Current: 2/15/2018

Steven L. Franconeri

Department of Psychology
Northwestern University
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Education

2004	Harvard University	Ph.D. in Psychology; Cognition, Brain, & Behavior
2001	Harvard University	M.A. in Psychology; Cognition, Brain, & Behavior
1999	Rutgers University	Dual B.A. in Cognitive Science and Computer Science

Research Positions

2015 - present	Professor of Psychology, Northwestern University Director, Cognitive Science Program Professor of Leadership, by Courtesy, Kellogg School of Management Professor of Design, by Courtesy, Segal Design Institute McCormick School of Engineering Segal Design Institute Research Council Northwestern Institute on Complex Systems Northwestern Spatial Intelligence & Learning Center
2012- 2015	Associate Professor of Psychology, Northwestern University
2006 - 2012	Assistant Professor of Psychology, Northwestern University
2004 - 2006	Killam Postdoctoral Fellow, University of British Columbia Advisor: James T. Enns
1999 - 2004	Graduate Student (NDSEG Fellowship), Harvard University Advisor: Daniel J. Simons
1998	ATR Human Information Processing Labs, Kyoto, Japan Neural network design
1996 - 1999	Research Assistant, Rutgers University Visual attention & cognition Advisor: Zenon Pylyshyn

Major Professional Interests: Visual Cognition; Visuospatial Thinking in STEM (Science, Technology, Education, & Math) and Data Visualization; Visual Communication

Academic Awards and Honors

2016-17	Northwestern Associated Student Government Faculty Honor Roll
2013	Psychonomic Society Early Career Award
2011	National Science Foundation CAREER Award
2004-2006	Izaak Walton Killam Postdoctoral Fellowship
2001-2004	National Defense Science and Engineering Graduate Fellowship
2000 & 2001	Certificates of Distinction in Teaching, Harvard University
1999	Phi Beta Kappa

Grant support

NSF EHR Award "Mechanisms of Visuospatial thinking in STEM" (PI)
DRL-1661264
4/1/2017 - 3/31/2020, $1,498,191

Department of Education, Institute of Education Sciences Award
Cognition & Student Learning: Exploration
"Teaching Perceptual and Conceptual Processes in Graph Interpretation " (PI)
IES-R205A120531
7/15/2012 - 7/14/2016, $1,598,108

NSF CAREER Award "Individuation in Visual Cognition" (PI)
BCS-1056730
3/15/2011 - 3/14/2016, $484,737 (later supplemented by an additional $63,421)

NSF IIS Award "Visualizing Comparisons" (Co-PI)
IIS-1162067
9/01/2012 – 8/31/14/2016, $1,199,363

NSF Spatial Intelligence & Learning Center (SILC Faculty)
SBE-0541957
9/15/2006 - 8/31/2011, $16,295,368
Renewed: 9/1/2011 - 8/31/2016

Publications

Wakefield, E.M, Novack, M.A., Congdon, E.C., Franconeri, F., & Goldin-Meadow, S. (in press). Gesture helps learner learn, but not merely by guiding their visual attention. *Developmental Science.*

Ferguson, B., Franconeri, S.L., & Waxman, S.R. (2018). Very young infants learn abstract rules in the visual modality. *PLoS ONE. 13*(1). [pdf]

Alexander, E., Chang, C., Shimabukuro, M., Franconeri, S., Collins, C., & Gleicher, M (2017). Perceptual Biases in Font Size as a Data Encoding. *IEEE Transactions on Visualization and Computer Graphics.*

Felix, C., Franconeri, S. L., & Bertini, E. (2017). Taking Word Clouds Apart: An Empirical Investigation of the Design Space for Keyword Summaries. *Proceedings of IEEE Information Visualization.*

Lovett, A. & Franconeri, S. L. (2017). Topological relations between objects are categorically coded. *Psychological Science, 28*(10):1408-1418. doi: 10.1177/0956797617709814.

Nothelfer, C., Gleicher, M., Franconeri, S. L. (2017). Redundant encoding strengthens segmentation and grouping in visual displays of data. *Journal of Experimental Psychology: Human Perception and Performance.*

Michal, A. L., & Franconeri, S. L. (2017). Visual routines are associated with specific graph interpretations. *Cognitive Research: Principles and Implications, 2*(1), 20.

Michal, A. L., Uttal, D., Shah, P., & Franconeri, S. L. (2016). Visual routines for extracting magnitude relations. *Psychonomic Bulletin & Review, 23*(6), 1802-1809.

Yu, D., Levinthal, B., & Franconeri, S. L. (2016). Feature-based attention resolves depth ambiguity. *Psychonomic Bulletin & Review,* 1-6, doi 10.3758/s13423-016-1155-x

Yuan, L., Uttal, D., & Franconeri, S. (2016). Are Categorical Spatial Relations Encoded by Shifting Visual Attention between Objects?. *PloS ONE, 11*(10), e0163141.

Albers, D.A., Haroz, S., Gleicher, M., &, Franconeri, S.L. (2015). Four Types of Ensemble Encoding in Data Visualizations. *Journal of Vision 16*(11), Vol.16, 11. doi:10.1167/16.5.11

Haroz, S., Kosara, R., & Franconeri, S. L. (2015). The connected scatterplot technique for presenting paired time series data. *Transactions on Visualization and Computer Graphics (TVCG).*

Haroz, S., Kosara, R., & Franconeri, S. L. (2015). ISOTYPE Visualization – Working Memory, Cognitive Load, and Engagement with Pictographs. *Proceedings of ACM CHI 2015.*

Salvi, C., Bricolo, E., Franconeri, S. L., Kounios, J., & Beeman, M. (2015). Sudden insight is associated with shutting out visual inputs. *Psychonomic Bulletin & Review,* (pagination pending).

Liverence, B. M., & Franconeri, S. L. (2015). Resource Limitations in Visual Cognition. *Emerging Trends in the Social and Behavioral Sciences: An Interdisciplinary, Searchable, and*

Linkable Resource. (Eds.) Robert Scott and Stephen Kosslyn, Hoboken, NJ: John Wiley and Sons.

Scimeca, J. M. & Franconeri, S. L. (2015). Selecting and tracking multiple objects. *WIREs Cognitive Science 2015, 6:109–118. doi: 10.1002/wcs.1328*

Wegbreit, E., Franconeri, S. L., & Beeman, M. (2015). Mood can spread or focus attention in feature space. *Cognition & Emotion, 29*(4), 668-677.

Xu, Y. Q. & Franconeri S. L. (2015). The capacity for visual features in mental rotation. *Psychological Science, 26*(8), 1241-1251.

Bebko, G. M., Franconeri, S. L., Ochsner, K. N., & Chiao, J.Y. (2014). Attentional deployment is not necessary for successful emotion regulation via cognitive reappraisal or expressive suppression. *Emotion 14* (3), 504-512.

Chevalier, F., Dragicevic, P., & Franconeri, S. L. (2014). The Not-so-Staggering Effect of Staggered Animations on Visual Tracking. *IEEE Transactions on Visualization and Computer Graphics*, (TVCG/Proc. of Infovis '14).

Harrison, L., Yang, F., Franconeri, S., & Chang, R. (2014). Ranking Visualizations of Correlation Using Weber's Law. *IEEE Transactions on Visualization and Computer Graphics*, (TVCG/Proc. of Infovis '14).

Schurgin, M. W., Nelson, J., Iida, S., Ohira, H., Chiao, J. Y., & Franconeri, S. L. (2014). Eye movements during emotion recognition in faces. *Journal of Vision, 14*(13), 14.

Choo, H. & Franconeri, S. L. (2013). Enumeration of small collections violates Weber's Law. *Psychonomic Bulletin & Review, 21,* 93-99.

Gleicher, M., Correll, M., Nothelfer, C. &, Franconeri, S. (2013). Perception of average value in multiclass scatterplots. *IEEE Transactions on Visualization and Computer Graphics*, (TVCG/Proc. of Infovis '13).

Xu, Y. Q., Suzuki, S., & Franconeri, S. L. (2013). Shifting selection may control apparent motion. *Psychological Science, 24*(10), 2131.

Franconeri, S. L. (2013). The nature and status of visual resources. Oxford Handbook of Cognitive Psychology. Reisberg, D. (Editor). Oxford University Press.

Franconeri, S. L., Alvarez, G. A., & Cavanagh, P. C. (2013). Flexible cognitive resources: Competitive content maps for attention and memory. *Trends in Cognitive Science, 17*(3), 134-141.

Harrison, L., Skau, D., Franconeri, S., Lu, A., & Chang, R. (2013). Influencing visual judgment through affective priming. *Proceedings of ACM CHI 2013*.

O'Hearn, K., Franconeri, S., Wright, C., Minshew, N., & Luna, B. (2012). The development of Individuation in Autism. *Journal of Experimental Psychology: Human Perception & Performance, 39*(2), 494-509.

Roth, J. & Franconeri, S. L. (2012). Representations of spatial relationships may be asymmetric for both language and vision. *Frontiers in Cognition, 3*, 464.

Xu, Y. Q., O'Keefe, S., Suzuki, S., & Franconeri, S. L. (2012). Vision influences haptic judgments of weight. *Perception, 41*(7), 862-870.

Choo, H. Y., Levinthal, B., & Franconeri, S. L. (2012). Average orientation is more accessible through boundary features than surface features. *Journal of Experimental Psychology: Human Perception & Performance, 38I*(3), 585-588.

Correll, M., Albers, D., Franconeri, S., & Gleicher, M. (2012). Comparative averaging of time series data. *Proceedings of ACM CHI 2012*, Austin, TX.

Franconeri, S. L., Pylyshyn, Z. W., & Scholl, B. J. (2012). Spatiotemporal cues for tracking multiple objects through occlusion. *Attention, Perception, & Psychophysics, 74*, 691-702.

Franconeri, S. L., Scimeca, J. M., Roth, J. C., Helseth, S. A., & Kahn, L. (2012). Flexible visual processing of spatial relationships. *Cognition, 112,* 210-227.

Xu, Y. Q. & Franconeri, S. L. (2012). The head of the table: The location of the spotlight of attention may determine the 'front' of ambiguous objects. *Journal of Neuroscience, 32*(4), 1408-1412.

Bebko, G.M., Franconeri, S. L., Ochsner, K.N., Chiao, J.Y. (2011). Look before you regulate: Differential perceptual strategies underlying expressive suppression and cognitive reappraisal. *Emotion, 11*(4), 732-742.

Levinthal, B. & Franconeri, S. L. (2011). Common fate grouping as feature selection. *Psychological Science, 22*(9), 1132-1137.

Choo, H. Y. & Franconeri, S. L. (2010). Visual size averaging of objects unavailable to conscious awareness. *Attention, Perception, & Psychophysics, (72),* 86-99.

Franconeri, S. L., Jonathan, S., & Scimeca, J. M. (2010). Tracking multiple objects is limited only by spatial interference, not speed, time, or capacity. *Psychological Science, 21,* 920-925.

Hollingworth, A., Simons, D. J., & Franconeri, S. L. (2010). New objects do not capture attention without a sensory transient. *Attention, Perception, & Psychophysics, 72*, 1298-1310.

Iordanescu, L., Grabowecky, M., Franconeri, S. L., Theeuwes, J., & Suzuki, S. (2010). Characteristic sounds make you look at targets faster in visual search. *Attention, Perception, & Psychophysics, 72*(7), 1736-1741.

Parrott, S., Levinthal, B. & Franconeri, S. L. (2010). Complex attentional control settings. *Quarterly Journal of Experimental Psychology, 15*, 1-8.

Brockmole, J. R. & Franconeri, S. L. (2009). Introduction to the special issue on Binding. *Visual Cognition, 17,* 1-8.

Guzman-Martinez, E., Leung, P., Franconeri, S. L., Grabowecky, M., & Suzuki, S. (2009). Rapid eye-fixation training without eye tracking. *Psychonomic Bulletin & Review, 16*, 491-496.

Hollingworth, A. & Franconeri, S. L. (2009). Object Correspondence across Brief Occlusion Is Established on the Basis of both Spatiotemporal and Surface Feature Cues. *Cognition, 113*, 150-166.

Franconeri, S. L., Bemis, D. K., & Alvarez, G. A. (2009). Number estimation relies on a set of segmented objects. *Cognition, 113*, 1-13.

Franconeri, S. L. (2009). Attention Capture. In Matsumoto, D. (Ed.), *The Cambridge Dictionary of Psychology*. Cambridge University Press.

Franconeri, S. L., Lin, J. Y., Pylyshyn, Z. W, Fisher, B. F. , & Enns, J. T. (2008). Evidence against a speed limit in multiple object tracking. *Psychonomic Bulletin & Review*, *15*(4), 802-808.

Lin, J., Franconeri, S. L., & Enns, J. T. (2008). Objects on a collision path with the observer demand attention. *Psychological Science, 19*(7), 686-692.

Alvarez, G. A. & Franconeri, S. L. (2007). How many objects can you track? Evidence for a resource-limited tracking mechanism. *Journal of Vision, 7*(13), 1-10.

Franconeri, S. L., Alvarez, G. A., & Enns, J. T. (2007). How many locations can you select? *Journal of Experimental Psychology: Human Perception & Performance, 33*(5), 1003-1012.

Simons, D. J., Mitroff, S. R., & Franconeri, S. L. (2006). Implicit and explicit representations in scene perception. In M. Peterson & G. Rhodes (Eds.), *Analytic and holistic processes in the perception of faces, objects, and scenes.*

Franconeri, S. L., Hollingworth, A., & Simons, D. J. (2005). Do new objects capture attention? *Psychological Science, 16*(4), 275-281.

Franconeri, S. L. & Simons, D. J. (2005). What dynamic signals capture attention: A reply to Abrams & Christ (2005). *Perception & Psychophysics, 67*(6), 962-966.

Franconeri, S. L., Simons, D. J., & Junge, J. A. (2004). Searching for stimulus-driven shifts of attention. *Psychonomic Bulletin & Review, 11*(5), 876-881.

Franconeri, S. L. & Simons, D. J. (2003). Moving and looming stimuli capture attention. *Perception & Psychophysics*, *65*(6), 1-12.

Mitroff, S. R., Simons, D.J., & Franconeri, S. L. (2002). The siren song of implicit change detection. *Journal of Experimental Psychology: Human Perception and Performance*, *28*(4), 798-815.

Simons, D. J., Franconeri, S. L., & Reimer, R. L. (2000). Change blindness in the absence of a visual disruption. *Perception*, *29*, 1143-1154.

Edited Volumes

Brockmole, J. R. & Franconeri, S. L. (Eds.) (2009). *Binding: A Special Issue of the Journal Visual Cognition*. New York: Psychology Press.

Presentations

Xiong, C., van Weelden, L., & Franconeri, S., (2017, November). The Power of Top-Down Salience in Data Visualizations. Talk at *OPAM*, Vancouver, Canada.

Nothelfer, C. & Franconeri, S. L. (2017, October). Ranking encodings for efficient perceptual processing of data relations. *Poster presentation at IEEE VIS*, Phoenix, Arizona.

Nothelfer, C., Gleicher, M. & Franconeri S. L. (2017, May). Rapid Feature-Selection Benefits from Feature Redundancy. Talk at the Information Visualization Research Meet and Greet satellite event at the *Vision Sciences Society Annual Meeting*, St. Pete Beach, Florida.

Nothelfer, C. & Franconeri S. L. (2017, May). Visual Search Through Displays of Data. Poster presentation at the *Vision Science Society Annual Meeting*, St. Pete Beach, Florida.

Novack, M., Congdon, E., Wakefield, E., Franconeri S., & Goldin-Meadow, S. (2017, November) The Role of Gesture and Visual Attention in Math Instruction. Talk presented at *the 58th annual meeting of the Psychonomic Society*, Vancouver, CA.

Xiong, C., van Weelden, L., & Franconeri, S., (2017, August). The curse of knowledge in data visualizations. *IEEE Transactions on Visualization and Computer Graphics, InfoVis 2017*, Phoenix, Arizona. [*Best Poster Honourable Mention]

Yu, D., Haroz, S., & Franconeri, S. (2016, November). Perception of Feature Distributions Requires Focal Subselection. Poster presented at *Object Perception Attention & Memory*, Boston, MA.

Haroz, S., Kosara, R., & Franconeri, S. (2016, October). The Connected Scatterplot for Presenting Paired Time Series. Talk at *IEEE VIS,* Baltimore, Maryland.

Nothelfer, C., Gleicher, M. & Franconeri S. L. (2016, October). Redundant Coding Can Speed Up Segmentation in Multiclass Displays. Poster presentation at the *IEEE VIS*, Baltimore, Maryland.

Nothelfer, C., Gleicher, M. & Franconeri S. L. (2016, October). Redundant Coding Can Speed Up Segmentation in Multiclass Displays. Poster presentation at the *IEEE VIS*, Baltimore, Maryland.

Novack, M. A., Wakefield, E. M., Congdon, E. L., Franconeri, S., & Goldin-Meadow, S. There is more to gesture than meets the eye: Visual attention to gesture's referents cannot account for its facilitative effects during math instruction. *Proceedings of the Cognitve Science Society,* 2016.

Congdon, E., Wakefield, E. M., Novack, M. A, Franconeri, S., & Goldin-Meadow, S. (July, 2016) Gesture guides visual attention during math learning: Insights from eye tracking. Talk presented at the *7th Conference of the International Society for Gesture Studies*, Paris, France.

Michal, A.L. & Franconeri, S.L. (2016, May). Two modes for seeing relations between objects. Poster presented at *Vision Sciences Society*, St. Pete Beach, FL.

Yu, D., Haroz, S., Franconeri, S., (2016, May). Ensemble Perception Omits Spatial Information about Features. Poster presented at *Vision Sciences Society*, St. Pete Beach, FL.

Nothelfer, C., Gleicher, M., & Franconeri, S.L. (2016, May). Feature Redundancy Benefits in Different Attentional Modes. *Vision Sciences Society*, St. Pete Beach, FL.

Michal, A.L., Shah, P. & Franconeri, S.L. (2015, November). Reasoning errors in coordinating theory with data. Poster presented at the *Annual Meeting of the Psychonomic Society*, Chicago, IL.

Yu, D. & Franconeri, S. L. (2015, November). Similarity grouping as feature selection. *OPAM 2015*, Chicago, IL. *[* Best Talk Award]*

Nothelfer, C., Gleicher, M. & Franconeri S. L., (2015, October). Redundant Coding Can Improve Segmentation in Multiclass Displays. Poster presentation at the *IEEE VIS*, Chicago, IL.

Nothelfer, C., Gleicher, M. & Franconeri S. L. (2015, October). Redundant Coding Can Improve Segmentation in Multiclass Displays. Poster presentation at the *IEEE VIS*, Chicago, IL.

Lovett, A., & Franconeri, S. (2015, July). Topological relations between objects are categorically coded. Poster presented at the annual meeting of the Cognitive Science Society, Pasadena, CA.

Liverence, B. M., & Franconeri, S. (2015, May). Human cache memory enables ultrafast serial access to spatial representations. *Vision Sciences Society*, St. Pete Beach, FL.

Bernstein, B., Liverence, B. M., & Franconeri, S. (2015, May). Memory routines for the transformation of visuospatial representations. *Vision Sciences Society*, St. Pete Beach, FL.

Nothelfer, C., Suzuki, S. & Franconeri S. L. (2015, May). Hemifield-specific resources for controlling apparent motion. *Vision Sciences Society*, St. Pete Beach, FL.

Yu, D., & Franconeri S. L. (2015, May). Similarity grouping as feature selection. *Vision Sciences Society*, St. Pete Beach, FL.

Lovett, A., & Franconeri, S. (2015, May). Categorical perception of topological relations between objects. *Vision Sciences Society*, St. Pete Beach, FL.

Haroz, S., Kosara, R., & Franconeri, S. (2015, April). ISOTYPE Visualization – Working Memory, Performance, and Engagement with Pictographs. Talk at *CHI*, Seoul, Korea.

Yuan, L., Franconeri, S., & Uttal, D.H. (2015, March). Guiding Attention to Children's graph comprehension. *Biannual Meeting of Society for Research in Child Development*, Philadelphia, Pennsylvania.

Yuan, L., Franconeri, S., & Uttal, D.H. (2015). Guiding Attention to Children's graph comprehension. Talk at University of Chicago, Developmental Psychology Brownbag.

Michal, A.L., Uttal, D. & Franconeri, S.L. (2014). The order of attentional shifts determines what visual relations we extract. Poster presented at *Vision Sciences Society*, St. Pete Beach, FL.

Michal, A.L. & Franconeri, S.L. (2014). Eye movement direction affects conclusions from a 2-bar graph. Poster presented at *iSLC Annual Meeting*, Pittsburgh, PA.

Michal, A.L. & Franconeri, S.L. (2014). The role of attentional shifts in graph comprehension. Talk presented *at 4th Annual Postdoctoral Research Symposium*, Urbana-Champaign, IL.

Franconeri, S. L. (2014). Four examples of Translational Visual Cognition. *Psychonomics Society*, Long Beach, CA.

Yu, D., Liverence, B. M., & Franconeri, S. L. (2014). Virtual navigation is supported by multiple cues for spatial transitions. *OPAM 2014*, Long Beach, CA.

Albers, D., Correll, M., Gleicher, M., & Franconeri, S. L. (2014). Ensemble processing of color and shape: Beyond mean judgments. *Vision Sciences Society*, St. Petersburg, FL.

Liverence, B. M. & Franconeri, S. L. (2014). Shared visual memory resources for individuation and ensemble representation. *Vision Sciences Society*, St. Petersburg, FL.

Michal, A. L. & Franconeri, S. L. (2014). The order of attentional shifts determines what visual relations we extract. *Vision Sciences Society*, St. Petersburg, FL.

Nothelfer, C. E. & Franconeri, S. L. (2014). Rapid feature selection benefits from feature redundancy. *Vision Sciences Society*, St. Petersburg, FL.

Xu, Y. Q. & Franconeri S. L. (2014). The capacity of mental rotation. *Vision Sciences Society*, St. Petersburg, FL.

Franconeri, S. L., Lustig, A., Smith, L., Stoughton, L., Yuan, L., Shah, P., & Uttal, D. (2013). Visual routines for graph comprehension. *Institute for Educational Sciences Principal Investigator Meeting,* Washington D.C.

Franconeri, S. L., Lustig, A., Smith, L., Stoughton, L., Yuan, L., Shah, P., & Uttal, D. (2013). Seeing visual relations. *Psychonomics 2013,* Toronto.

Yu, D. & Franconeri, S. L. (2013). Similarity grouping is serial at a distance, but rapid for neighbors. *OPAM 2013*, Toronto.

Lustig, A. & Franconeri, S. L. (2013). Two ways to compare two objects. *OPAM 2013*, Toronto.

Lustig, A. & Franconeri, S. L. (2013). Some visual relation judgments are limited to a single dimension at a time. *Vision Sciences Society*, Naples, FL.

Xu, Y. Q., Suzuki, S., & Franconeri, S. L. (2013). Spatial attention selection guides object correspondence in apparent motion. *Vision Sciences Society*, Naples, FL.

Yuan, L., Lustig, A., Uttal, D.., & Franconeri, S. L. (2013). Low capacity for visual spatial relation memory. *Vision Sciences Society*, Naples, FL.

Franconeri, S. L. (2012). A mechanism for Gestalt similarity grouping. *Configural Processing Consortium.* Minnapolis, MN.

Choo, H. & Franconeri, S. L. (2012). Small collections violate Weber's law during relative number judgments. *Vision Sciences Society*, Naples, FL.

Xu, Y. Q., Suzuki, S., & Franconeri, S. L. (2012). Directing selective attention influences the perception of apparent motion. *Vision Sciences Society*, Naples, FL.

Franconeri, S. L., Scimeca, J. M., & Jonathan, S. (2012). Maintaining selection of multiple moving objects. *Vision Sciences Society*, Naples, FL.

Xu, Y. Q., Suzuki, S., & Franconeri, S. L. (2012).The spotlight of selective attention may control apparent motion. *Cognitive Neuroscience Society.*

Choo, H. & Franconeri, S. L. (2011). Relation binding deficits during rapid spatial relationship judgments. *Vision Sciences Society*, Naples, FL.

Kahn, L. & Franconeri, S. L. (2011). Encoding a spatial relationship between two objects requires selection of each object. *Vision Sciences Society*, Naples, FL.

Franconeri, S. L., Scimeca, J. M., Roth, J. C., & Helseth, S. A. (2011). Flexible visual processing of spatial relationships. *Vision Sciences Society*, Naples, FL.

Levinthal, B., Jonathan, S., Scimeca, J. M., & Franconeri, S. L. (2011). Competition limits spatial selection. *Vision Sciences Society*, Naples, FL.

Parrott, S. & Franconeri, S. L. (2011). Visual relationship judgments. *Vision Sciences Society*, Naples, FL.

Tam, D., Levinthal, B., & Franconeri, S. L. (2011). Feature selection as a mechanism for color grouping. *Vision Sciences Society*, Naples, FL.

Turner, K., Yang, H., & Franconeri, S. L. (2011). Spatial relationship judgment requires selection of each object in turn, even when object identification does not. *Vision Sciences Society*, Naples, FL.

Xu, Y. Q. & Franconeri, S. L. (2011). Shifting selection may control apparent motion. *Vision Sciences Society*, Naples, FL.

Levinthal, B. & Franconeri, S. L. (2010). Split attention is limited by inhibition among multiple spotlights. *Psychonomic Society 2010,* St. Louis, MO.

Parrott, S., Uttal, D., & Franconeri (2010). Sequential processing in graph comprehension. *Object Perception & Memory 2010,* St. Louis, MO.

Choo, H. & Franconeri (2010). Hemifield modulation of approximate number judgments. *Object Perception & Memory 2010,* St. Louis, MO.

Xu, Y. Q. & Franconeri (2010). Changes in ambiguous object structure are associated with shifts of attention. *Object Perception & Memory 2010,* St. Louis, MO.

Park, H., Helseth, S. A., Jonathan, S., Mok, P., Alvarez, G. A., Enns, J. T., & Franconeri, S. L., (2010). Multiple object selection and tracking are independent of shape memory. *Object Perception & Memory 2010,* St. Louis, MO.

Franconeri, S. L., Helseth, S., Jonathan, S., Mok, P., & Scimeca, J. M. (2010). Splitting attention over multiple objects. *Vision Sciences Society*, Naples, FL.

Levinthal, B. & Franconeri, S. L. (2010). Grouping by common fate occurs for only one group at a time. *Vision Sciences Society*, Naples, FL.

Xu, Y. Q. & Franconeri, S. L. (2010). Change of object structure as a result of shifts of spatial attention. *Vision Sciences Society*, Naples, FL.

Parrott, S., Levinthal, B. & Franconeri, S. L. (2010). Attentional control settings can be object-based. *Vision Sciences Society*, Naples, FL.

Choo, H. & Franconeri, S. L. (2010). Hemifield modulation of approximate number judgments. *Vision Sciences Society*, Naples, FL.

Franconeri, S. L., Jonathan, S., & Scimeca, J. M. (2009). Concurrent tracking of multiple objects is not limited by object speed. *Psychonomic Society,* Boston *MA.*

Franconeri, S. L., & Roth, J. (2009). Spatial relationships as a visual routine: Evidence from linguistic influences on perceptual judgment. *Vision Sciences Society*, Naples, FL.

Choo, H. & Franconeri, S. L. (2009). Average orientation is easier to compute for boundary features relative to surface features. *Vision Sciences Society*, Naples, FL.

Franconeri, S. L. & Alvarez, G. A. (2009). Rapid enumeration is based on a segmented visual scene. *Vision Sciences Society*, Naples, FL.

Wegbreit, E., Franconeri, S. L., & Jung-Beeman, M. (2009). Positive and anxious mood manipulations on selective visual attention. *Vision Sciences Society*, Naples, FL.

Guzman-Martinez, E., Leung, P., Franconeri, S. L., Grabowecky, M., & Suzuki, S. (2009). A simple technique to improve fixation performance in naïve observers. *Vision Sciences Society*, Naples, FL.

Iordanescu, L., Grabowecky, M., Franconeri, S. L., Theeuwes, J., & Suzuki, S. (2009). Characteristic sounds make you look at targets faster in visual search. *Vision Sciences Society*, Naples, FL. *for Personality and Social Psychology*.

Choo, H. & Franconeri, S. L. (2008). Visual averaging and object substitution masking. *Vision Sciences Society*, Naples, FL.

Alvarez, G. A. & Franconeri, S. L. (2008). The magical number 4 in visual attention. *Vision Sciences Society*, Naples, FL.

Franconeri, S. L., & Bemis, D. K. (2008). Similarity grouping is feature selection. *Vision Sciences Society*, Naples, FL.

Lau, C., Franconeri, S. L., & Chiao, J. Y. (2008). Gazing at the Emotionally Expressive Side of a Face Makes You Appear More Socially Intelligent. *American Psychological Society, Chicago*, IL.

Bebko, G.M., Chiao, J.Y. Franconeri, S.L. (2008). Identifying emotionally salient areas within complex scenes: Validation of an area-of-interest approach. *Midwestern Psychological Association*, Chicago, IL.

Bebko, G.M., Franconeri, S.L., Ochsner, K.N., Chiao, J.Y. (2008). Perceptual differences in the use of multiple emotion regulation strategies. *Cognitive Neuroscience Society*, San Francisco, CA.

Bebko, G.M., Franconeri, S.L., Ochsner, K.N., Chiao, J.Y. (2008). Sex differences in the use of multiple emotion regulation strategies. *Society for Personality and Social Psychology*, Albuquerque, N.M.

Hollingworth, A., & Franconeri, S. L. (2007). The role of surface features in establishing object correspondence across motion and occlusion. *Psychonomics 2007.*

Franconeri, S. L. & Handy, T. C. (2007). Spatial relations are represented as a sequence over time: Evidence from electrophysiology. *Psychonomics 2007.*

Franconeri, S. L. & Handy, T. C. (2007). Serial shifts of attention during spatial relationship judgments. *Vision Sciences 2007.*

Lin, J., Franconeri, S. L., & Enns, J. T. (2007). Object action captures attention: A test of the behavioral threat hypothesis. *Vision Sciences 2007.*

Chiao, J. Y. & Franconeri, S. L. (2007). Women, but not men, prefer to fixate on the right side of a face. *Vision Sciences 2007.*

Nelson, J., Franconeri, S. L., & Chiao, J. Y. (2007). Looking for emotion in facial expressions: fixation patterns are emotion-specific. *Vision Sciences 2007.*

Franconeri, S. L., Pylyshyn, Z. W., & Scholl, B. J. (2006). Spatiotemporal cues to object continuity acros occlusion. *Vision Sciences 2006*

Franconeri, S. L., Pylyshyn, Z. W., & Scholl, B. J. (2005). Tracking object identity across occlusion. *Object Perception & Memory 2005.*

Franconeri, S. L., Alvarez, G. A., & Enns, J. (2005). How many locations can you select? *Vision Sciences 2005.*

Bemis, D. K., Franconeri, S. L., & Alvarez, G. A.(2005). It takes attention to capture attention. *Vision Sciences 2005*.

Alvarez, G. A., & Franconeri, S. L. (2005). How many objects can you track? *Vision Sciences 2005*.

Franconeri, S. L., Alvarez, G. A., & Enns, J. (2004). The capacity limitations of spatial memory. *Object Perception & Memory* 2004.

Bemis, D. K., Franconeri, S. L., & Alvarez, G. A.(2005). Rapid number estimation: A new paradigm for investigating the rules of objecthood. *Vision Sciences 2004*.

Franconeri, S. L., Halberda, J. H., Feigenson, L., & Alvarez, G. A. (2004). The shape of attention around a common motion object. *Vision Sciences* 2004.

Franconeri, S. L., Hollingworth, A., & Simons, D. J. (2003). Do new objects capture attention? *Object Perception & Memory* 2003.

Franconeri, S. L., & Simons, D. J. (2003). Searching for stimulus-driven attention capture. *Vision Sciences* 2003.

Franconeri, S. L., & Simons, D. J. (2002). Attention capture can occur without top-down influences. *Vision Sciences* 2002.

Franconeri, S. L., & Simons, D. J. (2002). Salvaging attention capture. *Eastern Psychological Association* 2002.

Franconeri, S. L., & Simons, D. J. (2001). Not just abrupt onset: Disoccluding and looming objects capture attention. *Vision Sciences* 2001.

Franconeri, S. L., & Simons, D. J. (2000). Detecting gradual changes to simple displays. *Object Perception & Memory* 2000.

Franconeri, S. L., & Simons, D. J. (2000). The role of abstract representations and motion signals in change detection. *Association for Research in Vision and Opthamology* 2000.

Invited Talks

March 2018	Univ. California San Diego	*Departmental Colloquium*
March 2018	Univ. California Los Angeles	*Cognitive Psychology*
March 2018	UW Milwaukee	*Cognitive Psychology*
Oct 2017	University of Pennsylvania Psych.	*Departmental Colloquium*
Aug 2017	Gordon Research Conference	*Invited Plenary*
Aug 2017	Kellogg School of Managment	*Marketing*
Aug 2017	Kellogg School of Managment	*Management & Organizations*
June 2017	Rutgers University	*Cognitive Science Colloquium*
Nov 2016	Northwestern NICO	*Center Seminar*
Nov 2016	Harvard University	*Data Visualization Group*
Oct 2016	Johns Hopkins University Psych.	*Departmental Colloquium*
Sept 2016	Washington University Psych.	*Departmental Colloquium*
Nov 2015	Configural Processing Consortium	*Keynote Address*
Nov 2014	UC Santa Barbara	*Think Spatial Colloquium*
Oct 2014	Northwestern University	*Learning Sciences Colloquium*
April 2014	Univ Illinos Urbana-Champaign	*Cognitive Psychology*
Jan 2014	University of Michigan	*Cognitive Psychology*
Jan 2014	Univ. Indiana, Bloomington	*Cognitive Science Colloquium*
Aug 2013	Vrije University, Amsterdam	*Cognitive Psychology*
April 2013	Cambridge University	*Departmental Colloquium*
April 2013	St. Andrews University	*Departmental Colloquium*
April 2013	Bangor University	*Departmental Colloquium*
April 2013	Univ. California, Berkeley	*Cognitive Psychology*

April 2013	Univ. California, Merced	*Perception-Action Group*
Dec 2012	Univ. California Davis	*Exploring The Mind Lecture, CMB*
Nov 2012	Harvard University	*Cognitive Psychology*
Nov 2012	Boston University	*Science of Learning Colloquium*
Nov 2012	Brown University	*Perception-Action Group*
Nov 2012	Yale University	*Cognitive Psychology*
Nov 2012	University of Iowa	*Cognitive Psychology*
Nov 2012	University of British Columbia	*Cognitive Psychology*
Sept 2012	Johns Hopkins University	*Cognitive Psychology*
July 2012	Kyoto University	*Cognitive Psychology*
July 2012	Tokyo University	*Cognitive Psychology*
Feb 2012	New York University	*Cognitive Psychology*
Feb 2012	Princeton University	*Cognitive Psychology*
Feb 2012	Temple University	*Spatial Intelligence & Learning*
Feb 2012	Rutgers University	*Perception Science Colloquium*
Sept 2011	Univ Illinos Urbana-Champaign	*Visual Cognition & Human Performance*
April 2011	Stanford University	*Cognitive Psychology*
August 2010	Northwestern University	*Neurobio of Info. Storage Program*
March 2010	University of Toronto	*Cognitive Psychology*
August 2009	Temasek Labs \ Nat. U. Singapore	*Departmental Colloquium*
August 2009	Nanyang Technological University	*Departmental Colloquium*
April 2009	University of Iowa	*Cognitive Psychology*
Oct 2008	Duke University	*Cognitive & Neuroscience*
May 2008	Midwestern Psych. Assoc.	*Invited Talk*
Sept 2007	Notre Dame University	*Cognitive Psychology*
July 2007	Peking University, Bejing	*Cognitive Psychology*
July 2007	Beijing Normal University	*Cognitive Psychology*
May 2007	Vrije University, Amsterdam	*Cognitive Psychology*
April 2007	Univ Illinos Urbana-Champaign	*Visual Cognition & Human Performance*
April 2007	University of Chicago	*Cognitive Psychology*
Mar 2006	Northwestern University	*Departmental Colloquium*
Mar 2006	Cornell University	*Departmental Colloquium*
Feb 2006	University of Wisconsin, Madison	*Departmental Colloquium*
Jan 2006	University of Pittsburgh	*Departmental Colloquium*
Jan 2006	Queen's University	*Departmental Colloquium*
Dec 2005	University of Delaware	*Departmental Colloquium*
Nov 2005	Johns Hopkins University	*Cognitive Psychology*
Feb 2005	UMass Boston	*Cognitive Psychology*
Feb 2005	Harvard University	*Cognition, Brain, & Behavior*
Feb 2005	University of Victoria	*Cognitive Psychology*
Oct 2004	University of British Columbia	*Visual Attention & Cognition Groups*
May 2004	Massachusetts General Hospital	*Martinos Biomedical Imaging Center*

May 2004	M.I.T.	*Brain & Cognitive Sciences*
Jan 2003	Vrije University, Amsterdam	*Dept. of Psychology Cognitive Group*
Nov 2003	Harvard University	*Laboratory for Developmental Studies*
Mar 2001	Harvard University	*Cognition, Brain, & Behavior*

Editorial Boards

(2007-current) *Psychonomic Bulletin & Review*

(2008-current) *Attention, Perception & Psychophysics*

(2018-current) *Journal of Experimental Psychology: General*

(2010-2013) *Psychological Science*

(2009-2012) *Frontiers in Perception Science*

(2007-2013) *Visual Cognition*

(2010-2014) *Journal of Experimental Psychology: Human Perception & Performance*

Ad-Hoc Reviewer

Attention, Perception & Psychophysics
Cognition
Cognitive, Affective, and Behavioral Neuroscience
Cognitive Development
Cognitive Science
Computer Human Interaction (CHI)
Computer Vision and Image Understanding
Current Biology
Human Communication Research
Eurographics Conference on Visualization
Experimental Brain Research
Experimental Psychology
Eye Tracking and Visualization
Frontiers in Perception Science
IEEE Information Visualization
International Journal of Industrial Ergonomics
Journal of Experimental Child Psychology
Journal of Experimental Psychology: General
Journal of Experimental Psychology: Human Perception & Performance
Journal of Experimental Psychology: Learning, Memory, & Cognition
Journal of Cognitive Neuroscience
Journal of Neuroscience
Journal of Vision
Memory & Cognition
NeuroImage
Neuropsychologia

Perception
Perception & Psychophysics
Philosophical Psychology
PLOS One
Proceedings of the National Academy of Sciences
Psychological Research
Psychological Science
Psychonomic Bulletin & Review
Quarterly Journal of Experimental Psychology
Transactions on Applied Perception
Ubiquitous Computing
Visual Cognition

Professional Memberships
Association for Psychological Science
Cognitive Science Society
Psychonomic Society
Vision Sciences Society

Grant Reviewing
College of Reviewers, NSF Perception, Action, & Cognition
Panel Member, NSF Perception, Action, & Cognition
Panel Member, NSF Information & Intelligent Systems (IIS)
Ad-hoc Reviewer, NSF BCS Cognitive Neuroscience
Ad-hoc Reviewer, NSF BCS Developmental & Learning Sciences
Ad-hoc Reviewer, NSF Time-sharing Experiments for the Social Sciences

Teaching (active courses bolded)

Winter 2018-	Communicating your Research (Graduate)
2018-	Whole-Brain Communication (Kellogg MBA, EMBA, Executive, Design)
Winter 2013-	Presenting Data & Ideas (Undergraduate)
Fall 2013-	Visual Cognition & Data Visualization (Graduate)
Spring 2013	Vision, Space, & Science Education (Graduate)
Fall 2010	Visual Cognition (Undergraduate)
Fall 2009	Visual Space & Structure (Graduate)
Spring 2009	Freshman Seminar: Visual Perception & Aesthetics
Winter 2008-	Practical Experiment Building with Matlab (Graduate)
Fall 2008-2015	Cognitive Science Honors Thesis Seminar
Fall 2007-2013	Cognitive Psychology
Fall 2006	Visual Attention & Memory (Graduate)
Fall 2006	Visual Cognition
Fall 2003	Teaching Fellow, Experimental Neuroscience of Motion

Spring 2002	Head Teaching Fellow, Vision & the Brain
Sept 2001	Harvard Bok Center for Teaching & Learning Seminar on "Teaching Science to Non-Scientists"
2001-Present	Advisor to dozens of undergraduate & thesis students

Professional Service

University

2015-2018	Director, Northwestern Cognitive Science Program
2014-2015	Northwestern Psychology Strategic Planning Committee
2010-2014	Northwestern Undergraduate Research Fellowship Committee
2010-	Faculty, Northwestern Transportation Center
2009-	Faculty, NSF Spatial Intelligence & Learning Center
2008-	Director of Undergraduate Studies, Northwestern Cognitive Science
2007-2009	Committee on Undergraduate Studies, Northwestern Psychology
2007-2012	Honors Committee, Northwestern Psychology
2007-	Cognitive Science Program Committee, Northwestern University
2006-2009	Computing Committee, Northwestern Psychology
2006-	Center for Technology & Social Behavior, Northwestern University
2006-	Northwestern Interdepartmental Neuroscience Program

Recruiting of Underrepresented Groups

2017	Awards Committee, FoVea (Females of Vision et al.)
2012	Malcolm X College Chicago, Career Day speaker
2010-	Northwestern University *(Undergraduate & Graduate events)*
Oct 2008	Duke University *(Graduate)*
April 2008	University of Illinois, Urbana-Champaign *(Graduate)*
March 2008	Northeastern Illinois University *(Graduate)*
2008-	Northwestern Summer Research Opportunities Program Application

Community outreach

2014	Lecture on Visual Communication, Northwestern *Ready Set Go.*
2012-2016	Organizer, Chicago Brain Week outreach talk series http://brainscience.illinoisscience.org/
2009-	*Science Chicago* educational outreach
2009-	Northwestern Sigma Xi public outreach talks, to adults & students
2007-2013	Internship advisor to 2 high-school / home-school students per year.

Academic

2016-2018	IEEE InfoVis Papers Co-Chair
2015	Organizer, Configural Processing Consortium conference
2014	Organizer, SILC Workshop on Sketching in Education

2006-2008	Organizer, OPAM conference on Object Perception Attention & Memory
2003-2004	Organizer of Harvard Cognition, Brain, & Behavior Colloquia
2001-2004	Resident Tutor in Psychology, Pforzheimer House, Harvard
2000-2001	Graduate Resident Advisor, Perkins Hall, Harvard
1997-1999	Co-Founder & President, Rutgers Undergradute Cognitive Science Society
1996-1998	Editor of internet edition of Rutgers student newspaper, *The Daily Targum*

Graduate Students

Heeyoung Choo (Ph.D., 2006-2012)
Yangqing Lucie Xu (Ph.D., 2009-2014)
Dian Yu (Ph.D., 2012-2017)
Lei Yuan (Ph.D., 2012-2017)
Christie Nothelfer (Ph.D., 2012-present)
Cindy Xiong (Ph.D., 2017-present)
Christina Ceja (Ph.D., 2018-present)

Postdoctoral Researchers

Brian Levinthal (2009- 2011)
Audrey Lustig Michal (2012-2017)
Steven Haroz (2013-2016)
Brandon Liverence (2013-2016)
Andrew Lovett (2013-2016)
Miriam Novack (2016-present)
Nicole Jardine (2017-present)
Caitlyn McColeman (2017-present)

M.A. / Ph.D. Thesis Committees

2006-2007	Ann Ming Liu (Ph.D)
2007-2008	KatieAnn Skogsberg (Ph.D)
2008-2009	Parkson Leung (Ph.D), John Meixner (M.A)
2009-2010	Genna Bebko (Ph.D), Luci Iordanescu (Ph.D), Heather Lucas (M.A), Mike Winograd (M.A.)
2010-2011	Heeyoung Choo (M.A.), Heather Norbury (Ph.D), Nina Simms (M.A.), Megan Sauter (Ph.D), Ezra Wegbriet (Ph.D), Xiaoqing Alan Hu (M.A.),
2011-2012	Sarah Chabal (School of Comm Sci) (M.A.); Heeyoung Choo (Ph.D.); Andrew Lovett (Computer Science) (Ph.D.); Kevin Price (M.A.); Mike Winograd (Ph.D.); Lucie Yangqing Xu (M.A.)
2012-2013	Heather Norbury (Ph.D.); Brock Ferguson (M.A.); Nina Simms (Ph.D.); Jacob Zweig (M.A.); Danielle Albers (M.A.; UW Madison Computer Science); Michael Correll (M.A.; UW Madison Computer Science), Sarah Chabal (ABD, School of Comm Sci), Stacey Parrott (ABD), Lucie Xu (ABD), Xiaoqing Alan Hu (ABD), Mike Winograd (Ph.D.)

2013-2014	Jacob Zweig (M.A.), Sarah Chabal (Quals; School of Comm Sci); Xiaoqing Alan Hu (Ph.D), Stacey Parrott (Ph.D.), Lucie Xu (Ph.D.)
2014-2015	Lei Yuan (M.A.), Sarah Chabal (Ph.D.; School of Comm Sci), Yin-Juei Chang (Ph.D), Brock Ferguson (Ph.D.), Stacey Parrott (Ph.D), Danielle Albers (Ph.D.; UW Madison Computer Science); Michael Correll (Ph.D.; UW Madison Computer Science)
2015-2016	Melisa Mencelogolu (M.A).
2016-2017	John Plass (Ph.D.), Jacob Zweig (Ph.D.), Christine Nothelfer (Ph.D.), Dian Yu (Ph.D.), Anthi Dimara (M.A.; INRIA Paris), Anshul Pandey (Ph.D.; NYU Engineering).
2017-2018	Anthi Dimara (Ph.D.; INRIA Paris), Christine Nothelfer (Ph.D.)