-Cimino, M., Toomey, R., Lyons, M. J., & Kremen, W. S. (July 2019) Multiple memory tests substantially improve longitudinal prediction of progression to mild cognitive impairment, *Alzheimer's & Dementia*, 15, P896-P897. Oral presentation at the Alzheimer's Association International Conference, Los Angeles, CA.  
<https://doi.org/10.1016/j.jalz.2019.06.4658>
- 2019 **Gustavson, D. E.**, Franz, C. E., Panizzon, M. S., Elman, J., Jak, A. J., Sanderson-Cimino, M., Toomey, R., Lyons, M. J., & Kremen, W. S. (July 2019) Executive functions and impulsivity predict perception of cognitive decline six years later, *Alzheimer's & Dementia*, 15, P451. Poster presentation at the Alzheimer's Association International Conference, Los Angeles, CA.  
<https://doi.org/10.1016/j.jalz.2019.06.1081>
- 2019 **Gustavson, D. E.**, Franz, C. E., Panizzon, M. S., Lyons, M. J., & Kremen, W. S. (June 2019) Internalizing and Externalizing Psychopathology in Middle Age: Genetic and Environmental Architecture and Stability of Symptoms Over 15 to 20 Years. Oral presentation at the 49<sup>th</sup> annual meeting of the Behavior Genetics Association, Stockholm, Sweden.
- 2019 **Gustavson, D. E.**, Elman, J., Panizzon, M. S., Franz, C. E., Reynolds, C. A., Jacobson, K., Zuber, J., Sanderson-Cimino, M., Xian, H., Toomey, R., Lyons, M. J., & Kremen, W. S. (February 2019) Episodic memory and semantic fluency predict 6-year progression to MCI in cognitively normal middle-aged adults. Oral presentation at the International Neuropsychological Association, New York, NY.
- 2018 **Gustavson, D. E.**, Franz, C. E., Kremen, W. S., Corley, R. P., Hewitt, J. K., & Friedman, N. P. (October 2018). Common genetic influences on impulsivity facets are related to goal management, psychopathology, and personality. Oral and poster presentation at the Integrating Genetics and the Social Sciences Conference, Boulder, CO.
- 2018 **Gustavson, D. E.**, Panizzon, M. S., Elman, J. A., Franz, C. E., Reynolds, C. A., Jacobson, K. P., Xian, H., Toomey, R., Lyons, M. J., and Kremen, W. S. (June 2018). Genetic and environmental influences on verbal fluency: A new framework. Oral presentation at the 48<sup>th</sup> annual meeting of the Behavior Genetics Association, Boston, MA.

- 2018 **Gustavson, D. E.**, Panizzon, M. S., Elman, J. A., Franz, C. E., Reynolds, C. A., Jacobson, K. P., Xian, H., Toomey, R., Lyons, M. J., and Kremen, W. S. (May 2018). Genetic and environmental influences on verbal fluency: A new framework. Poster presentation at the Cognitive Aging Conference, Atlanta, GA and at the 13<sup>th</sup> Annual Lewis L. Judd Young Investigators Symposium at the University of California, San Diego (April 2018).
- 2017 **Gustavson, D. E.**, & Miyake, A. (July 2017). Genetic influences on procrastination underlie its correlations with personality, cognition, and psychopathology. Oral presentation at the 10<sup>th</sup> Biennial Procrastination Research Conference, Chicago, IL.
- 2017 Miyake, A., Carruth, N. P., Lurquin, J. H., **Gustavson, D. E.**, & Kane, M. J. (July 2017) Assignment submission times as objective measures of individual differences in academic procrastination: A classroom study (July 2017). Oral presentation by A. Miyake at the 10<sup>th</sup> Biennial Procrastination Research Conference, Chicago, IL.
- 2017 Carruth, N. P., **Gustavson, D. E.**, Lurquin, J. H., Kane, M. J., & Miyake, A. (July 2017). Identifying the key malleable predictors of academic procrastination through a semester-long, classroom-based study. Poster presentation by N. Carruth at the 10<sup>th</sup> Biennial Procrastination Research Conference, Chicago, IL.
- 2017 **Gustavson, D. E.**, Panizzon, M. S., Franz, C. E., Friedman, N. P., Reynolds, C. A., Jacobson, K. J., Xian, H., Lyons, M. J., & Kremen, W. S. (June 2017). Genetic/environmental architecture and stability of executive functions in midlife. Oral presentation at the 47<sup>th</sup> annual meeting of the Behavior Genetics Association, Oslo, Norway.
- 2017 Kremen, W., Logue, M., Panizzon, M., Elman, J., Gillespie, N., Hatton, S., **Gustavson, D.**, Andreassen, O., Dale, A., Lyons, M., Neale, M., Reynolds, C., & Franz, C (June 2017). Alzheimer's disease polygenetic risk score identified mild cognitive impairment in adults in their 50s. Oral presentation by W. Kremen at the 47<sup>th</sup> annual meeting of the Behavior Genetics Association, Oslo, Norway.
- 2016 **Gustavson, D. E.**, du Pont, A., Rhee, S. H., Corley, R. P., Hewitt, J. K., & Friedman, N. P. (June 2016). Genetic and environmental associations between procrastination and internalizing/externalizing problems. *Behavior Genetics*, 46, 785-785. Oral presentation at the 46<sup>th</sup> annual meeting of the Behavior Genetics Association, Brisbane, Australia.
- 2016 Hatoum, A., **Gustavson, D. E.**, Rhee, S. H., Corley, R. P., Hewitt, J. K., & Friedman, N. P. (June 2016). Do executive functioning and impulsivity predict overlapping variation in problem behaviors? *Behavior Genetics*, 46, 787-787. Oral presentation by A. Hatoum at the 46<sup>th</sup> annual meeting of the Behavior Genetics Association, Brisbane, Australia.

- 2016 **Gustavson, D. E.** Executive dysfunction in trait anxiety (April, 2016). Oral presentation at the 86<sup>th</sup> annual meeting of the Rocky Mountain Psychological Association, Denver, CO.
- 2016 Hampton, L. E., Lurquin, J. H., **Gustavson, D. E.**, & Carruth, N. C. (April, 2016). Forgiving the self and others: Exploring component level differences and the effects of personality. Oral presentation by L. E. Hampton at the 86<sup>th</sup> annual meeting of the Rocky Mountain Psychological Association, Denver, CO. *Winner of RMPA Student Research Award.*
- 2015 **Gustavson, D. E.**, Lurquin, J. H., Michaelson, L. E., Barker, J. E., Carruth, N. P., von Bastian, C., & Miyake, A. (November, 2015). Executive dysfunction in trait anxiety. Poster presentation at the Psychonomic Society Annual Scientific Meeting, Chicago, IL.
- 2015 **Gustavson, D. E.**, Miyake, A., Hewitt, J. K., & Friedman, N. P. (June, 2015). Understanding the cognitive and genetic underpinnings of procrastination: Evidence for shared genetic influences with goal management and executive function abilities. *Behavior Genetics*, 45, 659-660. Oral presentation at the 45<sup>th</sup> annual meeting of the Behavior Genetics Association, San Diego, CA.
- 2015 Friedman, N. P., **Gustavson, D. E.**, Corley, R. P., Stallings, M. C., & Hewitt, J. K. (June, 2015). Stability and change in the relations among executive functions and substance use and dependence from late adolescence to early adulthood. *Behavior Genetics*, 45, 656. Oral presentation by N. P. Friedman at the 45<sup>th</sup> annual meeting of the Behavior Genetics Association, San Diego, CA.
- 2014 **Gustavson, D. E.**, Miyake, A., Hewitt, J. K., & Friedman, N. P. (June, 2014). Genetic relations among procrastination, impulsivity, and goal-management ability. *Behavior Genetics*, 44, 661. Oral presentation at the 44<sup>th</sup> annual meeting of the Behavior Genetics Association, Charlottesville, VA.
- 2014 **Gustavson, D. E.**, Miyake, A., Hewitt, J. K., & Friedman, N. P. (March, 2014). Genetic relations among procrastination, impulsivity, and goal-management ability: Implication for the evolutionary origin of procrastination. Poster presentation at the 2014 International Workshop on Statistical Genetic Methods for Human Complex Traits, Boulder, CO. *Winner of Lindon Eaves Award for Best Poster.*
- 2013 **Gustavson, D. E.**, Wagenknecht, L. E., Miyake, A. (January, 2013). The effects of religious fundamentalist values and self-affirmation on the expression of implicit gender bias. Poster presentation at the Society for Personality and Social Psychology Annual Conference, New Orleans, LA.

- 2012 **Gustavson, D. E., & Miyake, A.** (November, 2012). Trait worry is associated with deletion difficulty but not storage capacity. Poster presentation at the Psychonomic Society Annual Scientific Meeting, Minneapolis, MN.
- 2012 **Gustavson, D. E., Miyake, A., Altamirano, L. J., Haynes, N. S., & Ito, T.** (January, 2012). The contribution of executive-control to the manifestation of implicit racial bias: A dual-task investigation. Poster presentation at the Society for Personality and Social Psychology Annual Meeting, San Diego, CA.
- 2012 **Gustavson, D. E., & Miyake, A.** (January, 2012). Anxiety and updating: Trait worry is related to selection difficulty during deletion. Poster presentation at the Determinants of Executive Function and Dysfunction Annual Meeting, Boulder, CO.
- 2011 **Gustavson, D. E. & Miyake, A.** (November, 2011). Anxiety and updating: Trait worry is related to selection difficulty during deletion. Poster presentation at the Psychonomic Society Annual Scientific Meeting, Seattle, WA.

### **Other Presentations**

- 2020 **Gustavson, D. E.** (November, 2020). Associations between music engagement, cognition, and substance use in adolescence: Using twin and family studies to explore music genetics. Oral presentation at the Cognitive Science of Learning and Development series, Department of Psychology and Human Development, Vanderbilt University, Nashville, TN.
- 2019 **Gustavson, D. E.** (October, 2019). Studying music genetics using twins: Preliminary findings on the genetic overlap between music and cognition in early adolescence. Oral presentation at the Vanderbilt Music Cognition Lab Music Research Forum Series, Nashville, TN.

### **WORKSHOPS**

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- 2019 International Workshop on Statistical Genetic Methods for Human Complex Traits (Advanced Workshop), Boulder, CO. March 2019.
- 2018 Statistical Horizons Longitudinal Analyses using Structural Equation Modeling Workshop, Los Angeles, CA. May 2018.
- 2017 International Workshop on Statistical Genetic Methods for Human Complex Traits (Advanced Workshop), Boulder, CO. March 2017.
- 2015 International Workshop on Statistical Genetic Methods for Human Complex Traits (Advanced Workshop), Boulder, CO. March 2015

2014 International Workshop on Statistical Genetic Methods for Human Complex Traits (Introductory Workshop), Boulder, CO. March 2014

## **TEACHING EXPERIENCE**

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2020-present Initiated and lead twice-monthly “Data Analysis” call for the Vietnam Era Twin Study of Aging, where about 12 trainees, postdocs, and professors work through advanced statistical modeling topics.

2020 Mentored a high school student in the Music Cognition Lab as part of the School for Science and Math at Vanderbilt

2020-present Lectures: Vanderbilt University Medical Center. July 2020 – guest lecture on genetic association studies and Vanderbilt’s BioVU resource (Resident Research Bootcamp).

2017-2018 Lectures: University of California, San Diego. September 2017, July 2018, August 2018, October 2018. Various undergraduate and graduate-level courses.

2016-2019 Mentored 2 minority undergraduate students on research projects as part of the Advancing Diversity in Aging Research program through the University of California, San Diego and San Diego State University.

2010-2016 Led weekly educational lab meetings (10-20 students per semester) through cognitive psychology lab of Dr. Akira Miyake. Course: Independent Study (PSYC 2841/4841). Department of Psychology & Neuroscience, University of Colorado Boulder.

2010-2016 Co-supervised 6 Honors Thesis Projects in the Department of Psychology & Neuroscience, University of Colorado Boulder

2010-2014 Teaching Assistant: Department of Psychology & Neuroscience, University of Colorado Boulder.

2009 Undergraduate teaching Assistant: Department of Psychology & Neuroscience, University of Colorado Boulder.

### Courses/Lectures Taught:

Introduction to Psychology  
Introduction to Social Psychology  
Statistics and Research Methods  
Advanced Cognitive Psychology  
Genetics  
Executive Functions

## RESEARCH EXPERIENCE

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### **Research Support – Extramural Proposals Under Review**

Principal Investigator: *Unpacking Genetic and Environmental Risk Factors on Depression and Anxiety Symptoms in Adolescence: A Novel Role of Music Engagement*, National Institutes of Health (K01). Total: \$500,406.99. Scored on 6/9/2020: Impact Score of 33 (no percentile given for K grants). Plan to resubmit in November 2020

Principal Investigator: *Evaluating Music Engagement as a Protective Factor in Adolescent Substance Use Behaviors: A Genetic and Neuroimaging Study*, National Institutes of Health (R21). Total Direct Costs: \$275,000. Pending IRG Review

### **Research Support as Key Personnel**

2020-present Principal Investigator. *The Role of Executive Functions in Cognitive Aging and Risk for Mild Cognitive Impairment* (R03 AG065643). Vanderbilt University Medical Center. Total: \$170,000. 40% effort. September 2020 – September 2022

2018-2019 Co-investigator. *SES Health Gradients in Late Life: Testing Models of Gene-Environment Interplay in an International Twin Consortium* (R01 AG059329). National Institute on Aging (University of California, San Diego subaward). 25% effort.

### **Other Research Support as Graduate Student, Postdoctoral Researcher, Research Faculty**

2020-present **Research Instructor:** *Biomarkers of Rhythmic Communication: Integrating Foundational and Translational Approaches* (DP2 HD098859), *Neurobiological Markers of Rhythm: Risk and Resilience for Language Acquisition* (R01 DC016977), *Collaborative Research: NCS-FO Biology and Function of Prosody: Integrative Approach to Individual Differences* (National Science Foundation 1926794)

2019 **Staff Scientist:** *Biomarkers of Rhythmic Communication: Integrating Foundational and Translational Approaches* (DP2 HD098859), *Neurobiological Markers of Rhythm: Risk and Resilience for Language Acquisition* (R01 DC016977), *Collaborative Research: NCS-FO Biology and Function of Prosody: Integrative Approach to Individual Differences* (National Science Foundation 1926794)

2018-2019 **Co-investigator:** *SES Health Gradients in Late Life: Testing Models of Gene-Environment Interplay in an International Twin Consortium* (R01 AG059329). University of California, San Diego.



- 2017-2018 **Postdoctoral Researcher:** *Gene-Environment Interplay of Social Contexts and Aging-Related Outcomes* (R01 AG050595). University of California, San Diego subaward
- 2016-2019 **Postdoctoral Researcher:** *The VETSA Longitudinal Twin Study of Cognition and Aging* (R01 AG050595). University of California, San Diego.
- 2016 **Postdoctoral Researcher:** *Neural substrates of executive function: An fMRI twin study* (R01 MH062307). University of Colorado Boulder.
- 2014-2016 **Graduate Research Assistant:** National Institute for Mental Health Pre-Doctoral Training Grant: *Research Training: Mental Health Behavior Genetics* (T32 MH016880). University of Colorado Boulder.
- 2010-2013 **Graduate Research Assistant:** *Individual Differences in Executive Functions and Expressions of Racial Biases*, National Science Foundation (BCS 0847872).

## **SERVICE TO PROFESSION**

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### **Served as Peer Reviewer for the Following Journals**

*Aging, Neuropsychology, and Cognition*  
*Behavior Genetics*  
*Contemporary Educational Psychology*  
*Developmental Psychology*  
*Early Childhood Development and Care*  
*Emotion*  
*Eurasian Journal of Educational Research*  
*European Journal of Personality*  
*Evolutionary Psychology*  
*Frontiers in Psychology*  
*Health Psychology Research*  
*Intelligence*  
*International Journal of Geriatric Psychiatry*  
*Journal of American College Health*  
*Journal of Experimental Psychology: General*  
*Journal of Experimental Psychology: Human Perception and Performance*  
*Journal of Learning and Instruction*  
*Journal of Speech, Language, and Hearing Research*  
*Language Learning and Development*  
*Learning and Individual Differences*  
*McGill Undergraduate Research Journal*  
*Motivation and Emotion*  
*NeuroImage: Clinical*  
*Neuroscience*  
*Open Journal of Medical Psychology*  
*PeerJ – The Journal of Life and Environmental Sciences*

*Personality and Social Psychology Bulletin*  
*PLOS One*  
*Psychiatry Research*  
*Psychophysiology*  
*Scientific Reports*

### **Served as Editor for Journal Articles**

*PLOS One (guest editor)*

### **Served as External Peer Reviewer for Grant Review**

*National Science Center, Poland*  
*National Science Foundation, USA*

### **Transparency in Science**

*Pre-Registered Projects of Open Science Foundation*

Exploring beat synchronization phenotypes and their correlations with health phenotypes (*currently private*)

Do musical parents have children with better grammar? (*currently private*)

*Other Projects on Open Science Foundation (open data and methods)*

Advancing the understanding of individual differences in attentional control: Theoretical, methodological, and analytical considerations <https://osf.io/kw2a9/>

The latent genetic structure of impulsivity and its relation to internalizing psychopathology <https://osf.io/5x3ft/>

Lower general executive function is primarily associated with trait worry: A latent variable analysis of negative thought/affect measures <https://osf.io/cs8k3/>

Evidence for transdiagnostic repetitive negative thinking and its association with rumination, worry, and depression and anxiety symptoms <https://osf.io/9gmnj/>

### **DEPARTMENTAL/UNIVERSITY SERVICE**

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2020-present Service to Vanderbilt Memory and Alzheimer's Center (VMAC): Evaluated trainee presentations for poster prizes at 2<sup>nd</sup> Annual Alzheimer's Disease Research Day (November 13<sup>th</sup>, 2020). Evaluated grant applications for VMAC inaugural Pilot and Feasibility Grant Program (December 2020).

2016-2018 Mentored 2 minority undergraduate students on research projects as part of the Advancing Diversity in Aging Research program through the University of California, San Diego and San Diego State University

- 2014-2015 United Government of Graduate Students (CU Boulder): Vice President of Finance & Communications Chair.
- 2010-2016 Co-supervised 6 Honors Thesis Projects in the Department of Psychology & Neuroscience, University of Colorado Boulder

## **PROFESSIONAL MEMBERSHIPS**

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- 2016-Present Behavior Genetics Association
- 2018-2019 International Neuropsychological Association
- 2019-Present Alzheimer's Association International Society to Advance Alzheimer's Research and Treatment
- 2020-Present Psychonomic Society

## **REFERENCES**

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Dr. William Kremen

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9500 Gilman Drive #0738  
La Jolla, CA 92093

Dr. Carol Franz

Email: [cfranz@ucsd.edu](mailto:cfranz@ucsd.edu)  
Phone: 858-822-1793  
Address: University of California, San Diego  
Department of Psychiatry  
9500 Gilman Drive #0738  
La Jolla, CA 92093

Dr. Naomi Friedman

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Boulder, CO 80309

Dr. Chandra Reynolds

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Riverside, CA 92507

Dr. Reyna Gordon

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