

Norman Farb

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Citizenship: Canadian

Education

2013 – Present **University of Toronto**

Postdoctoral Fellow

The Cognitive Science of Flexibility, Adaptation, and Well-Being

Supervisor: Wil Cunningham

2010 – 2013 **Rotman Research Institute**

Postdoctoral Fellow

Resting State Neural Networks in Dementia; Mindfulness and Well Being in Older Adults

Supervisor: Tiffany Chow

2005 – 2010 **University of Toronto**

Ph.D., Psychology, Collaborative Program in Neuroscience

To which of thine selves be true? Changes in Viscerosomatic Neural Activity with Mindfulness

Meditation Training Reflect Improved Present-Moment Self-Awareness

Advisor: Adam K. Anderson

2004 – 2005 **University of Toronto**

M.A., Psychology, Collaborative Program in Neuroscience

Fearing the Worst and Expecting the Best: Regulatory Focus and the Physiological Response to Emotional Information

Advisors: Adam K. Anderson & Wil Cunningham

1999 – 2003 **University of Waterloo**

B.A., Psychology and Philosophy, Joint Honors, Option in Cognitive Neuroscience

Feature Salience in Categorization: Implications for Stereotype Formation

Advisor: Michael J. Dixon

Academic Positions

2006 – Present **University of Toronto, Ontario, Canada**

Sessional lecturer in Psychology: Social Cognition (PSY326), Neurochemical Basis of Behavior (PSY396), Honors Statistics (PSY202) and the Psychology of Self (PSY325)

2004 – 2010 **University of Toronto, Ontario, Canada**

Teaching Assistant, various courses, including Graduate Statistics

2003 - 2004 **University of Toronto, Ontario, Canada**

Research Assistant, Supervisor: Prof. Fergus I. M. Craik, Ph.D., FRSC

2001 - 2003 **University of Waterloo, Ontario, Canada**

Research Assistant, Supervisor: Assoc. Professor Barbara Bulman-Fleming, Ph.D.

Honours and Awards

- 2012 – 2013 1440 Foundation Research Grant Co-Investigator (\$50,000)
- 2011 – 2015 Canadian Institute of Mental Health Research Grant Co-Investigator (\$539,000)
- 2010 – 2013 Women of Baycrest Postdoctoral Fellowship (\$50,000 x 3 years)
- 2011 Jack and Rita Catherall Research Award (\$750)
- 2010 Varela Award, Mind and Life Institute (\$15,000)
- 2009 – 2010 McCuaig-Throop Graduate Studies Completion Award (\$800)
- 2009 – 2010 Ontario Mental Health Foundation Student Fellowship (\$15,000)
- 2009 Mind and Life Summer Institute Fellowship
- 2009 University of Toronto Program in Neuroscience Award for Best Research Poster (\$100)
- 2007 Varela Award, Mind and Life Institute (\$10,000)
- 2006 – 2009 National Sciences and Engineering Research Council (NSERC) Canada Ph.D. Graduate Scholarship (\$22,000 x 3 Years)
- 2005 – 2007 Mind and Life Summer Institute Fellowships
- 2005 APA Advanced Training Institute Fellowship in fMRI, Charlestown, MA (\$2000)
- 2005 National Sciences and Engineering Research Council (NSERC) Canada M.A. Graduate Scholarship (\$17,500)
- 2004 University of Toronto Graduate Student Fellowship (\$15000 + tuition)
- 2003 Dartmouth Summer Institute in Cognitive Neuroscience Fellowship
- 2003 First Class Honors with Distinction, Undergraduate Honors Thesis in Psychology

Publications

Articles Published, Accepted or in Press in Refereed Journals

- Garland E, Hanley A, **Farb NAS**, Froeliger B (Accepted). State Mindfulness Promotes Cognitive Reappraisal. *Mindfulness*.
- Hawley LL, Schwartz D, Bieling PJ, Irving J, Corcoran K, **Farb NAS**, Anderson AK, Segal ZV (In Press). Mindfulness Practice, Rumination and Clinical Outcome in Mindfulness-Based Treatment. *Cognitive Therapy and Research*.
- Day GS, **Farb NAS**, Tang-Wai DF, Masellis M, Black SE, Freedman M, Pollock BG, Chow TW (2013). Salience network resting-state activity predicts progression in frontotemporal dementia. *JAMA Neurology*.
- Farb NAS**, Chapman HA & Anderson AK (2013). Emotion: Form Follows Function. *Current Opinion in Neurobiology*, 23(3), 393-8. doi: 10.1016/j.conb.2013.01.015.
- Farb NAS**, Segal ZV, Anderson AK (2013). Mindfulness meditation training alters cortical representations of interoceptive attention. *Social, Cognitive and Affective Neuroscience*, 8(1), 15-26.
- Farb NAS** (2013). What can neuroimaging teach us about economic behavior? *Neuroscience and Neuroeconomics*, 2, 1-10.
- Farb NAS**, Grady CL, Strother S, Tang-Wai DF, Marsellis M, Black S, Freedman M, Pollock BG, Campbell KL, Hasher L, Chow TW (2012). Abnormal Network Connectivity in Frontotemporal Dementia: Evidence of Prefrontal Isolation. *Cortex*, 49(7), 1856-73. doi: 10.1016/j.cortex.2012.09.008.

- Farb NAS** (2012). Mind Your Expectations: A Proposed Role for Suggestion in Mindfulness Training. *The Journal of Mind-Body Regulation*, 2(1), 27-42.
- Farb NAS**, Segal ZV, Anderson AK (2012). Attentional Modulation of Primary Interoceptive and Exteroceptive Cortices. *Cerebral Cortex*, 23(1), 114-26. doi: 10.1093/cercor/bhr385.
- Farb NAS**, Anderson AK, Segal ZV (2012). The Mindful Brain and Emotion Regulation. *Canadian Journal of Psychiatry*, 57(2), 70-77.
- Farb NAS**, Segal ZV, Anderson AK (2011). Towards a Neuroimaging Biomarker of Depression Vulnerability. *Translational Neuroscience*, 2(4), 281-292.
- Huston D, Garland EL, **Farb NAS** (2011). Mechanisms of Mindfulness in Communications Training. *Journal of Applied Communication*, 39(4), 406-21.
- Farb NAS**, Anderson AK, Bloch R, Segal ZV (2011). Mood-linked Responses in Medial Prefrontal Cortex Predict Relapse in Patients with Recurrent Unipolar Depression. *Biological Psychiatry*, 70(4), 366-372.
- Riggs L, McQuiggan DA, **Farb NAS**, Anderson AK, Ryan JD (2011). The role of overt attention in emotion modulated memory. *Emotion*, 11(4), 776-785.
- Farb NAS**, Anderson AK, Mayberg HS, Bean J, McKeon D, Segal ZV (2010). Minding one's emotions: Mindfulness training alters the neural expression of sadness. *Emotion*, 10(1), 25-33.
- Farb NAS**, Segal ZV, Mayberg H, Bean J, McKeon D, Fatima Z, Anderson AK (2007). Attending to the present: mindfulness meditation reveals distinct neural modes of self-reference. *Social Cognitive and Affective Neuroscience*, 2(4), 313-122.
- Featured in Siegel D (2007). Mindfulness training and neural integration: differentiation of distinct streams of awareness and the cultivation of well-being. *Social, Cognitive and Affective Neuroscience*, 2: 259-263.
- Touryan SR, Johnson MK, Mitchell KJ, **Farb NAS**, Cunningham WA, Raye CL (2007). The influence of self-regulatory focus on encoding of, and memory for, emotional words. *Social Neuroscience*, 2, 14-27.
- Castel AD, **Farb NAS**, Craik FIM (2007). Memory for General and Specific Value Information in Younger and Older Adults: Measuring the limits of strategic control. *Memory & Cognition*, 35(4), 689-700.

Articles Submitted to Refereed Journals

- Garland EL, **Farb NAS**, Fredrickson BL. (*Under Revision*). Mindfulness Broadens Awareness and Builds Meaning at Attention-Appraisal-Emotion Interface: A Process Model of Mindful Positive Emotion Regulation. *Psychological Review*.
- Thiruchselvam R, Dixon M, **Farb N**, Anderson A (*Under Revision*). Mindfulness Meditation Enhances the Flexibility of Attentional Selection. *Cognition and Emotion*.

Contributions to a Collective Work and/or Book Chapters

- Farb NAS**, Anderson AK, Irving JA, Segal ZV. (*In Press*). Mindfulness Interventions and Emotion Regulation. In *The Handbook of Emotion Regulation, 2nd Edition* (ed. James Gross), Guilford Press.

Irving JA, **Farb NAS**, Segal ZV. (*In Press*). Mindfulness-Based Cognitive Therapy for Chronic Depression. In *The Handbook of Mindfulness: Theory and Research* (ed. Brown KW, Creswell JD, Ryan RR).

Farb NAS. (*Under Review*). Go Tell It on the Mountain: Challenges in Bringing Formal Meditation to Modern Life. In *Neuroscience, Consciousness and Spirituality: Meditation – Neuroscientific Approaches and Philosophical Implications* (ed. Walach H & Schmidt S).

Corcoran K, **Farb N**, Segal ZV (2010). Emotion Regulation Meets Mindfulness. In *Emotion Regulation and Psychopathology* (ed. A. Kring & D. Sloan), Guilford Press.

Farb N & Segal ZV (2008). Book Review for “The Neuroscience of Psychological Therapies”. *The Canadian Journal of Psychiatry*, 53(9), 31-32.

Articles in Preparation (journal names denote invited articles)

Farb NAS, Cunningham WA (In Preparation). How I learned to stop worrying and love duty: how conscientiousness protects subjective well-being.

Farb NAS, Cunningham WA (In Preparation). Does distress tolerance lead to better decision making and well-being?

Farb NAS, Segal ZV, Anderson AK (In Preparation). A Melancholy Shield: Behavioral and Neural Investigation of the Protective Effects of Sadness.

Farb NAS, Irving JA, Anderson AK, Segal ZV. A Two-Factor Model of Depressive Relapse Vulnerability (In Preparation). *Invited Review for J Abnormal Psychology*.

Farb NAS, Irving JA, Murchison J, Madan R, Khatri N. (In Preparation). More than relaxation? A multimodal analysis of mindfulness training in an older population.

Farb NAS, Sheldon S, Anderson N, Vandermorris S. (In Preparation). Cognitive activation training for subjective cognitive impairment.

Ravindran AR, **Farb NAS**, Richter M, Rector N. (In Preparation). Functional connectivity in obsessive-compulsive disorder: an fMRI study.

Sheldon S, **Farb NAS**, Levine B. (In Preparation). Neural networks supporting episodic and semantic memory.

Farb NAS, Ravindran AR. (In Preparation). Neural correlates of emotional reactivity in a first-episode depression sample.

Selected Conference Abstracts- Talks

Farb NAS (2013). Waking to Exhale: Embodiment as a neural mechanism for mindfulness training. Talk given at the Center for Mindfulness Annual International Scientific Conference in Norwood, MA, USA.

Farb NAS (2013). Contemplative Capacities: How the Western Scientific Method Can Help Explain the Benefits of Meditation. Talk given at the Tung Lin Kok Yuen Science and Buddhism Conference held in Toronto, Canada.

Farb NAS (2013). How brain networks for embodiment impact identity, emotional reactivity, and well-being. Talk given at Brooklyn College, NY, USA.

Farb NAS (2012). What can mindfulness learn from hypnosis? Talk given at the annual meeting of the Society for Clinical and Experimental Hypnosis held in Toronto, Canada.

- Farb NAS** (2012). Meditation, Self, and the Brain. Talk given at Mind and Life Dialogue with the Dalai Lama held in Rochester, MN, USA.
- Farb NAS** (2012). Altered cognition in Frontotemporal Dementia. Talk given at Rotman Research Institute Rounds, Toronto, Canada.
- Farb NAS** (2012). A workshop on mindfulness. Talk given at the Institute of Mental Health Young Researchers Conference, Ottawa, Canada.
- Farb NAS** (2012). Imaging internal awareness: exploring the neuroscience of interoception. Talk given at Rotman Research Institute fMRI Rounds, Toronto, Canada.
- Farb NAS** (2011). Mindfulness-Based Stress Reduction and Neural Expression of Sadness. Talk given at the Annual Meeting of the Society for Biological Psychiatry held in San Francisco, CA, USA.
- Farb NAS, Chow TW, Tang-Wai D, Masellis M** (2011). The Impact of the Right Insula on Behavior and Cognition in Frontotemporal Dementia. Talk given at the Annual Meeting of the American Academy of Neurology held in Honolulu, HI, USA.
- Farb NAS, Segal ZV, Anderson AK** (2008). *Mechanisms of Change? Interoception, Suppression & Maintenance in Mindfulness*. Talk given at the Integrating Clinical and Neuroscience Perspectives on Mindfulness Training in Health and Disease meeting at the University of Toronto.
- Farb NAS, Segal ZV, Mayberg H, Bean J, McKeon D, Fatima Z & Anderson AK** (2007). *Distinct modes of self-reference alter the neural response to affective challenge*. Talk given at the Annual Meeting of the Society for Neuroscience held in San Diego, CA, USA.

Selected Conference Abstracts- Posters

- Farb NAS, Grady CL, Strother S, Tang-Wai DF, Marsellis M, Black S, Freedman M, Pollock BG, Chow TW** (2011). The Impact of the Right Insula on Behavior and Cognition in Frontotemporal Dementia. Poster presented at the Harvey Stancer Research Day for the Department of Psychiatry held at the University of Toronto, Toronto, ON, Canada.
- Farb NAS, Anderson AK, & Segal ZV** (2010, April). *Dissociable effects of relaxation and meditation training on the emotional regulation of attention*. Poster presented at the Annual Meeting of the Cognitive Neuroscience Society held in Montreal, QC, Canada.
- Farb NAS, Anderson AK, & Segal ZV** (2009). *Neural Prediction of Depressive Relapse: A Prospective Follow-Up Study*. Poster presented at the Annual Meeting of the Society for Neuroscience held in Chicago, IL, USA.
- Farb NAS, Rautu A, Vervaeke J** (2009). *Trait Mindfulness and Insight Problem Solving*. Poster presented at the meeting of the American Psychological Association, Toronto, ON, Canada.
- Farb NAS, Segal ZV, Anderson AK** (2009). *Letting Go of Sadness: Mindful Detachment in Emotion Regulation*. Poster presented at the meeting of the Cognitive Neuroscience Society, San Francisco.
- Farb NAS, Segal ZV, Anderson AK** (2009). Mechanisms of Change? Interoception, Suppression & Maintenance in Mindfulness. Talk given at the Integrating Clinical and Neuroscience Perspectives on Mindfulness Training in Health and Disease meeting held at the University of Toronto, Toronto, ON, Canada.
- Farb NAS, Segal Z, Mayberg H, Bean J, McKeon D, Fatima Z, Anderson AK** (2008). Mindfulness Meditation is Associated with Altered Cortical Representations of Body State. Poster presented at the meeting of the Cognitive Neuroscience Society, San Francisco, CA, USA.

Farb NAS, Segal ZV, Mayberg H, Bean J, McKeon D, Fatima Z, & Anderson AK (2007). *Attending to the present: Mindfulness meditation reveals dissociable neural modes of self-reference*. Annual meeting of the Cognitive Neuroscience Society, New York, NY, USA.

Farb NAS, Cunningham W, Anderson AK (2005). *Regulatory Focus Moderates the Physiological Response to Risk and Reward*. Poster presented at the Annual Meeting of the Cognitive Neuroscience Society, New York, NY, USA.

Van Bavel JJ, Packer DJ, **Farb NAS**, Gonzalez J, Chasteen AL, Cunningham WA (2005). *Feeling two things at once: A functional dissociation between implicit and explicit ambivalence toward social groups*. Paper presented at the Society for Personality and Social Psychology 7th Annual Meeting, Palm Springs, CA.

Farb NAS, Anderson AK & Cunningham WA (2005). The Physiological Response to Positive and Negative Events is Moderated by Regulatory Focus. *Society for Personality and Social Psychology 7th Annual Meeting*, Palm Springs, CA, USA.

Teaching

Undergraduate Courses Taught as Course Instructor

Fall 2013	PSY326	Social Cognition	University of Toronto
Fall 2012	PSY396	The Neurochemical Basis of Behavior	University of Toronto
Spring 2008	PSY202	Statistics II: Advanced statistics and research design	University of Toronto
Winter 2008	PSY425	Self-Consciousness: Psychology & Neuroscience	University of Toronto
Winter 2008	PSY202	Statistics II: Advanced statistics and research design	University of Toronto
Spring 2007	PSY202	Statistics II: Advanced statistics and research design	University of Toronto

Guest Lectures

2012	PSY493	Cognitive Neuroscience	University of Toronto
2010-2012		Dept. Psychiatry Affective Neuroscience Bootcamp	University of Toronto
2009-2010	PSY341	Psychopathologies of Childhood	University of Toronto
2010	PSY333	Health Psychology	University of Toronto

Graduate Courses Taught as Teaching Assistant

Fall 2008	PSY2001	Design of Experiments I: Univariate Statistics	University of Toronto
Spring 2008	PSY2001	Design of Experiments I: Univariate Statistics	University of Toronto
Fall 2006	PSY2001	Design of Experiments I: Univariate Statistics	University of Toronto

Undergraduate Courses Taught as Teaching Assistant

Spring 2010	PSY100	Introductory Psychology	University of Toronto
Winter 2009	PSY341	Childhood Psychopathology	University of Toronto
Fall 2007	PSY370	Thinking and Reasoning	University of Toronto
Winter 2007	PSY335	Environmental Psychology	University of Toronto
Winter 2007	PSY325	Self-Consciousness	University of Toronto
Spring 2006	PSY328	Psychology and the Law	University of Toronto
Spring 2006	PSY324	Interpersonal Relationships	University of Toronto
Winter 2005	PSY325	Self-Consciousness	University of Toronto
Fall 2005	PSY201	Statistics I: Introductory Statistics	University of Toronto
Spring 2005	PSY230	Personality and Transformation	University of Toronto

Spring 2005	PSY333	Health Psychology	University of Toronto
Winter 2005	PSY280	Perception	University of Toronto
Fall 2004	PSY100	Introductory Psychology	University of Toronto
Fall 2004	PSY504	Social Psychology: An Intro Course	Ryerson University

Invited Presentations

2013 Oxford Department of Experimental Psychology
 2013 Brooklyn College Department of Psychology
 2013 Mind and Life Interoception Working Group
 2013 Rotman Research Institute
 2012 Baycrest Hospital Psychology
 2012 University of Toronto Department of Psychiatry
 2012 Mood Disorders Association of Ontario
 2012 University of Ottawa Young Investigators' Conference
 2011 Ontario College of Art and Design
 2011 Toronto 'Sex, Aging and Memory Conference'
 2011 University of Toronto Department of Psychiatry
 2011 Centre for Applied Neuroscience
 2011 Rotman Research Institute Rounds
 2010 Women of Baycrest Member's Appreciation Dinner
 2010 University of Toronto Department of Psychiatry
 2010 University of Friburg Neuroscience Consciousness and Spirituality Expert Meeting
 2010 Rotman Research Institute Rounds
 2009 University of Ottawa Institute of Mental Health
 2009 Rotman Research Institute Rounds
 2009 Toronto Western Hospital Imaging Rounds
 2009 Mind and Life Summer Research Institute
 2007 Mind and Life Summer Research Institute

Affiliations

Mind and Life - Research Fellow

Frontotemporal Dementia Workgroup, University Health Network - Member

Mood and Anxiety Disorders Program, Centre for Addiction and Mental Health - Research Consultant

Department of Psychology, University of Toronto - Research Consultant

Mood and Related Disorders Clinic, Baycrest Centre for Geriatric Care - Mindfulness Instructor

Membership in Professional Organizations

Society for Neuroscience, Cognitive Neuroscience Society, American Psychological Association, American Academy of Neurology, Society of Biological Psychiatry, Association for Contextual Behavioral Science

Grant Reviewer

Mind and Life / 1440 Awards
Research Grants Council of Hong Kong

Journal Reviewer

Biology of Mood and Anxiety Disorders; Brain; CNS Spectrums, Cognitive, Affective, and Behavioral Neuroscience; Emotion Review; Frontiers of Neuroscience; Human Brain Mapping; Journal of Anxiety Disorders; Journal of Consulting and Clinical Psychology; Journal of Experimental Psychology: General; Journal of Mind Body Regulation; Mindfulness; Nature Neuroscience; Neuroimage; Neuropsychopharmacology; PLoS One; Psychiatry Research: Neuroimaging; Psychological Science; Psychonomic Bulletin and Review; Quarterly Journal of Experimental Psychology; Social Cognitive and Affective Neuroscience

Media Coverage of Research

03/04/2012 Scientific American: “Decoding the Body Watcher”
07/2011 Shambhala Sun: “This is your brain on Mindfulness”
28/06/2011 Psychology Today: “Relapse Prevention: It’s the ‘How’ That Counts”
30/05/2011 PsychCentral: “Brain’s Response to Sadness Predicts Depression Relapse”
27/05/2011 Toronto Star: “Toronto study offers hope to those at risk of depression relapse”
27/05/2011 ScienceDaily: “Brain’s Response to Sadness Can Predict Relapses Into Depression”
09/2010 O The Oprah Magazine: “Learning to Exhale”
09/2010 Baycrest Breakthroughs: “Easing the Mind”
11/10/2009 Psychology Today: “The Neuroscience of Mindfulness”

Popular Press Articles

“Mindfulness and the Pursuit of Happiness” – FairObserver.com
“Meditation for Peace of Mind” – Fortylicious.ca

Other Indices of Impact

Boleyn-Fitzgerald. *Pictures of the Mind: What the New Neuroscience Tells Us about Who We Are*. 2 full page figures reprinted from Farb et al. (2007) and Farb et al. (2010), and 1 new full page figure created.

Service

Current

- Mindfulness-based Stress Reduction (MBSR) classes for dementia patients & caregivers
- Co-founder, Mindfulness Program for Geriatric Patients, Mood Disorder Clinic, Baycrest
- University of Toronto Student Career Mentor
- Research Lab consulting:
 - statistics, programming and experimental design, including fMRI paradigm programming, Levine lab, Rotman Research Institute
 - mediation analyses, Ryan lab, Rotman Research Institute
 - fMRI analysis and design, Ravindran lab, Centre for Addiction and Mental Health

- programming & paradigm design, Downar lab, Toronto Western Hospital

Previous Service

- Staff Research Training and Steering Committee, Rotman Research Institute (2011-2013)
- Internal Grant Review Committee, Rotman Research Institute (2011-2013)
- Workshop instructor on SPM fMRI data analysis & MATLAB, Rotman Research Institute (2011-2013)
- Founder and Facilitator, Rotman Meditation Club, Rotman Research Institute (2011-2013)
- Research Ethics Board Member, Post-Doctoral Representative, Baycrest (2012-2013)
- Peer Statistical Consultant, University of Toronto (2006-2010)
- Workshop instructor on: correlation methods and pitfalls, multivariate analysis, study programming, MATLAB, E-Prime programming, University of Toronto (2006-2010)
- Conference co-organizer, *Integrating Clinical and Neuroscience Perspectives on Mindfulness Training in Health and Disease* meeting, University of Toronto (2008)
- Registration Volunteer at Human Brain Mapping conference, Toronto (2005)
- Creation and development of fMRI data processing pipeline at the Affect and Cognition Lab, University of Toronto (Co-PI's Adam K. Anderson & Eve DeRosa) (2005-2009)
- Development of improved functional connectivity toolbox (in MATLAB) allowing for the modeling of simple effects analyses during psychophysiological interaction (PPI) analysis (2007-2010)
- Emergency room volunteer, Toronto Western Hospital (2005-2006)