

# Stephen A. Coombes

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## EDUCATION

2006 – PhD in Motor Control. University of Florida  
2002 – MS in Motor Control. University of Florida  
1998 – BS (1st class) in Psychology. Liverpool John Moores University. England.

## ACADEMIC APPOINTMENT

2011 – present Assistant Professor, Department of Applied Physiology and Kinesiology. University of Florida

## PROFESSIONAL EXPERIENCE

2009-2011 NIMH - NRSA Postdoctoral Fellow. Functional Brain Imaging. University of Illinois at Chicago. Mentors: David Vaillancourt, Ph.D., Daniel Corcos, Ph.D.  
2008-2009 NIH Postdoctoral Research Fellow. Departments of Psychiatry and Kinesiology. Mentors: Mark Rasenick Ph.D., David Vaillancourt, Ph.D.  
2006-2008 Postdoctoral Research Associate. Motor Behavior Laboratory. University of Florida. Mentor: James H. Cauraugh, Ph.D.  
2005-2007 AHA Predoctoral Fellow. Motor Behavior Laboratory. University of Florida. Mentor: James H. Cauraugh, Ph.D.  
2000-2006 Graduate Research Assistant. University of Florida. Supervisor: Christopher M. Janelle, Ph.D.

## RESEARCH INTERESTS

My research focuses on the neural mechanisms that allow sensory input to influence motor output in humans. My specific research aims are to determine:

- Functional and structural brain changes in musculoskeletal pain
- Rehabilitation interventions for neurological disorders

This research combines quantitative time series analysis techniques with systems level data collection methods including behavioral measures of force control, electromyography, transcranial magnetic stimulation (TMS), magnetic resonance imaging (MRI), functional MRI (fMRI), diffusion tensor imaging (DTI), and high density electroencephalography (EEG).

## JOURNAL PUBLICATIONS (51)

1. Archer, DB, Kang, N., Misra, G., Marble, S., Patten, C, and & **Coombes, S.A.** (In Press). Visual feedback alters force control and functional activity in the visuomotor network after stroke. *Neuroimage: Clinical*.
2. Archer, D.B., **Coombes, S.A.**, Chu, W.T., Chung, J.W., Burciu, R.G., Okun, M.S., Shukla, A., Vaillancourt, D.E. (2017) A widespread visually-sensitive functional network relates to symptoms in essential tremor. *Brain*, [Epub ahead of print].

3. Burciu RG, Hess CW, **Coombes SA**, Ofori E, Shukla P, Chung JW, McFarland NR, Shukla AW, Okun MS, Vaillancourt DE. (In Press). Functional Activity of the Sensorimotor Cortex and Cerebellum Relates to Cervical Dystonia Symptoms. *Human Brain Mapping*.
4. Archer, DB. Patten, C, and **Coombes, S.A.** (In Press). Free-water and free-water corrected fractional anisotropy in primary and premotor corticospinal tracts in chronic stroke. *Human Brain Mapping*.
5. Archer, DB. Vaillancourt, DE, & **Coombes, S.A.** (In Press) A Template and Probabilistic Atlas of the Human Sensorimotor Tracts using Diffusion MRI. *Cerebral Cortex*.
6. Misra, G., Ofori, E. Chung, J., & **Coombes, S.A.** (2017). Pain-related suppression of beta oscillations facilitates voluntary movement. *Cereb Cortex* 2017;27:2592-2606.
7. Misra, G., Wang, W-E. Archer, D.B., Roy, A., & **Coombes, S.A.** (2017). Automated classification of pain perception using high density electroencephalography data. *Journal of Neurophysiology*. 1;117(2):786-795.
8. Archer, D.B., Misra, G., Patten, C.P., & **Coombes, S.A.** (2016). Microstructural properties of premotor pathways predict visuomotor performance in chronic stroke. *Human Brain Mapping*. 37(6):2039-54.
9. **Coombes, S.A.** & Misra, G. (2016). Pain and motor processing in the human cerebellum. *PAIN*. 157(1):117-27.
10. Ofori, E., **Coombes, S.A.**, & Vaillancourt, D.E. (2015). 3D Cortical Electrophysiology of Upper Limb Movement in Humans. *NeuroImage*. 115:30-41.
11. Misra, G. & **Coombes, S.A.** (2015). Neuroimaging evidence of motor control and pain processing in the human midcingulate cortex. *Cerebral Cortex*. 25(7):1906-19.
12. Misra G., Paris, T.A., Archer, D.B., **Coombes, S.A.** (2014) Dose-Response Effect of Isometric Force Production on the Perception of Pain. *PLoS ONE* 9(2): e88105.doi:10.1371/journal.pone.0088105.
13. Morishita T, Foote K.D, Archer D.B, **Coombes S.A**, Vaillancourt D.E, Hassan A, Haq IU, Wolf J, Okun MS. (2014). Smile without euphoria induced by deep brain stimulation: a case report. *Neurocase*. 2014 Oct 31:1-5.
14. Paris, T.A., Misra, G. Archer, D.B. & **Coombes, S.A.** (2013). Effects of a force production task and a working memory task on pain perception. *Journal of Pain*, 14(11):1492-1501.
15. Lodha, N., Misra, G., Christou, E.A., **Coombes, S.A.**, & Cauraugh, J.H. (2013). Increased Force Variability in Chronic Stroke: Contributions of Force Modulation below 1 Hz. *PLoS One*, 8(12): e83468. doi:10.1371/journal.pone.0083468.
16. Poon, C., **Coombes, S.A.**, Corcos, D.M, Christou, E.A., & Vaillancourt, D.E. (2013). Transient shifts in frontal and parietal circuits scale with enhanced visual feedback and changes in force variability and error. *Journal of Neurophysiology*, 109(8):2205-15.
17. Lodha, N., Patten, C., **Coombes, S.A.**, & Cauraugh, J.H. (2012). Bimanual force control strategies in chronic stroke: Finger extension versus power grip. *Neuropsychologia*. 50(11):2536-45.
18. Poon, C., Chin-Cottongim, L., **Coombes, S.A.**, Corcos, D.M, & Vaillancourt, D.E. (2012). Spatiotemporal dynamics of brain activity during the transition from visually guided to memory guided force control. *Journal of Neurophysiology*. 108(5):1335-48.
19. Neely, K.A., **Coombes, S.A.**, Planetta, P.J., & Vaillancourt, D.E. (2013). Segregated and overlapping neural circuits exist for the production of static and dynamic precision grip force. *Human Brain Mapping*, 34(3):698-712.
20. Chalabaev, A., Brisswalter, J. & Radel, R, **Coombes, S.A.**, Easthope, C.S., Maazoun, M., & Clément-Guillotin, C. (2013). Can stereotype threat affect motor performance in the absence of explicit monitoring processes? Evidence using a strength task. *Journal of Sport & Exercise Psychology*, 35(2):211-5.
21. Lodha, N., **Coombes, S.A.**, & Cauraugh, J.H. (2012) Bimanual isometric force control: Asymmetry and coordination evidence post stroke. *Clinical Neurophysiology*. 123(4):787-95.
22. **Coombes, S.A.**, Corcos, D.M, Pavuluri, M.N., & Vaillancourt, D.E. (2012). Maintaining force control despite changes in emotional context engages dorsomedial prefrontal and premotor cortex. *Cerebral Cortex*, 22(3), 616-627. PMID: PMC3278319.
23. Naugle, K.M. **Coombes, S.A.**, Cauraugh, J. M., Janelle, C.M. (2012). Influence of emotion on the control of low-level force control. *Research Quarterly for Exercise and Sport*.83(2), 353-8.
24. **Coombes, S.A.**, Corcos, D.M, & Vaillancourt, D.E. (2011). Spatiotemporal tuning of brain activity and force performance. *NeuroImage*, 54(3), 2226-36. PMID: PMC3008211.
25. Payen, V., Elliot, A.J., **Coombes, S.A.**, Chalabaev, A., Brisswalter, J. & Cury, F. (2011). Perception of the color red alters performance on a simple motor task. *Neuroscience Letters*, 495(1), 44-8.
26. Naik, S.K., Patten, C. Lodha, N., **Coombes, S.A.**, & Cauraugh, J.H. (2011). Force control deficits in chronic stroke: grip formation and release phases. *Experimental Brain Research*. 211(1), 1-15.
27. Cauraugh, J. M., Naik, S. K., Lodha, N., **Coombes, S.A.**, & Summers, J.J. (2011). Long-term Rehabilitation for Chronic Stroke Arm Movements: A Randomized Controlled Trial. *Clinical Rehabilitation*.25(12), 1086-96.

28. Gamble, K.M., Joyner, J., **Coombes, S.A.**, Hass, H.J., Janelle, C.M. (2011). Emotional state affects the initiation of forward gait. *Emotion*, 11(2), 267-77.
29. Eccles, D.W., Ward, P., Woodman, T., Janelle, C.M., Le Scanff, C., Ehrlinger, J., Castiner, C., **Coombes, S.A.** (2011). Where's the Emotion? How Sport Psychology Can Inform Research on Emotion in Human Factors. *Human Factors*, 53(2),180-202.
30. Mann, D.T.Y., **Coombes, S.A.**, Mousseau, M.B., Janelle, C.M. (2011). Quiet Eye and the bereitschaftspotential: Visuomotor antecedents to expert motor performance. *Cognitive Processing*. 12(3):223-34.
31. **Coombes, S.A.**, Naugle, K.M., Barnes, R.T., Janelle, C.M. (2011). Emotional reactivity and force control: The influence of behavioral inhibition. *Human Movement Sciences*, 30(6), 1052-61.
32. Naugle, K.M., **Coombes, S.A.**, Janelle, C.M. (2010). Subclinical depression modulates the impact of emotion on force control. *Motivation and Emotion*, 4, 432-445.
33. Cauraugh, J.H., Naik, S.K., Hsu, W.H., **Coombes, S.A.**, Holt, K.G., (2010). Children with cerebral palsy: a systematic review and meta-analysis on gait and electrical stimulation. *Clinical Rehabilitation*, 24, 963-978.
34. **Coombes, S.A.**, Corcos, D.M, Sprute, L., & Vaillancourt, D.E. (2010). Selective regions of the visuomotor system are related to gain induced changes in force error. *Journal of Neurophysiology*, 103: 2114–2123.
35. Lodha, N., Naik, S.K., **Coombes, S.A.**, & Cauraugh, J.H. (2010). Force control and degree of motor impairments in chronic stroke. *Clinical Neurophysiology*, 121(11), 1952-61.
36. Barnes, R.T., **Coombes, S.A.**, Armstrong, N.B., Higgins, T.J., Janelle, C.M. (2010). Evaluating the attentional consequences of affective changes following an acute exercise bout using a modified dot probe protocol. *Journal of Sport Science*, 28(10), 1065-1076.
37. Wasson, P., Prodoehl, J., **Coombes, S.A.**, Corcos, D.M, & Vaillancourt, D.E. (2010). Predicting Grip Force Amplitude Involves Circuits in the Anterior Basal Ganglia. *NeuroImage*, 49(4), 3230-8.
38. **Coombes, S.A.**, Tandonnet, C., Fujiyama, H., Janelle, C.M., Cauraugh, J.H., & Summers, J.J. (2009). Emotion and motor preparation: A transcranial magnetic stimulation study of corticospinal motor tract excitability. *Cognitive, Affective, and Behavioral Neuroscience*, 9(4), 380-388.
39. **Coombes, S.A.**, Higgins, T., Gamble, K.M., Cauraugh, J.H., & Janelle, C.M. (2009). Attentional Control Theory: Anxiety, Emotion, and Motor Planning. *Journal of Anxiety Disorders*, 23(8), 1072-1079.
40. **Coombes, S.A.**, Janelle, C.M., & Cauraugh, J. M. (2009). Chronic stroke and aging: The impact of acoustic stimulus intensity on fractionated reaction time. *Neuroscience Letters*, 452(2), 151-155.
41. Cauraugh, J. M., **Coombes, S.A.**, Lodha, N., & Summers, J.J. (2009). Upper extremity improvements in chronic stroke: Coupled bilateral load training. *Restorative Neurology and Neuroscience*, 27, 17-25.
42. Janelle, C.M., Hausenblas, H. A., Ellis, R. E., **Coombes, S.A.**, & Duley, A. R. (2009). The time course of attentional allocation while women high and low in body dissatisfaction view self and model physiques. *Psychology & Health*, 24(3), 351-366.
43. **Coombes, S.A.**, Gamble, K.M., Cauraugh, J.H., & Janelle, C.M. (2008). Emotional states alter force control during a feedback occluded motor task. *Emotion*, 8(1), 104-113.
44. **Coombes, S.A.**, Cauraugh, J. M., & Janelle, C.M. (2007). Dissociating motivational direction and affective valence: Discrete emotions alter central motor processes. *Psychological Science*, 18(11), 938-942.
45. **Coombes, S.A.**, Cauraugh, J. M., & Janelle, C.M. (2007). Emotion and initiating cue alter central and peripheral motor processes. *Emotion*, 7(2), 275-284.
46. Duley, A. R., Hillman, C.H., **Coombes, S.A.**, & Janelle, C.M. (2007). Sensorimotor gating and anxiety: Prepulse inhibition following acute exercise. *International Journal of Psychophysiology*, 64(2), 157-64.
47. **Coombes, S.A.**, Cauraugh, J.H., & Janelle, C.M. (2006). Emotion and movement: Activation of defensive circuitry alters the magnitude of a sustained muscle contraction. *Neuroscience Letters*, 396, 192-196.
48. **Coombes, S.A.**, Janelle, C.M., & Duley, A. R. (2005). Emotion and motor control: movement attributes following affective picture processing. *Journal of Motor Behavior*, 37(6), 425-436.
49. **Coombes, S.A.**, Janelle, C.M., Duley, A. R., & Conway, T. (2005). Adults with dyslexia: Theta power changes during performance of a novel motor task. *International Journal of Psychophysiology*, 56, 1-14.
50. Duley, A. R., Janelle, C.M., **Coombes, S.A.** (2004). An open-source LabVIEW application toolkit for phasic heart rate analysis in psychophysiological research. *Behavior Research Methods, Instruments, & Computers*, 36, 778-783.
51. Janelle, C.M., Champenoy, J., **Coombes, S.A.**, & Mousseau, M. B. (2003). Mechanisms of attentional cueing during observational learning to facilitate motor skill acquisition. *Journal of Sport Sciences*, 21, 825-838.

## **BOOK CHAPTERS**

1. Janelle, C.M., **Coombes, S.A.**, Singer, R. N., & Duley, A. R. (2006). Disposition and Environment: Understanding Expert Sport Performance. In Strauß, B., Tietjens, M. & Hagemann, N. (Eds.). *Psychologie der sportlichen Höchstleistung* (Psychology of Sporting Excellence). Göttingen: Hogrefe.
2. Janelle, C.M., Duley, A. R., & **Coombes, S.A.**, (2004). Psychophysiological related indices of attention during motor skill acquisition. In A.M. Williams, N.J. Hodges, M.A. Scott and M.L.J. Court (Eds.), *Skill Acquisition in Sport: Research, Theory and Practice*. Routledge.
3. Janelle, CM., **Coombes, S.A.**, & Gamble, K.M. (2010). The motion of emotion: Affective influences on movement planning and execution. In T. Marek, W. Karwowski, & V. Rice (Eds.), *Advances in Understanding Human Performance: Neuroergonomics, Human Factors Design, and Special Populations*. New York: Taylor and Francis.

## **MANUSCRIPTS IN REVIEW**

1. Wang WE, Roy, A, & **Coombes, SA**. Motor-evoked pain increases force variability in chronic jaw pain.

## **MANUSCRIPTS IN PROGRESS**

2. Misra G. & **Coombes S.A.** Ongoing pain facilitates motor adaptation during visuomotor processing.
3. Roy, A. Wang WE, & **Coombes, SA**. Task-specific changes during pain and motor processing in prefrontal cortex function in chronic jaw pain.

## **RESEARCH FUNDING**

### ***Ongoing***

- PI. Structure and function of premotor cortex in chronic stroke. AHA-Grant in Aid (15GRNT25700431). 2015-2017 \$165,000.
- Co-Inv. Role of the cortex and cerebellum in visually-guided motor behavior. NINDS (RO1NS058487). PI: David E. Vaillancourt. 2008-2020. \$1,542,934
- Co-Inv. Non-invasive markers of neurodegeneration in movement disorders. NINDS (RO1NS075012). PI: David E. Vaillancourt. 2012-2017. \$2,454,444
- Co-Inv. Neuroimaging Biomarkers in Parkinsonism: Differentiating Subtypes and Tracking Disease Progression. NINDS U01 NS102038-01. PI: David E. Vaillancourt. 2017-2020. \$3,904,379

### ***Past Funding***

- PI. Neuroimaging of Pain in Cancer Survivors. UF PRICE-UFSCC Cancer Pain Seed grant. 2015-2016. \$14,500
- PI. Cortical and subcortical brain function in chronic stroke. James and Esther King Biomedical Research Program, Florida Department of Health (3KN01). 2012-2015. \$384,205
- PI. fMRI Studies of Emotion and Movement. Ruth L. Kirschstein National Research Service Award. NIMH (F32MH083424). 2009-2011. \$103,177.
- Trainee. Training Grant in the Neuroscience of Mental Health. Postdoctoral Fellowship (T32MH067631). PI: Mark Rasenick. 2008-2009. \$43,426.
- PI. Motivational priming and acoustic initiated movement: facilitating motor function post stroke. American Heart Association Pre-doctoral fellowship: Florida/Puerto Rico Affiliate (0515120B). 2005-2007. \$42,000.
- PI. The defense cascade and overt movement: Optimizing preplanned motor action. North American Society for the Psychology of Sport and Physical Activity. Graduate Student Research Grant. 2005. \$994.
- Co-PI. Exercise, anxiety, and short-lead startle modification: Using prepulse inhibition to index changes in attentional bias following acute exercise. North American Society for the Psychology of Sport and Physical Activity. Graduate Student Research Grant. 2004. \$994.

### ***Funding under Review***

- 2017. PI. Non-invasive Imaging of Motor-Evoked Pain in Temporomandibular Disorders. NIH-RO1 \$1,899,542
- 2017. PI. Brain based biomarkers for chronic musculoskeletal pain. NIH-RO1 \$1,899,206

### ***Grants in Progress***

- PI. Multimodal Imaging in Cervical Dystonia: Effects of Chronic Anticholinergic Therapy.

## **GRANT REVIEWER**

- Reviewer for FWO: Research Foundation – Flanders. Belgium. August 2012
- US Army Research Office. LS/Neurosciences (AMSRL-RO-PL). August 2012
- Reviewer for FWO: Research Foundation – Flanders. Belgium. May 2013
- Reviewer for FWO: Research Foundation – Flanders. Belgium. April 2014
- Reviewer for FWO: Research Foundation – Flanders. Belgium. March 2015
- Reviewer for FWO: Research Foundation – Flanders. Belgium. May 2016
- Reviewer for FWO: Research Foundation – Flanders. Belgium. May 2017

## **CONFERENCE PRESENTATIONS (64)**

1. **Coombes, S.A.**, Roy, A. Wang, W-E. (2017). Motor-evoked pain increases force variability in chronic jaw pain. Society for Neuroscience. Washington D.C.
2. Archer, D.B., **Coombes, S.A.**, Chu, W.T., Chung, J.W., Burciu, R.G., Okun, M.S., Shukla, A., Vaillancourt, D.E. (2017) A widespread visually-sensitive functional network relates to symptoms in essential tremor. Society for Neuroscience. Washington D.C.
3. **Coombes, S.A.**, (2017). The motor system in acute and chronic pain. Neural Control of Movement. Dublin, Ireland.
4. **Coombes, S.A.**, Misra, G., Wang, W-E. (2016). High density electroencephalography and automated classification of pain perception Society for Neuroscience. San Diego, CA
5. Archer, D.B., & **Coombes, S.A.** (2016). Free-water and free-water corrected fractional anisotropy within the primary and secondary corticospinal tracts predict grip strength in chronic stroke. Society for Neuroscience. San Diego, CA
6. Misra, G., Ofori, E. Chung, J., & **Coombes, S.A.** (2015). Pain-related suppression of beta oscillations facilitate movement initiation. Society for Neuroscience. Chicago, IL
7. Archer, D.B., Misra, G., Vaillancourt, D.E., Patten, C.P., Marble, S. & **Coombes, S.A.** (2015). Visual gain induced changes in visuomotor system activity in chronic stroke. Society for Neuroscience. Chicago, IL
8. Misra, G. & **Coombes, S.A.** (2015). Differences between neural correlates of high intensity and low intensity pain. American Pain Society, Palm Springs, CA.
9. Misra, G., Ofori, E. Chung, J., & **Coombes, S.A.** (2014). High Density Electroencephalography (EEG) correlates of pain-related changes in upper limb movements. Society for Neuroscience. Washington D.C.
10. Archer, D.B., Misra, G., Vaillancourt, D.E., Patten, C.P., & **Coombes, S.A.** (2014). Error Augmentation in Chronic Stroke: Behavioral & Neuroanatomical Correlates. Society for Neuroscience. Washington D.C.
11. Mosconi MW, Vaillancourt DE, **Coombes SA**, Sweeney JA. (2014). Cortical-cerebellar abnormalities underlying visuomotor control deficits in autism spectrum disorder. Society of Neuroscience (SfN). Washington, DC.
12. Misra, G. & **Coombes, S.A.** (2014). Dose-response effect of isometric force production on the perception of pain. American Pain Society, Tampa, FL.
13. Morishita, T., Okun, M.S., Archer, D.B., **Coombes, S.A.**, Hassan, A, Haq, I.U., Foote, K.D., Vaillancourt, D.E. (2014). Smile Without Mirth Induced by Deep Brain Stimulation: A Diffusion Tractography Study. American Association of Neurological Surgeons, San Francisco, CA
14. Mosconi, M.W., Mohanty, S. Vaillancourt, D.E., **Coombes, S.A.**, Greene, R., Schmitt, L.M., Sweeney, J.A. (2014). Sensory Contributions to Motor Control Abnormalities in Autism Spectrum Disorder (ASD). International Meeting for Autism Research (IMFAR). Atlanta, GA.
15. Mohanty S., Vaillancourt, D.E., **Coombes, S.A.**, Schmitt, L.M., Sweeney, J.A., Mosconi, M.W. (2013). Atypical premotor, parietal, and cerebellar functioning underlies sensorimotor impairment in autism. Society for Neuroscience. San Diego, CA.

16. Paris, T., Misra, G. Archer, D.B. & **Coombes, S.A.** (2013). Effects of force production and verbal working memory on pain perception. Society for Neuroscience. San Diego, CA.
17. Archer, D.B., Misra, G., Patten, C.P., & **Coombes, S.A.** (2013). Probabilistic tractography of transcallosal motor tracts in the chronic phase after stroke. Society for Neuroscience. San Diego, CA.
18. Misra, G., & **Coombes, S.A.**, (2013) Common representation of motor and pain processing in human cerebellum. Society for Neuroscience. San Diego, CA.
19. Lodha, N., Misra, G., Christou, E.A., **Coombes, S.A.**, & Cauraugh, J.H. (2013). Low frequency oscillations in force control: Chronic stroke versus age-matched controls. Society for Neuroscience. San Diego, CA.
20. Misra, G., & **Coombes, S.A.**, (2012). Functional anatomy of motor and pain processes in cortical and subcortical networks. Society for Neuroscience. New Orleans, LA.
21. Vaillancourt, D.E., Poon, C., **Coombes, S.A.**, Corcos, D.M., Christou, E.A. (2012). Acute adaptation to enhanced visual feedback causes transient shifts in brain activity in parietal-frontal circuits that relate to motor performance. Society for Neuroscience, New Orleans, LA.
22. Tennant, J.E., Beatty, G.F., **Coombes, S.A.**, and Janelle, C.J. (2012). Attentional bias and ballistic movements. Association for Psychological Science, Chicago, IL.
23. Neely, K., **Coombes, S.A.**, Planetta, P., & Vaillancourt, D.E. (2011). Lateralized brain circuits mediate static and dynamic precision grip force production. Neural Control of Movement. Puerto Rico.
24. Mosconi, M.W., **Coombes, S.A.**, D’Cruz, A-M., Schmitt, L., Shrestha, S., Vaillancourt, D.E., & Sweeney, J.A. (2011). Atypical premotor, parietal, and cerebellar functioning underlies sensorimotor impairment in autism. International Meeting for Autism Research (IMFAR). San Diego, CA.
25. Mosconi, M.W., **Coombes, S.A.**, Ankeny, L., D’Cruz, A., Zhang, Z., Schmitt, L., Khine, T., Vaillancourt, D.E., & Sweeney, J.A. (2010). Atypical brain function underlying sensorimotor alterations in autism. American College of Neuropsychopharmacology, Miami, FL.
26. Poon, C., Chin-Cottongim, L., **Coombes, S.A.**, Corcos, D.M, & Vaillancourt, D.E. (2010). Spatiotemporal dynamics during the transition from a visually-guided to a memory-guided force control task: an EEG-ERP study. Society for Neuroscience. San Diego, CA.
27. Janelle, C.M., Gamble, K., **Coombes, S.A.**, Hass, C.J. (2010). Emotional influences on approach and avoidance behavior: Micro indices of macro behavioral tendencies. North American Society for the Psychology of Sport and Physical Activity (NASPSPA). Tucson, AZ.
28. Lodha, N., Naik, S.K., **Coombes, S.A.**, & Cauraugh, J.H. (2010). Force Production and Modulation in Power Grip: Chronic Stroke and Bimanual Coordination. North American Society for the Psychology of Sport and Physical Activity (NASPSPA). Tucson, AZ.
29. Lodha, N., Naik, S.K., **Coombes, S.A.**, & Cauraugh, J.H. (2010). Asymmetry in Bimanual Force Production Post Stroke: Task Specificity and Degree of Motor Impairments. Neural Control of Movement, Naples, FL
30. Janelle, C.M., Gamble, K., **Coombes, S.A.** (2010). The motion of emotion: Affective influences on movement planning and execution. 3rd International Conference on Applied Human Factors and Ergonomics, Miami, FL.
31. **Coombes, S.A.**, Corcos, D.M, & Vaillancourt, D.E. (2009). Spatial and temporal properties of visual feedback interact to alter force performance. Society for Neuroscience. Chicago, IL.
32. **Coombes, S.A.**, Corcos, D.M, & Vaillancourt, D.E. (2009). Spatial features of motion stimuli and visually guided force control: Neural activity in the visuomotor system scales with changes in behavior. North American Society for the Psychology of Sport and Physical Activity (NASPSPA). Austin, TX.
33. Lodha, N., Naik, S.K., **Coombes, S.A.**, & Cauraugh, J.H. (2009). Force control and disease severity in chronic stroke. North American Society for the Psychology of Sport and Physical Activity (NASPSPA). Austin, TX.
34. Higgins, T., **Coombes, S.A.**, Gamble, K.G., Cauraugh, J.H., & Janelle, C.M. (2009). Attentional Control Theory: Anxiety, Emotion, and Motor Planning. North American Society for the Psychology of Sport and Physical Activity (NASPSPA). Austin, TX.
35. Gamble, K., **Coombes, S.A.**, Janelle, C.M. (2009). Depression predicts the relationship between emotional state and force control. North American Society for the Psychology of Sport and Physical Activity (NASPSPA). Austin, TX.
36. Barnes, R.T., Gamble, K.M., **Coombes, S.A.**, & Janelle, C.M. (2009) Inefficiency in force production persists among high anxious individuals despite alterations in affective state following acute aerobic exercise and quiet rest. Association for Psychological Science (APS). San Francisco, CA.
37. **Coombes, S.A.**, Corcos, D.M, & Vaillancourt, D.E. (2009). Neural activation in the visuomotor system scales with changes in the spatial features of motion stimuli. Neural Control of Movement, Hawaii, USA

38. Lodha, N., Naik, S.K., **Coombes, S.A.**, & Cauraugh, J.H. (2008) Unimanual and bimanual force production: Task constraints may alter force regularity. 4th Annual Neuromuscular Plasticity Symposium. University of Florida, Gainesville, FL.
39. Gamble, K.M., **Coombes, S.A.**, Barnes, R.T., Janelle, C.M. (2008) Individual differences in behavioral inhibition interact with emotional state to modulate force control. Association for Psychological Science (APS). Chicago, IL.
40. Barnes, R.T., **Coombes, S.A.**, & Janelle, C.M. (2008). The Time Course of Attentional Biases to Picture Stimuli. Association for Psychological Science (APS). Chicago, IL.
41. Lodha, N., **Coombes, S.A.**, Naik, S.K., Janelle, C.M., & Cauraugh, J.H. (2008). Asymmetry in emotion and motor systems. North American Society for the Psychology of Sport and Physical Activity (NASPSPA). Niagara Falls, Ontario, Canada.
42. Higgins, T, Gamble, K, **Coombes, S.A.**, Janelle, C. J. (2008). Trait anxiety modulates the impact of emotional state on motor planning. North American Society for the Psychology of Sport and Physical Activity (NASPSPA). Niagara Falls, Ontario, Canada.
43. Gamble, K, **Coombes, S.A.**, Barnes, R. T., Janelle, C.M. (2008) Emotion and sustained force control: The impact of target force level. North American Society for the Psychology of Sport and Physical Activity (NASPSPA). Niagara Falls, Ontario, Canada.
44. Barnes, R.T., **Coombes, S.A.**, Armstrong, N.B., & Janelle, C.M. (2008). Determining the Anxiolytic Effects of an Acute Exercise Bout on High Anxious Individuals Using the Dot Probe Protocol. North American Society for the Psychology of Sport and Physical Activity (NASPSPA). Niagara Falls, Ontario, Canada.
45. **Coombes, S.A.**, Tandonnet, C., Fujiyama, H., Cauraugh, J.H., Summers, J. J. (2008). Emotion and motor processes integrate to alter motor cortex excitability and behavioral output. Neural Control of Movement, Naples, FL.
46. Cauraugh, J.H., **Coombes, S.A.**, Lodha, N., Naik S.K., Summers, J. J. (2008). Neural Evidence Favors Chronic Stroke Motor Improvements: Coupled Bimanual Protocols and Increased Resistive Mass. Neural Control of Movement, Naples, FL
47. **Coombes, S.A.**, Savid, R., Janelle, C.M., & Cauraugh, J.H. (2007). The impact of affective state on sustained force production post stroke. North American Society for the Psychology of Sport and Physical Activity (NASPSPA). San Diego, California.
48. **Coombes, S.A.**, Gamble, K.M., Savid, R. Cauraugh, J.H., & Janelle, C.M. (2007). Emotional arousal modulates pinch grip stability when visual feedback is occluded. North American Society for the Psychology of Sport and Physical Activity (NASPSPA). San Diego, California.
49. Cauraugh, J.H., **Coombes, S.A.**, & Summers, J. J. (2007). Stroke Motor Recovery Evidence: Bilateral Coordination Training with an Extra Load on the Unimpaired Hand. North American Society for the Psychology of Sport and Physical Activity (NASPSPA). San Diego, California.
50. Gamble, K.M., **Coombes, S.A.**, Savid, R., Cauraugh, J. & Janelle, C.M. (2007). Motivational direction and premotor reaction time: Understanding the impact of emotion on movement. North American Society for the Psychology of Sport and Physical Activity (NASPSPA). San Diego, California.
51. Savid, R., **Coombes, S.A.**, & Janelle, C.M. (2007). Effects of trait anxiety and emotional state on simple and choice reaction time. North American Society for the Psychology of Sport and Physical Activity (NASPSPA). San Diego, California.
52. Barnes, R., **Coombes, S.A.**, & Janelle, C.M. (2007) Natural Selective Attention and Fear of Failure. Association for Psychological Science (APS). Washington D.C.
53. **Coombes, S.A.**, Cauraugh, J.H., & Janelle, C.M. (June 2006). Aversive contexts magnify a sustained muscle contraction. North American Society for the Psychology of Sport and Physical Activity (NASPSPA). Denver, Colorado.
54. **Coombes, S.A.**, Janelle, C.M., Cauraugh, J.H., & McManus, L.A. (June 2005). Facilitating Planned Movements: Potential Mechanisms. Outstanding Student Paper Award. North American Society for the Psychology of Sport and Physical Activity (NASPSPA). St. Pete's Beach, FL.
55. Mousseau, M.B. Janelle, C.M. **Coombes, S.A.**, & Mann, D.T.Y. (June 2005). Cognitive Fatigue and Hockey Decision-making: A Multimethod Exploration. North American Society for the Psychology of Sport and Physical Activity (NASPSPA). St. Pete's Beach, FL.
56. Caserta, R. J., Singer, R. N., & **Coombes, S.A.**, (2005). Video-based vs. field-based simulation: How to train perceptual skills in novice tennis players. Oral presentation at the International Society of Sport Psychology (ISSP) 11th World Congress of Sport Psychology, Sydney, Australia.

57. **Coombes, S.A.**, Janelle, C.M., Duley, A.R., & Barnes, R. (June 2004). Spatial and temporal motor performance characteristics following brief exposure to emotional stimuli. North American Society for the Psychology of Sport and Physical Activity (NASPSPA). Vancouver, BC.
58. **Coombes, S.A.**, Janelle, C.M., Duley, A.R., & Barnes, R. (June 2004). Emotion and motor control: Movement attributes following affective picture processing. North American Society for the Psychology of Sport and Physical Activity (NASPSPA). Vancouver, BC.
59. Barnes, R, **Coombes, S.A.**, Janelle, C.M., & Duley, A.R. (June 2004). Emotional reactivity: Mapping discrete psychophysiological responses onto movement execution. North American Society for the Psychology of Sport and Physical Activity (NASPSPA). Vancouver, BC.
60. Duley, A. R., Janelle, C.M., Hillman, C. H., Duffy, C., & **Coombes, S.A.**, (2004). Exercise, anxiety, and short-lead startle modification: Using prepulse inhibition to index changes in attentional bias following acute exercise. Presentation at the annual meeting of the Society for Psychophysiological Research, Santa Fe, NM.
61. Janelle, C.M., Duley, A. R., **Coombes, S.A.**, (August, 2004). Symposium: Contemporary methodologies for assessing expert performance in sport: Novel approaches to understanding emotion, attention, and motor performance. Paper presented at the annual meeting of the annual meeting of the American Psychological Association. Honolulu, Hawaii. (invited symposium)
62. Janelle, C.M., **Coombes, S.A.**, & Duley, A. R. (June, 2004). Symposium: New methodologies in the psychology of sport and physical activity: Contemporary methods for exploring emotional influences on attention and performance. Paper presented at the annual meeting of the North American Society for the Psychology of Sport and Physical Activity, Vancouver, BC, Canada. (invited symposium)
63. **Coombes, S.A.**, Janelle, C.M., Duley, A. R., & Conway, T. (June, 2003). Adults with dyslexia: theta power changes during performance of a novel motor task. North American Society for the Psychology of Sport and Physical Activity (NASPSPA). Savannah, GA.
64. Duley, A. R., Janelle, C.M., **Coombes, S.A.**, & Duffy, C.E. (October, 2003). Pupillary responses during affective picture processing. Society for Psychophysiological Research. Washington D.C.

## TEACHING

### *Course Teaching*

**Motor Learning and Control. APK3200.** Teach 3 hour undergraduate course to students in applied physiology and kinesiology. Fall 2012, Fall 2013, Fall 2014, Spring 2015, Fall 2015, Spring 2016, Spring 2017

**LabVIEW Programming. PET5936.** Teach 3 hour graduate course to students from applied physiology and kinesiology, engineering, and rehabilitation sciences. Fall 2012, Spring 2014.

**Planning Motor Actions. APK6206.** Teach 3 hour graduate course. Fall 2016.

**Biomechanical Instrumentation. APK 6225.** Teach 3 week module on fMRI. Graduate class. Spring 2017.

### *Guest Lectures*

2012 Spring. Human Imaging in Motor Neuroscience. APK 6225. Biomechanical Instrumentation (graduate class). University of Florida.

2011 Fall. Voluntary control of movement: Basal Ganglia. APK 4115. Neuromuscular Aspects. (undergraduate class). University of Florida.

2011 Fall. Introduction to Exercise Psychology. APK 3405. (undergraduate class). University of Florida.

## MENTORING

### *Post-Doctoral Mentoring*

Gaurav Misra, Ph.D. 2012-2016. University of Florida

Arnab Roy, Ph.D. 2016 – date. University of Florida



### ***Doctoral Committees – Chair***

Derek Archer, PhD. 2016. University of Florida  
Wei-en Wang, In progress. University of Florida  
Rachel Judy, In progress. University of Florida

### ***Doctoral Committees - Member***

Cynthia Poon, 2012. University of Illinois at Chicago  
Ryan Roemmich, 2013. University of Florida  
Garrett Beatty, 2015. University of Florida  
Nyeonju Kang, 2015. University of Florida  
Yen-ting Chen, 2015. University of Florida  
Minhyuk Kwon, 2015. University of Florida  
Bradley Fawver, 2016. University of Florida  
Kyoungshin D. Park. In progress. University of Florida  
Jae Chung. In progress. University of Florida  
Seoung Park. In progress. University of Florida  
William Henderson. In progress. University of Florida  
Katie Butera. In progress. University of Florida

### ***Masters Committees – Chair***

Tiffany Paris. 2014. University of Florida  
Spencer Field. 2016. University of Florida  
Sean Ferguson. In progress. University of Florida  
Eduardo Rijos. In progress. University of Florida

### ***Undergraduate Mentoring***

Lauren Neely (2011 – 2012)  
Robert Bardin (2012 – Honors thesis)  
Brandey Andersen (2014 – Honors thesis)  
Shannon Marble (2013 – 2016: Undergraduate Scholars Program)  
Rebecca Harris (2014 – Honors thesis)  
Harrison Cady (2013 – 2014)  
Eleyng Fangonilo (2015-2017: Undergraduate Scholars Program)  
Erin Waterman (2016-2017: Undergraduate Scholars Program & Honors thesis)  
Iana Escobar (2016 – present)

### ***High School***

Sreya Kolluru (summer 2012)

## **EDITORIAL BOARD**

Journal of Motor Behavior  
Frontiers in Movement Science and Sport Psychology

## **REVIEWER AD HOC**

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8. Biological Psychology
9. Journal of Experimental Psychology: Applied
10. Journal of Gerontology: Psychological Sciences
11. Emotion
12. Research Quarterly for Exercise and Sport Science
13. Experimental Brain Research
14. Clinical Rehabilitation
15. Journal of Motor Behavior
16. Neuroscience Letters

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| 17. Motor Control                                      | 32. Cognition and Emotion                |
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| 27. PLOS one   | 42. Brain Structure and Function         |
| 28. Sport, Exercise, and Performance Psychology        | 43. Neurorehabilitation & Neural Repair  |
| 29. Neuropsychologia                                   | 44. Pain                                 |
| 30. Applied Ergonomics                                 |  |
| 31. Frontiers in Movement Science and Sport Psychology |  |

## INVITED PRESENTATIONS

- 2017 Invited talk. The motor system in acute and chronic pain. The Miami Project to Cure Paralysis. Miami, FL.
- 2017 Invited talk. The motor system in acute and chronic pain. Neural Control of Movement. Dublin, Ireland.
- 2016 Invited talk. Action Club. Department of Kinesiology, Penn State University, PA
- 2016 Invited talk. Program in Occupational Therapy. RAPS seminar. Washington University School of Medicine, MO
- 2015 Invited talk. PRICE, Brain Imaging and Musculoskeletal Pain, University of Florida
- 2015 Invited talk. Department of Kinesiology, University of Georgia, GA
- 2015 Invited talk. Department of Physical Therapy, Marquette University, WI
- 2014 Invited talk. Rehabilitation Institute of Chicago, IL
- 2014 Invited talk. Ohio Musculoskeletal and Neurological Institute (OMNI) at Ohio University, Athens, OH
- 2011 Invited talk. Department of Physical Therapy. University of Florida, Gainesville, FL
- 2010 Invited talk. Department of Human Physiology. University of Oregon, Eugene, OR
- 2010 Invited talk. Department of Applied Physiology and Kinesiology, University of Florida, Gainesville, FL
- 2010 Center for Exercise Science Spring Seminar Series. Department of Applied Physiology and Kinesiology, University of Florida, Gainesville, FL
- 2010 Human Performance Lab. Colloquium. University of Chicago. Chicago, IL
- 2010 Spring Seminar Series. College of Applied Health Sciences. University of Illinois at Chicago. Chicago, IL
- 2009 Center for Cognitive Medicine. Colloquium. University of Illinois at Chicago. Chicago, IL
- 2007 Workshop for data collection and analyses: Hardware and software solutions for EMG and force measures. Department of Applied Physiology and Kinesiology, University of Florida, Gainesville, FL
- 2006 Brain Research Imaging Center. Human Neuroscience Laboratory. University of Chicago. Chicago, IL.
- 2005 Center for Exercise Science Fall Seminar Series. Department of Applied Physiology and Kinesiology, University of Florida, Gainesville, FL

## SERVICE

- 2016 Chair – Research Committee. Health and Human Performance, University of Florida
- 2016 Committee for fellowship applications. Dpt Applied Physiology & Kinesiology, University of Florida
- 2016 Chair - Awards Committee. Health and Human Performance, University of Florida
- 2015 Chair - Awards Committee. Health and Human Performance, University of Florida
- 2015 D.K. Stanley Lecture Committee, Health and Human Performance, University of Florida
- 2015 Marshall. May Commencement Ceremony, University of Florida
- 2014 Chair and Professor Search Committee. Dpt Applied Physiology & Kinesiology, University of Florida
- 2014 Awards Committee. Health and Human Performance, University of Florida
- 2013 Faculty Evaluation Committee. Dpt Applied Physiology & Kinesiology, University of Florida
- 2013 Awards Committee. Health and Human Performance, University of Florida
- 2012 Faculty Evaluation Committee. Dpt Applied Physiology & Kinesiology, University of Florida
- 2012 Awards Committee. Health and Human Performance, University of Florida
- 2012 UF Student Science Training Program. Summer Session. Mentored high-school student.

- 2012 Judge, HHP poster session, University of Florida  
2012 Marshall. May Commencement Ceremony, University of Florida  
2011-2012 Grade Appeals/Petitions. Dpt Applied Physiology & Kinesiology, University of Florida  
2011-2012 Awards Committee. Health and Human Performance, University of Florida  
2005-2008 Health and Human Performance Advisory Council Committee, University of Florida

## **PROFESSIONAL AFFILIATIONS**

Society for Neuroscience  
American Pain Society  
Neural Control of Movement

## **SCHOLARSHIPS/AWARDS**

- 2017 Term Professorship for excellent research productivity. University of Florida.  
2014 Excellence Award for Assistant Professors. University of Florida.  
2006 University of Florida: HHP-APK Outstanding International Student Award  
2005 Outstanding Student Paper Award. NASPSPA  
2005 Presidential recognition for services to the University of Florida  
2004 University of Florida: HHP Outstanding International Student Award  
2004 B.K. and Betty Stevens Graduate Scholarship (HHP, University of Florida)  
2003 University of Florida: HHP-APK Outstanding International Student Award  
2003 Presidential recognition for services to the University of Florida  
2002 Norma Leavitt Fellowship (University of Florida)  
2002 Exercise and Sport Science Fellowship (HHP, University of Florida)  
2001 University of Florida: HHP-APK Outstanding International Student Award  
2001 Herman Schnell Scholarship (University of Florida)  
1995 Peter Symonds' College Activities Award for Enthusiasm, Commitment and Achievement (UK)