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Education

Barry University, Miami Shores, Florida
Masters of Science in Counseling,

Expected August 2025

University of Florida, Gainesville, Florida
Masters of Science in Clinical and Health Psychology (Neuropsychology focus), **August 2011**
Masters thesis: "Reliably Measuring Brain White Matter Hyperintensities in T2 FLAIR MRI"

Florida School of Massage, Gainesville, Florida
Massage and Hydrotherapy,

November 2010

University of Florida, Gainesville, Florida
Honors Program, Bachelor of Sciences in Psychology,

Spring 2008

Licensure

Licensed Massage Therapist, Florida Department of Health #MA80375, exp. August 31, 2023.

Principal Clinical Interests

When in Florida I offer bodywork in the professional clinic of the Florida School of Massage (<http://www.floridaschoolofmassage.com>), where I am also an instructor. I am interested in helping clients find health and balance by increasing awareness of the body's processes. During sessions I employ a spectrum of manual therapy tools including connective tissue therapy (fascia manipulation), neuromuscular therapy (trigger point manipulation), sports massage, and assisted stretching.

I enjoy working with athletes, sedentary clients, and everyone in between. My practice is inclusive of people of all ages, sizes, abilities, backgrounds, sexual orientations, and gender identities.

Principal Research Interests

I am experienced in using human brain imaging to investigate the neural correlates of typical development, aging, neurodegenerative disease, psychiatric illness, and individual differences in language and cognition. I have designed and executed most components of human brain MRI studies for NIH- and USA VA-sponsored research, and have enjoyed working with a range of adult and child patients in clinical and research settings.

Teaching

Instructor, Anatomy and Physiology, Florida School of Massage,	December 2015 - present January 2011 - June 2012
Instructor, Hands-on Modalities, Florida School of Massage,	January 2016 - present
Instructor, Communication Skills, Florida School of Massage,	January 2017 - present
Instructor, Therapeutic Relationships, Florida School of Massage,	January 2017 - present
Instructor, Student Clinic, Florida School of Massage,	January 2017 - present
Teaching Assistant, Dental Neuroscience, University of Florida,	2010 - 2011
Lecturer, Introduction to Neuropsychology, University of Florida,	Spring 2008

Advanced Training

Internal Family Systems, Level 1, Organized by IFS Institute.	January - June 2021
MRI Image Acquisition and Analyses Course, Albuquerque, New Mexico, Organized by The Mind Research Network for Neurodiagnostic Discovery.	August 2015
Exploring the Human Connectome, Honolulu, Hawaii, Organized by The Human Connectome Project, Washington University in Saint Louis, University of Minnesota, and Oxford University.	June 2015
FSL & FreeSurfer Course, Siena, Italy, Organized by FMRIB Center, Oxford University; the Martinos Center, MGH; and the Quantitative Neuroimaging Laboratory, Siena.	June 2006

Professional Experience in Clinical Psychology, Neuroimaging, and Computing

**EMORY UNIVERSITY DEPARTMENT OF NEUROLOGY
& ATLANTA VA MEDICAL CENTER, Atlanta, Georgia 2012-2015**
**UNIVERSITY OF FLORIDA DEPT. OF CLINICAL AND HEALTH PSYCHOLOGY
& MALCOM RANDAL VA MEDICAL CENTER, Gainesville, Florida 2010-2012**

Health Science Specialist in the lab of Bruce Crosson

- Trained and supervised new investigators, graduate students, and undergraduate students in human brain imaging methods.
- Performed data collection, analysis, and consultation for NIH- and VA-sponsored human neuroimaging research.
- Created software and procedures for automated processing and analysis of human brain MRI (structural, functional, and diffusion) for NIH- and VA-sponsored neuroimaging research projects.
- Designed, deployed, and maintained distributed computing infrastructure for human neuroimaging (client/server architecture redundant across institutional data centers).
- Designed and tested novel cloud-based neuroimaging compute infrastructure (AWS EC2).

**UNIVERSITY OF FLORIDA DEPT. OF CLINICAL AND HEALTH PSYCHOLOGY,
Gainesville, Florida 2008-2010**

Graduate Assistant in the lab of Catherine Price

- Completed clinical psychology practica in Health Psychology and Child Psychology clinics.
- Assessed Parkinson's Disease motor symptoms for NIH-sponsored research (UPDRS).
- Masters thesis: Developed lesion masking method for white matter hyperintensities on T2 FLAIR MRI.
- Trained and supervised new investigators, graduate students, and undergraduate students in human brain imaging methods.
- Performed data collection, analysis, and consultation for NIH-sponsored human neuroimaging research.
- Created software and procedures for automated processing and analysis of human brain MRI (structural and diffusion) for NIH-sponsored research projects and subcontracts.
- Operated Philips 3T Achieva and Siemens 3T Verio MRI for human neuroimaging projects.
- Assisted with design, deployment, and administration of neuroimaging workstations (Linux, Mac OS X, and MS Windows) and network storage.

UNIVERSITY OF FLORIDA DEPT. OF NEUROSCIENCE, Gainesville, Florida 2006-2008

Biological Scientist in the lab of Christiana Leonard

- Created software and procedures for automated processing and analysis of human brain MRI (structural and diffusion) for NIH-sponsored research projects and subcontracts.
- Consulted on NIH neuroimaging grant submissions, including two K23s awarded in 2007.
- Trained and supervised undergraduate volunteers in measurement and analysis of brain structures using neuroanatomical measurement software developed in-lab.
- Operated Philips 3T Achieva research MRI for human neuroimaging projects.
- Designed, implemented, and administered networks of Linux, Mac OS X, and MS Windows neuroimaging workstations.
- Interfaced with the University of Florida Institutional Review Board.

ATLANTIC.NET, INC, Gainesville and Orlando, Florida

2001-2006

Career Progress:

<i>Carrier Relations Manger</i>	<i>2004 - 2006</i>
<i>NOC Project Manager</i>	<i>2003 - 2004</i>
<i>Network Specialist</i>	<i>2002 - 2003</i>
<i>Customer Service Representative</i>	<i>2001 - 2002</i>

- Negotiated and managed Atlantic.Net's contractual and regulatory relationships with local exchange carriers and IP transit providers.
- Monitored, interpreted, and responded to federal and state regulatory actions.
- Created, managed, and executed company-wide processes for delivery of all new customer IP transport services.
- Deployed, monitored, and maintained IP network equipment ranging from carrier-collocated enterprise hardware to end-user CPE.
- Developed and supported solutions for customers with advanced network needs, including optical connectivity and large interstate MPLS VPNs.
- Trained sales, engineering, and support personnel on IP connectivity, transport, and applications.

UNIVERSITY OF FLORIDA DEPT OF NEUROSCIENCE, Gainesville, Florida

1996-2000

Research Assistant in the lab of Christiana Leonard

- Operated General Electric 1.5T MRI for human structural and functional brain imaging studies.
- Developed and maintained custom brain MRI measurement and analysis software written in PV-WAVE.
- Analyzed and interpreted structural and functional brain MRI data using Unix- and MS Windows-based imaging and statistical software including PV-WAVE, AFNI, BrainVisa, SAS, and SPSS.
- Monitored and maintained Unix and MS Windows workstations.
- Trained other undergraduates in measurement and analysis of brain structures.

Proficiencies in Statistical Analysis, Software Development, and Infrastructure

Data Analysis

- Language and environment: R, including RStudio, the tidyverse, and ggplot2
- Reporting: R Markdown, for facilitating reproducibility and documenting choices

Software Development and Infrastructure

- Version control and issue tracking: Git and GitHub
- Scripting: Bash, for ease of on-boarding new trainees
- Documentation: Markdown
- Operating systems: Mac OS, Debian Linux, and CentOS Linux (MS Windows as needed)
- High-performance computing in the cloud: Amazon Web Services EC2
- High-performance computing in physical data centers: Linux on Intel on InfiniBand fabric
- High-performance computing resource monitoring: Zabbix

Proficiencies in Human Neuroimaging

Acquisition of Brain MRI

I am experienced in acquiring brain MR images from adult and child study participants across multiple platforms including Siemens 3T Verio, Philips 3T Achieva, and General Electric 1.5T. This includes console operation, sequence development, quality assurance for human and phantom data, as well as testing and deployment of fMRI apparatus.

Analysis of 3D Anatomical Data

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|---|---------------|
| • Brain extraction, tissue-type segmentation, and spatial registration: | AFNI and FSL |
| • Manual masking of structures: | ITK-SNAP |
| • Automated parcellation and cortical surface reconstruction: | FreeSurfer |
| • Sulcus masking, labeling, and measuring: | BrainVisa |
| • Gray Matter VBM: | FSL and SPM12 |

Analysis of Diffusion-Weighted Imaging (DWI)

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| • DTI Processing, visualization, and GLM contrasts : | FSL |
| • When required for continuity of existing VBM protocols: | SPM12 |

Analysis of T2 FLAIR White Matter Hyperintensities

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| • Lesion masking developed for Masters thesis: | ImageJ / Fiji |
| • Subjective visual rating: | Junque scale |

Analysis of BOLD fMRI Task and Resting State Data

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| • Single-session processing and analysis: | FSL and AFNI |
| • Higher-level GLM contrasts: | FSL and AFNI |
| • Additional EPI quality assurance: | FBIRN BXH/XCEDE |
| • When required for continuity of existing fMRI protocols: | SPM12 |

Analysis of Human Connectome Project (HCP) Data

- Human Connectome Workbench

Peer-Reviewed Journal Articles

1. Zlatar, Z. Z., McGregor, K. M., **Towler**, S. D., Nocera, J. R., Dzierzewski, J. M., & Crosson, B. A. (2015). Self-reported physical activity and objective aerobic fitness: differential associations with gray matter density in healthy aging. *Frontiers in Aging Neuroscience*, 7, 5. <http://doi.org/10.3389/fnagi.2015.00005>
2. Benjamin, M. L., **Towler**, S. D., Garcia, A., Park, H., Sudhyadhom, A., Harnish, S., et al. (2014). A Behavioral Manipulation Engages Right Frontal Cortex During Aphasia Therapy. *Neurorehabilitation and Neural Repair*, 28(6), 545–553. <http://doi.org/10.1177/1545968313517754>
3. Zlatar, Z. Z., **Towler**, S. D., McGregor, K. M., Dzierzewski, J. M., Bauer, A., Phan, S., et al. (2013). Functional language networks in sedentary and physically active older adults. *Journal of the International Neuropsychological Society: JINS*, 19(6), 625–634. <http://doi.org/10.1017/S1355617713000246>
4. Price, C. C., Favilla, C., Tanner, J. J., **Towler**, S., Jacobson, C. E., Hass, C. J., Foote, K. D., et al. (2011). Lateral ventricle volume is poor predictor of post unilateral DBS motor change for Parkinson's disease. *Parkinsonism & Related Disorders*, 17(5), 343–347. <http://doi.org/10.1016/j.parkreldis.2011.01.018>
5. Price, C. C., Wood, M. F., Leonard, C. M., **Towler**, S., Ward, J., Montijo, H., Kellison, I., et al. (2010). Entorhinal cortex volume in older adults: reliability and validity considerations for three published measurement protocols. *Journal of the International Neuropsychological Society: JINS*, 16(5), 846–855. <http://doi.org/10.1017/S135561771000072X>
6. Leonard, C.M., **Towler**, S.D., Welcome, S., & Chiarello, C. (2009). Paracingulate asymmetry in anterior and midcingulate cortex: sex differences and the effect of measurement technique. *Brain Structure and Function*, 213(6), 553-569. <http://doi.org/10.1007/s00429-009-0210-z>
7. Chiarello, C., Welcome, S. E., Halderman, L. K., **Towler**, S., Julagay, J., Otto, R., et al. (2009). A large-scale investigation of lateralization in cortical anatomy and word reading: are there sex differences? *Neuropsychology*, 23(2), 210-222. <http://doi.org/10.1037/a0014265>
8. Miller, J. L., Couch, J., Schwenk, K., Long, M., **Towler**, S., Theriaque, D. W., et al. (2009). Early childhood obesity is associated with compromised cerebellar development. *Developmental Neuropsychology*, 34(3), 272-283. <http://doi.org/10.1080/87565640802530961>
9. Welcome, S. E., Chiarello, C., **Towler**, S., Halderman, L. K., Otto, R., & Leonard, C. M. (2009). Behavioral correlates of corpus callosum size: Anatomical/behavioral relationships vary across sex/handedness groups. *Neuropsychologia*. <http://doi.org/10.1016/j.neuropsychologia.2009.04.008>
10. Leonard, C. M., **Towler**, S., Welcome, S., Halderman, L. K., Otto, R., Eckert, M. A., et al. (2008). Size matters: cerebral volume influences sex differences in neuroanatomy. *Cerebral Cortex*, 18(12), 2920-2931. <http://doi.org/10.1093/cercor/bhn052>
11. Miller, J. L., Couch, J. A., Leonard, C. M., Schwenk, K., **Towler**, S. D., Shuster, J., et al. (2007). Sylvian fissure morphology in Prader-Willi syndrome and early-onset morbid obesity. *Genetics in Medicine: Official Journal of the American College of Medical Genetics*, 9(8), 536-543. <http://doi.org/10.1097/GIM.0b013e31812f720d>

Refereed Abstracts for Presentations and Symposia

1. Crosson, B.A., Levy, I.F., **Towler**, S.D., Benjamin, M.L., McGregor, K.M., Reilly, J. (2014). Older adults fail to show activity increases for inhibition on the Hayling task. Poster presented at the Society for the Neurobiology of Language Conference. Amsterdam, Netherlands. [Online](#).
2. **Towler**, S. D., Benjamin M.L., McGregor, K.M., Harnish S., Garcia A., Zlatar Z., Reilly J., Rosenbek J.C., Gonzalez-Rothi L.J., Park H., Singletary F., Brooks C., Crosson B. (2013). Initiating word-finding trials with left-hand movement during anomia treatment remaps frontal language and executive mechanisms. Poster presented at the American Society of Neurorehabilitation. San Diego, CA. [Online](#).
3. Garcia, A.M., Moffett, K., Benjamin, M., **Towler**, S., McKently, H., McGregor, K.M., Ford, A., Naddaf, S., Rothi, L.J.G., Finney, G.R., Heilman, K. M., Crosson, B. (2012) Cortical density associations with language performance in Alzheimer's disease. (2012). Program No. 196.07/YY17. 2012 Neuroscience Meeting Planner. New Orleans, LA: Society for Neuroscience, 2012. [Online](#).
4. Moffett, K., Garcia, A., Benjamin, M. L., **Towler**, S., McKently, H., McGregor, K. M., et al. (2012). Functional activity associations with language performance in Alzheimer's disease. Program No. 196.06/YY16. 2012 Neuroscience Meeting Planner. New Orleans, LA: Society for Neuroscience, 2012. [Online](#).
5. Crosson, B.A., **Towler**, S. Benjamin, M., Trinastic, J., Garcia, A., Rodriguez, A., Harnish, S., Zlatar, Z., Reilly, J., Park, H., Bennett, J., Rosenbek, J. (2011). A treatment designed to shift language-production activity to the right frontal lobe: fMRI findings. Program No. 828.13/XX5. 2011 Neuroscience Meeting Planner. Washington, DC: Society for Neuroscience, 2011. [Online](#).
6. Price, C.C., **Towler**, S., Mitchell, S., Tanner, J., Lamar, M., Giovannetti, T., Heilman, K.M, Schmalfuss, I., Pennisi, A. and Libon, D.J. (2011). Symposium: Re-Examination of the 25% Threshold for Symptomatic Leukoaraiosis. Journal of the International Neuropsychological Society: JINS, 17(S1), 280. <https://doi.org/10.1017/S1355617711000415>.
7. Tanner, J. J., Price, C. C., **Towler**, S., Mitchell, S. M., Collazo, J., Moran, S., Eppig, J., Schmalfus, I., Heilman, K.M., Pennisi, A., and Libon, D. J. (2011). Symposium: Dissociating Gray and White Matter Contributions to Verbal List Learning and Memory. Journal of the International Neuropsychological Society: JINS, 17(S1), 280. <https://doi.org/10.1017/S1355617711000415>.
8. Lamar, M., Price, C.C., **Towler**, S., Mitchell, S., Collazo, J., Tanner, J., Eppig, A., Pennisi, A., and Libon, D.J. (2011). Symposium: The impact of white matter and subcortical structure alterations on mood in euthymic older adults with dementia. Journal of the International Neuropsychological Society: JINS, 17(S1), 280. <https://doi.org/10.1017/S1355617711000415>.
9. Seidel, G.A., Giovannetti, T., Price, C.C., **Towler**, S.D., Tanner, J.J., Mitchell, S., Eppig, J., Pennisi, A., Libon, D.J. (2011). Symposium: Neuroimaging Predictors of IADLs and Everyday Action Errors in Dementia. Journal of the International Neuropsychological Society: JINS, 17(S1), 281. <https://doi.org/10.1017/S1355617711000415>.

10. Levy, I.F., Benjamin, M., **Towler**, S.D., Trinastic, J., Selbst, J., Seeds, L., and Crosson, B.A. (2011). Poster: Semantic Inhibition in Older and Younger Adults. Journal of the International Neuropsychological Society: JINS, 17(S1), 260. <https://doi.org/10.1017/S1355617711000415>.
11. Collazo, J., Tanner, J. J., **Towler**, S.D., Orozco, S., Schwab, N., Okun, M. S., & Price, C. C. (2011). Caudate Volume and Cognitive Correlates in Parkinson's disease: Artifact of Alignment Technique? Journal of the International Neuropsychological Society: JINS, 17(S1), 54. <https://doi.org/10.1017/S1355617711000415>.
12. Leonard, C.M., **Towler**, S.D., Welcome, S.E., Chiarello, C. (2010). Individual Differences in the Anatomy of Broca's Area. Poster session presented at Cognitive Neuroscience Society, 17th Annual Meeting, Montréal, Canada. [Online](#).
13. Leonard, C. M., **Towler**, S. D., Welcome, S. E., Chiarello, C., & Kuldau, J. M. (2009). Paracingulate asymmetry in schizophrenia. In Abstracts of the 12th International Congress on Schizophrenia Research (ICOSR). March 28-April 1, 2009. San Diego, California, USA. (p. 206). Oxford University Press. <http://doi.org/10.1093/schbul/sbp021>.
14. Leonard, C. M., **Towler**, S. D., Welcome, S. E., & Chiarello, C. (2009). Sex, hand preference, and brain asymmetry. Poster session presented at the Cognitive Neuroscience Society, 16th Annual Meeting, San Francisco, CA. [Online](#).
15. **Towler**, S. D., Price, C. C., Mitchell, S. M., & Libon, D. J. (2009). Poster: White matter hyperintensity quantification in T2 FLAIR MRI: A reliability study. Journal of the International Neuropsychological Society: JINS, 15(S1), 148. <http://doi.org/10.1017/S1355617709090420>.
16. Tanner, J. J., **Towler**, S. D., Mitchell, S. M., Mahfood, D. M., Price, C. C., & Libon, D. J. (2009). Poster: The impact of gray and white matter on word frequency of list-learning intrusion errors in dementia. Journal of the International Neuropsychological Society: JINS, 15(S1), 216. <http://doi.org/10.1017/S1355617709090420>.
17. Tanner, J. J., Mitchell, S. M., **Towler**, S. D., Mahfood, D. M., Price, C. C., & Libon, D. J. (2009). Poster: Verbal list-learning and memory in dementia patients: Understanding the influence of gray and white matter. Journal of the International Neuropsychological Society: JINS, 15(S1), 41. <http://doi.org/10.1017/S1355617709090420>.
18. Kelley, L. P., Price, C. C., **Towler**, S. D., Mitchell, S. M., Dow, C., Perumal, A. M., et al. (2009). Poster: Comparison of quantification methods for lacune volume. Journal of the International Neuropsychological Society: JINS, 15(S1), 209. <http://doi.org/10.1017/S1355617709090420>.
19. Mitchell, S. M., Price, C. C., Tanner, J. J., **Towler**, S. D., Mahfood, D. M., Libon, D. J., et al. (2009). Poster: The relationship between regional leukoaraiosis, brain structure, and cognition in dementia. Journal of the International Neuropsychological Society: JINS, 15(S1), 213. <http://doi.org/10.1017/S1355617709090420>.
20. Leonard, C. M., **Towler**, S. D., Welcome, S. E., Halderman, L. K., Otto, R., & Chiarello, C. (2008). Lateral asymmetry in shape of Heschl's gyrus. Program No. 850.14/CC2. 2008 Neuroscience Meeting Planner. Washington, DC: Society for Neuroscience, 2008. [Online](#).

21. Chiarello, C., Welcome, S. E., Halderman, L. K., **Towler**, S. D., Otto, R., & Leonard, C. M. (2008). Individual differences in language organization: A clustering solution. In Abstracts of the Psychonomic Society (Vol. 13, p. 44). Austin, TX: Psychonomic Society. [Online](#).
22. Chiarello, C., Welcome, S. E., **Towler**, S. D., Otto, R., & Leonard, C. M. (2008). Associations of brain size and verbal performance depend on handedness. Poster session presented at Cognitive Neuroscience Society, 15th Annual Meeting, San Francisco, CA. [Online](#).
23. Chiarello, C., Welcome, S. E., Halderman, L. K., **Towler**, S. D., & Leonard, C. M. (2007). Behavioral and anatomical correlates of corpus callosum size. In Abstracts of the Psychonomic Society (Vol. 12, p. 106). Austin, TX: Psychonomic Society. [Online](#).
24. Welcome, S. E., Leonard, C. M., Halderman, L. K., **Towler**, S. D., & Chiarello, C. (2007). Word reading skill and brain anatomy in adult resilient readers. Presented at Society for the Scientific Study of Reading, 14th Annual Meeting, Prague, Czech Republic. [Online](#).
25. Tanner, J. J., Mitchell, S. M., **Towler**, S. D., Mahfood, D. M., Price, C. C., & Libon, D. J. (2007). Dissociations between regional leukoaraiosis on learning and memory. Poster session presented at the International Society for Vascular, Cognitive and Behavioural Disorders (Vas-Cog), 3rd Congress, San Antonio, TX.
26. Leonard, C. M., **Towler**, S. D., Joseph, D., Welcome, S. E., Halderman, L. K., Otto, R., et al. (2007). Discriminating left from right with a Likert rating scale: Sylvian fissure asymmetry in healthy adults. Poster session presented at Organization for Human Brain Mapping, 13th Annual Meeting, Chicago, IL.
27. Leonard, C. M., **Towler**, S. D., Halderman, L. K., Welcome, S. E., Otto, R., & Chiarello, C. (2007). Sex differences in brain structure and asymmetry in healthy college students. Poster session presented at Cognitive Neuroscience Society, 14th Annual Meeting, New York, NY. [Online](#).
28. Miller, J. L., **Towler**, S. D., Couch, J. A., Liu, Y., He, G., Driscoll, D. J., et al. (2007). Diffusion tensor imaging in early-onset morbid obesity. Poster session presented at 2007 Pediatric Academic Societies' Annual Meeting, Toronto.
29. **Towler**, S. D., Couch, J. A., Leonard, C. M., & Kulda, J. M. (2006). Sylvian fissure morphology, cognitive ability, and schizophrenia. Program No. 159.2. 2006 Neuroscience Meeting Planner. Atlanta, GA: Society for Neuroscience, 2006. Online.
30. Leonard, C. M., **Towler**, S. D., Welcome, S. E., Halderman, L. K., Otto, R., & Chiarello, C. (2006). Sylvian fissure asymmetry in normal young adults. Program No. 159.4. 2006 Neuroscience Meeting Planner. Atlanta, GA: Society for Neuroscience, 2006. Online.
31. Couch, J. A., Miller, J. L., **Towler**, S. D., He, G., Driscoll, D. J., Liu, Y., et al. (2006). Sylvian fissure morphology in Prader-Willi syndrome and early-onset morbid obesity. Program No. 159.3. 2006 Neuroscience Meeting Planner. Atlanta, GA: Society for Neuroscience, 2006. Online.
32. Price, C. C., **Towler**, S. D., Joseph, D., Schmalfluss, I., & Mareci, T. M. (2006). White matter in Parkinson's disease: Preliminary data. National High Magnetic Field Laboratory Research Report.