

## R. McKell Carter Carston

Assistant Professor  
Institute of Cognitive Science and  
Department of Psychology and Neuroscience  
University of Colorado Boulder  
Boulder, CO 80309

email: [mckellcarter@gmail.com](mailto:mckellcarter@gmail.com)  
CINC office telephone: 303-735-2553  
Muenzinger office telephone 303-735-6651

### Professional Experience

2014-present	University of Colorado Boulder	Assistant Professor, Dept. of Psychology and Neuroscience, Institute of Cognitive Science
2012-2014	Duke University	Research Associate, Senior, Center for Cognitive Neuroscience
2009-2012	Duke University	Research Associate, Center for Cognitive Neuroscience
2008-2009	Duke University	Research Associate (NIH training grant) Neurobiology
2007-2008	Duke University	Research Associate, Brain Imaging and Analysis Center
1999-2006	California Institute of Technology	Graduate Student, Dept. of Biology

### Education

Ph.D.,	California Institute of Technology, June, 2006, Systems Neuroscience emphasis, Department of Biology, Advisor: Dr. Christof Koch
B.S.,	University of Utah, June, 1998 Biology (minors in Computer Science and Chemistry)

### Funding, Honors, and Awards

- Selection for ASSETT Team on Student Success (2018)
- President's Teaching and Learning Collaborative (2017-2018)
- ASSETT Fellowship Award (2016)
- SANS Innovation Award, Social and Affective Neuroscience Society (2014)
- NARSAD Young Investigator Award (2013)
- Co-Investigator Duke Institute for Brain Sciences Incubator Award: *Neurobiological basis for legal decision making* (2013)
- 2012 Outstanding Postdoc at Duke Award (2012)
- Postdoctoral Training Program in Fundamental and Translational Neuroscience. (2008)

- Sandia National Labs Graduate Fellowship for Excellence in Engineering. (2004-2006)
- Caltech Moore Discovery Imaging grant: *Functional differences in human diffusion tensor imaging*. (2005)
- Caltech Moore Discovery grant: *Towards an animal model of explicit learning in aversive conditioning*. (2002-2003)

### Service: Institutional, University of Colorado Boulder

- Department of Psychology and Neuroscience, University of Colorado Boulder, Assistant Professor Faculty Search Committee, 2016
- Committee for Undergraduate Education – 2015-present
- Department of Psychology and Neuroscience, University of Colorado Boulder, Full-time Instructor Search Committee, 2015
- Human Research Committee (Department of Psychology), 2014-present
- Institute for Cognitive Science, University of Colorado Boulder, Associate Professor Faculty Search Committee, 2014

### Ad Hoc Journal Reviewer for:

Developmental Research; Journal of Experimental Psychology: Human Perception and Performance; Genes, Brain, and Behavior; Behavioral Research Methods; Nature Neuroscience; Aggression and Violent Behavior; Journal of Experimental Psychology: General; Nature Communications; Proceedings of the National Academy of Sciences; Journal of Marketing Research; Journal of Neuroscience; Journal of Cognitive Neuroscience; Cerebral Cortex; NeuroImage; Consciousness and Cognition; Journal of Neuroscience, Psychology, and Economics; Social Cognitive and Affective Neuroscience; Frontiers in Decision Neuroscience; Cognitive Neuroscience; Journal of Neurophysiology; Human Brain Mapping; Brain and Language; European Journal of Neuroscience; PLoS One

### Publications

In my area of research, the first author is the primary author and the last author is the senior author or mentor. This list is in reverse-chronological order (year). My name has been listed in bold. Authors for whom I have a mentoring role have been listed in italics. Manuscripts that are independent of my graduate and postdoctoral mentors are preceded by '#'.

\* - Authors contributed equally to this manuscript

#### Peer Reviewed

#22. Pearson, J.M., Law, J., Skene, J.A.G., Beskind, D.H., Vidmar, N., Ball, D.A., Malepour, A., **Carter, R.M.**, Skene, J.H.P., (2018). Modelling the effects of crime type and evidence on judgments about guilt. *Nature Human Behavior*. **2**, 856–866.

#21. *Rezaeinia, P.*, **Carter, R.M.**, (2017). Using Hitting-Time Interdecile Differences to Identify Brain Networks with Path-like Features. Conference on Cognitive Computational Neuroscience.

20. Li, R., Smith, D.V., Clithero, J.A., Venkatraman, V., **Carter, R. M.**, Huettel, S.A. (2017). Reason's Enemy Is Not Emotion: Engagement of Cognitive Control Networks Explains Biases in Gain/Loss Framing. *J. Neurosci.* **37**, 3588–3598.
19. Ngo, L., Kelly, M., Coutlee, C. G., **Carter, R.M.**, Sinnott-Armstrong, W., & Huettel, S. A. (2015). Two Distinct Moral Mechanisms for Ascribing and Denying Intentionality. *Scientific Reports*, *5*, 17390.
18. Murty, V.P., Shermohammed, M., Smith, D.V., **Carter, R.M.**, Huettel, S.A., & Adcock, R.A. (2014). Resting state networks distinguish human ventral tegmental area from substantia nigra. *NeuroImage*, *100*, 580–589.
17. Smith, D.V., Utevsy, A.V., Bland, A.R., Clement, N., Clithero, J.A., Harsch, A.E.W., **Carter, R.M.** Huettel, S.A. (2014). Characterizing individual differences in functional connectivity using dual-regression and seed-based approaches. *NeuroImage*, *95*(0), 1–12.
16. Damiano, C.R., Aloï, J., Dunlap, K., Burrus, C.J., Kozink, R.V., McLaurin, R.E., Mullette-Gillman, O.A., **Carter, R.M.**, Huettel, S.A., McClernon, F.J., and Dichter, G.S. (2014). Association between the oxytocin receptor (OXTR) gene and the mesolimbic response to rewards. *Molecular Autism* *5*, 7.
15. **Carter, R.M.** & Huettel, S.A. (2013). A nexus model of the temporal-parietal junction. *Trends in Cognitive Sciences* *17*, 328-336.
14. Winecoff, A., Clithero, J. A., **Carter, R.M.**, Bergman, S., Wang, L., and Huettel, S.A. (2013) The “value” of control: ventromedial prefrontal cortex encodes positive valence during reappraisal. *Journal of Neuroscience* *33*, 11032-11039.
13. **Carter, R.M.**, & Huettel, S.A. (2013). Learning from silver linings. *Frontiers in Neuroscience* *7*, 80. (commentary on Brooks et al., 2010)
12. Kragel, P.A., **Carter, R.M.**, and Huettel, S.A. (2012). What makes a pattern? Matching decoding methods to data in multivoxel pattern analysis. *Frontiers in Neuroscience* *6*, 162.
11. **Carter, R.M.**, Bowling, D.L., Reeck, C., and Huettel, S.A. (2012). A Distinct Role of the Temporal-Parietal Junction in Predicting Socially Guided Decisions. *Science* *337*, 109-111.
10. Paulsen, D.J., **Carter, R.M.**, Platt, M.L., Huettel, S. A. & Brannon, E.M. (2012), Neurocognitive Development of Risk Aversion from Early Childhood to Adulthood. *Frontiers in Human Neuroscience* *5*, 1-17.
9. Clithero, J. A., Reeck, C., **Carter, R.M.**, Smith, D.V. & Huettel, S.A. (2011). Nucleus Accumbens Mediates Relative Motivation for Rewards in the Absence of Choice. *Frontiers in Human Neuroscience* *5*, 1-11.

8. Ballard, I.C., Murty, V.P., **Carter, R.M.**, Macinnes, J.J., Huettel, S.A. & Adcock, R.A. (2011). Dorsolateral prefrontal cortex drives mesolimbic dopaminergic regions to initiate motivated behavior. *The Journal of Neuroscience* 31, 10340-6.
7. Clithero, J.A., Smith, D.V., **Carter, R.M.** & Huettel, S.A. (2011). Within- and cross-participant classifiers reveal different neural coding of information. *NeuroImage* 56, 699-708.
6. **Carter, R.M.**, Meyer, J.R., and Huettel, S.A. (2010). Functional Neuroimaging of Intertemporal Choice Models: A Review. *Journal of Neuroscience, Psychology, and Economics* 3, 27-45.
5. Clithero, J.A., **Carter, R.M.**, and Huettel, S.A. (2009). Local pattern classification differentiates processes of economic valuation. *NeuroImage* 45, 1329-1338.
4. **Carter, R.M.\***, MacInnes, J.J.\*, Huettel, S.A., and Adcock, R.A. (2009). Activation in the VTA and nucleus accumbens increases in anticipation of both gains and losses. *Frontiers in Behavioral Neuroscience* 3, 21.
3. **Carter, R.M.**, O'Doherty, J.P., Seymour, B., Koch, C., and Dolan, R.J. (2006). Contingency awareness in human aversive conditioning involves the middle frontal gyrus. *NeuroImage* 29, 1007-1012
2. Khurana, B., **Carter, R.M.**, Watanabe, K., and Nijhawan, R. (2006). Flash-lag chimeras: The role of perceived alignment in the composite face effect. *Vision Research* 46, 2757-2772.
1. **Carter, R.M.**, Hofstotter, C., Tsuchiya, N., and Koch, C. (2003). Working memory and fear conditioning. *PNAS* 100, 1399-1404.

### **Invited Talks (External)**

- What is social for you is not social for me. Neuroscience Seminar Series, Denver University (May 2017)
- Perilous picks: decision making under social uncertainty. Cognitive Lunch, Colorado State University (September, 2016).
- Neural Studies of Social Function and Dysfunction in Game Play. Molecular, Cellular, and Integrative Neurosciences series, Colorado State University (March, 2016).
- Testing for Co-opted Social Cognitive Mechanisms in ASD. Developmental Psychobiology Research Group, University of Colorado Denver (October, 2015).
- The Nexus Model of the TPJ and Co-opted Function. Social Affective Neuroscience Society (April, 2015).
- Using Brain States and Biomarkers to Build a Cognitive Model of Social Decision Making. Current Works in Behavior, Genetics, and Neuroscience, Yale University (November, 2014).
- Construction of a Social Context in the Temporal Parietal Junction. Affective Brain Lab Online

Talk Series. University College London (September, 2014).  
Using Brain States and Biomarkers to Build a Cognitive Model of Social Decision Making. Princeton University (December, 2013).  
Using Brain States and Biomarkers to Build a Cognitive Model of Social Decision Making. University of Colorado Boulder (November, 2013).  
Predicting Consumer Social Behavior. Temple University (July, 2013).  
Identifying Unique and Functionally Specific Information During Social Decision Making. McGill University (March, 2013).  
Identifying Unique Neural Information During Social Decision Making. The Ohio State University (January, 2013).  
Identifying the Distinct Role of the Temporal-Parietal Junction in Predicting Socially Guided Decisions. Virginia Tech (May, 2012).  
Social Components of Motivation and Deception. Rutgers University (January, 2011).

### **Conference Presentations (as primary mentor)**

+ Carter, R.M., Fairley, K., Parelman, J.M. (2018) "Stealing a win: social influences on risk taking correlate with theft." Poster at the Annual Meeting of the Society for Social Neuroscience, San Diego, CA.

+ Rezaeinia, P., Carter, R.M. (2018) "Topological brain network changes in psychiatric disorders." Poster at the Annual Meeting of the Society for Neuroscience, San Diego, CA.

+ Carter, R.M., Fairley, K., Parelman, J.M. (2018) "Stealing a win: social influences on risk taking correlate with theft." Poster at the Annual Meeting of the Society for Neuroeconomics, Philadelphia, PA.

+ Rezaeinia, P., Pal, P., Carter, R.M. "Lollipops and Computational Psychiatry: Using Cortical Network Topology to Characterize Clinical Populations." Presented as a poster at Duality's End: Computational Psychiatry and the Cognitive Science of Representation, 2018, Erikson Institute, Austen Riggs Center, Stockbridge, MA.

+ Carter, R.M. (2018, spring). "Matching risk preferences to beat a social opponent." Poster at the 2018 Annual Meeting of the Social & Affective Neuroscience Society, Brooklyn, NY.

+ Rezaeinia, P., Carter, R.M. (2017, September). Using Hitting-Time Interdecile Differences to Identify Brain Networks with Path-like Features. Poster at the Annual Conference on Cognitive Computational Neuroscience. New York, NY.

+ Jung, H., Mosner, M. G., McLaurin, R.E., Hakimi, S., Parelman, J.M., Kinard, J., Chakraborty, P., Dichter, G., Carter, R. M. (2017, March). "MVPA testing for co-opted higher-order social cognition in autism". Poster presented at the 2017 Annual Meeting of the Social & Affective Neuroscience Society, Los Angeles, CA.

+ Fairley, K., Parelman, J.M., Farrant, D., Carter, R.M. (2016, November). "Social Risk Preferences and Real-life Risk Behaviors". Poster presented at the 2016 annual meeting of the Economic Society Association, Tucson, AZ.

+ Hakimi, S., Clithero, J.A., Mullette-Gillman, O.A., Smith, D.V., McLaurin, R.E., Taren, A., Venkatraman, V., Huettel, S.A., & Carter, R.M.. "Decomposing risk representation in parietal cortex." Presented at the Annual Meeting of the Society for Neuroeconomics, August 2016.

+ Fairley, K., Parelman, J.M., Farrant, D. & Carter, R.M., "Social modulation of risky behaviors." Presented at the Annual Meeting of the Society for Neuroeconomics, August 2016.

+ Jung, H., Mosner, M. G., McLaurin, R. E., Hakimi, S., Parelman, J. M., Kinard, J., Chakraborty, P., Dichter, G., Carter, R. M. (2016, May). "Co-opted Social Cognitive Neural Substrates in Autism During Strategic Gameplay". Poster presented at the 71st Annual Scientific Convention and Meeting of Society of Biological Psychiatry, Atlanta, GA.

+ Jung, H., Mosner, M. G., McLaurin, R. E., Hakimi, S., Parelman, J. M., Kinard, J., Chakraborty, P., Dichter, G., Carter, R. M. (2016, April). "Testing for Co-opted Higher-Order Social Cognition in Autism". Oral presentation presented at the 86th Annual Convention of the Rocky Mountain Psychological Association, Denver, CO.

+ Parelman, J.M., Hakimi, S., Fairley, K., Carter, R.M (2015, September). "Decision Making Within and Without Social Context". Poster (by J.M. Parelman), Society for Neuroeconomics.

## Media and External Coverage of Research

**Pearson et al. (2018)** – Altmetric score: 60 ( <https://www.altmetric.com/details/50443380> )

**Li et al. (2017)** – Altmetric score: 72 ( <https://www.altmetric.com/details/18240392/news> )

**Poker Mind (2016)** – appearance in documentary film.

**Ngo et al. (2015)** – Altmetric score: 241 ( <https://www.altmetric.com/details/4840977> )

**Social Decision Making in Poker (2012)** – AAAS Podcast, ArsTechnica, Bloomberg Businessweek, Boston Herald, CBSNews.com, Daily Mail (UK), LiveScience, Scientific American podcast, Simons Foundation. Altmetric score: 67 ( <https://www.altmetric.com/details/824440> )

## Teaching Experience

Co-Instructor (S2018) Issues and Methods in Cognitive Science (w/ James Martin)

Primary Instructor (S2015, S2016, S2017, S2018) Introduction to Cognitive Psychology

Co-Instructor (F2015) Cognitive Science (w/ Rob Rupert)

Guest Lecturer (2014) Affective Neuroscience, University of Colorado Boulder

Guest Lecturer (2014) Neurotheology, Duke University

Guest Lecturer (2013) Duke Institute for Brain Sciences - Neuroscience Bootcamp

Guest Lecturer (2009,2010,2012, Fall), *Advanced fMRI Methods*, Duke University

Teaching Assistant (2004), *Graduate Topics in Systems Neuroscience*, Caltech

Teaching Assistant (2003, 2002, 2001), *The Neuronal Basis of Consciousness*, Caltech

Teaching Assistant (2000), *Introduction to Molecular Biology*, University of Utah

Teaching Assistant (1997, 1996) *Prokaryotic Genetics*, project course, University of Utah

Teaching Assistant (1995), *Genetics*, University of Utah