# Tyler J. S. Marghetis

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## RESEARCH INTERESTS

Regimes and ruptures in human thought. How high-level cognition and communication emerge from brains, bodies, and culture. How our limited minds make sense of the invisible, imagined, and unfathomably complex (e.g., mathematics, time, climate change).

## EMPLOYMENT

**University of California, Merced**

2020 – Assistant Professor
Cognitive & Information Sciences

**Santa Fe Institute**

2019 – 2022 Omidyar Complexity Postdoctoral Fellow

**Indiana University, Bloomington**

2017 – 2019 Postdoctoral Fellow
O'Neill School of Public & Environmental Affairs

2015 – 2019 Postdoctoral Research Scientist
Deparment of Psychological and Brain Sciences
(mentors: Robert L. Goldstone, David Landy)

## EDUCATION

2015 **Ph.D. in Cognitive Science, University of California, San Diego**
Committee: Benjamin Bergen, Rafael Núñez, Edwin Hutchins, David Barner, Seana Coulson, Rick Grush, Teenie Matlock

2012 **M.S. in Cognitive Science, University of California, San Diego**

Fall 2011 **Visiting graduate student, University of California, Berkeley**

2009 **Master in the Teaching of Mathematics, Concordia University**

2007 **Honours B.Sc., With Distinction, Pure & Applied Mathematics**
**Concordia University,** Montreal, Canada

## MANUSCRIPTS IN REVISION OR UNDER REVIEW

1. Guay, B**., Marghetis, T.,** Wong, C., & Landy, D. (*under review*). The Origins of Demographic Misperceptions: Threat, Contact, and Bayesian Proportion Rescaling. Under review at *American Political Science Review.*

## REFEREED PUBLICATIONS

1. **Marghetis, T.,** Landy, D., & Attari, S. (2019). Understanding and correcting perceptions of home energy use. *Nature Energy,* 4, 874-881.
2. **Marghetis, T.** Samson, K., & Landy, D. (2019). The complex system of mathematical creativity. *41st Annual Meeting of the Cognitive Science Society*. Austin, TX: Cognitive Science Society.
3. Schille-Hudson, E., **Marghetis, T.**, Miniard, D., Landy, D., & Attari, S. (2019). Big, hot, or bright? Integrating cues to perceive home energy use. *41st Annual Meeting of the Cognitive Science Society*. Austin, TX: Cognitive Science Society.
4. Hendricks, R., Bergen, B. K., & **Marghetis, T.** (2018). Do metaphors move from mind to mouth? Evidence from new metaphors for time. *Cognitive Science,* 42, 2950-2975.
5. **Marghetis, T.,** Guay, B., Karlapudy, A., & Landy, D. (2018). The psychophysics of society: Uncertain estimates of invisible entities. *40th Annual Meeting of the Cognitive Science Society*. Austin, TX: Cognitive Science Society.
6. Setzler, M.*, **Marghetis, T.***, & Kim, M. (2018). Creative leaps in musical ecosystems: early warning signals of critical transitions in professional jazz. *40th Annual Meeting of the Cognitive Science Society*. Austin, TX: Cognitive Science Society.
   *joint first authors
7. Verhoef, T., Walker, E., **Marghetis, T.**, & Coulson, S. (2018). Neural measures of sensitivity to a culturally evolved space-time language: Shared biases and conventionalization. *40th Annual Meeting of the Cognitive Science Society*. Austin, TX: Cognitive Science Society.
8. Cooperrider, K., **Marghetis, T.,** & Núñez, R. (2017). Where does the ordered line come from? Evidence from Papua New Guinea. *Psychological Science,* 28, 599-608.
9. Hendricks, R., Bergen, B. K., & **Marghetis, T.** (2017). When metaphors in the mind become metaphors in the mouth: Documenting the emergence of a new system of linguistic metaphors for time. *39th Annual Meeting of the Cognitive Science Society*. Austin, TX: Cognitive Science Society.

10. Goldstone, R. L., **Marghetis, T.,** Weitnauer, E., Ottmar, E. R., & Landy, D. (2017). Adapting Perception, Action, and Technology for Mathematical Reasoning. *Current Directions in Psychological Science,* 26, 434-441.
11. Klein, S.A., & **Marghetis, T.** (2017). Shaping Experiment from the Inside Out: Performance-Collaboration in the Cognitive Science Lab. *Performance Matters,* 3, 16-40.
12. Landy, D., Guay, B., & **Marghetis, T.** (2017). Bias and ignorance in demographic perception. *Psychonomics Bulletin and Review*, 1-13.
13. **Marghetis, T.,** Goldstone, R. L., & Landy, D. (2017). Even when people are manipulating algebraic equations, they still associate numerical magnitude with space. *39th Annual Meeting of the Cognitive Science Society*. Austin, TX: Cognitive Science Society.
14. Nishimi, A., Walker, E., Bergen, B. K., & **Marghetis, T.** (2017). Listeners integrate speech, gesture, and discourse structure to interpret the temporal structure of complex events. *39th Annual Meeting of the Cognitive Science Society*. Austin, TX: Cognitive Science Society.
15. Tillman, K., **Marghetis, T.,** Barner, D., & Srinivasan, M. (2017). Today is tomorrow's yesterday: Children's acquisition of deictic time words. *Cognitive Psychology*, 92, 87-100.
16. Gutierrez, E. D., Shutova, E., **Marghetis, T.**, & Bergen, B. K. (2016). Literal and metaphorical senses in compositional distributional semantic models. *Proceedings of the Association for Computational Linguistics (ACL).*
17. **Marghetis, T.,** Landy, D., & Goldstone, R. L. (2016). Mastering algebra retrains the visual system to perceive hierarchical structure in equations. *Cognitive Research: Principles and Implications,* 1, 25.
18. Tillman, K. **Marghetis, T.**, Barner, D., & Srinivasan, M. (2016). Deconstructing *tomorrow*: How children learn the semantics of time. *Proceedings of the 38th Annual Conference of the Cognitive Science Society.* Austin, TX: Cognitive Science Society.
19. Verhoef, T., Walker, E., & **Marghetis, T.** (2016). Cognitive biases and social coordination in the emergence of temporal language. *Proceedings of the 38th Annual Conference of the Cognitive Science Society.* Austin, TX: Cognitive Science Society.
20. **Marghetis, T.**, Eberle, L.*, & Bergen, B. (2015). The mental number line spreads by gestural contagion. *Proceedings of the 37th Annual Conference of the Cognitive Science Society.* Austin, TX: Cognitive Science Society. *undergraduate student advisee

21. Winter, B., **Marghetis, T,** Matlock, T. (2015). Of metaphors and magnitudes: Explaining cognitive interactions between space, time, and number. *Cortex,* 64, 209-224.
22. **Marghetis, T.**, McComsey, M., & Cooperrider, K. (2014). Spatial reasoning in bilingual Mexico: Delimiting the influence of language. *Proceedings of the 36th Annual Conference of the Cognitive Science Society.* Austin, TX: Cognitive Science Society.
23. **Marghetis, T.**, Núñez, R, & Bergen, B. (2014). Doing arithmetic by hand: Hand movements during exact arithmetic reveal systematic, dynamic spatial processing. *Quarterly Journal of Experimental Psychology,* 67, 1579-1596.
24. **Marghetis, T.**, & Youngstrom, K.* (2014). Pierced by the number line: Integers are associated with back-to-front sagittal space. *Proceedings of the 36th Annual Conference of the Cognitive Science Society.* Austin, TX: Cognitive Science Society. *undergraduate student advisee
25. **Marghetis, T.**, & Núñez, R. (2013). The motion behind the symbols: A vital role for dynamism in the conceptualization of limits and continuity in expert mathematics. *Topics in Cognitive Science*, 5, 299-316.
26. Guerra, E., **Marghetis, T.**, & Knoeferle, P. (2013*)*. Spatial meanings for function words? The link between conjunctions and spatial representation. *Proceedings of the 35th Annual Conference of the Cognitive Science Society* (p. 2458-2463). Austin, TX: Cognitive Science Society.
27. **Marghetis, T.** †, Kanwal, J. †, & Bergen, B. (2013). Placing Numbers in Behavioral Space: Activity-Specific Interactions between Number and Space with a Single Response Button. *Proceedings of the 35th Annual Conference of the Cognitive Science Society* (p. 972-977). Austin, TX: Cognitive Science Society. †joint first authors
28. **Marghetis, T.**, Walker, E., Bergen, B., & Núñez, R. (2011). Making SNAP judgments: Rethinking the spatial representation of number. In L. Carlson, C. Hölscher, & T. Shipley (Eds.), *Proceedings of the 33rd Annual Conference of the Cognitive Science Society* (pp. 1781-1786). Austin, TX: Cognitive Science Society.

## BOOK CHAPTERS

1. Goldstone, R. L., Weitnauer, E., Ottmar, E., **Marghetis, T.**, & Landy, D. H. (2016). Modeling Mathematical Reasoning as Trained Perception-Action Procedures**.** In R. Sottilare, A. Graesser, X. Hu, A. Olney, B. Nye, and A. Sinatra (Eds.) *Design Recommendations for Intelligent Tutoring Systems: Volume 4 - Domain Modeling*. Orlando, FL: U.S. Army Research Laboratory.

2. Núñez, R., & **Marghetis, T.** (2015). Cognitive Linguistics and the Concept(s) of Number. In R. Cohen-Kadosh and K. Dowker (eds.), *Oxford Handbook of Numerical Cognition.* Oxford University Press.
3. **Marghetis, T.**, & Bergen, B. (2014). Embodied meaning, inside and out: The coupling of gesture and mental simulation. In Cornelia Müller, Alan Cienki, Ellen Fricke, Silva H. Ladewig, David McNeill & Sedinha Tessendorf (Eds.), *Body-Language-Communication.* New York: Mouton de Gruyter.
4. **Marghetis, T.**, Edwards, L.D., & Núñez, R (2014). More than mere handwaving: Gesture and embodiment in expert mathematical proof. In L. Edwards, F. Ferrara, and D. Moore-Russo (Eds.), *Emerging Perspectives on Gesture and Embodiment in Mathematics.* Charlotte, NC: IAP-Information Age Publishing.

## PUBLISHED ABSTRACTS

1. Coulson, S., **Marghetis, T.**, Cook, S., Goldin-Meadow, S. (2013). The Situated Meaning of Mathematical Symbols: ERPs to Mathematical Equations are Modulated by the Relation between Accompanying Speech and Gesture. *A Supplement to the Journal of Cognitive Neuroscience*, p. 144

## SELECTED RESEARCH IN PREPARATION

1. **Marghetis, T.**, & Bergen, B. K. (*in prep*). Spatial gestures transform the interpretation of abstract speech and shape subsequent judgments.
2. **Marghetis, T.**, Eberle, L.*, & Bergen, B. (*in prep*). The mental number line is shaped through gestural contagion. *undergraduate student advisee
3. **Marghetis, T.**, & Youngstrom, K.* (*in prep*). Pierced by the number-line: Integers induce embodied dispositions to move. *undergraduate student advisee
4. **Marghetis, T.,** Samson, K. Goldstone, R. L., & Landy, D. (*in prep*). Multiscale spatial structure in the cultural ecosystem of written numbers: Evidence from millions of books and hundreds of thousands of mathematical interactions.
5. **Marghetis, T.,** Goldstone, R. L. & Landy, D. (*in prep*). Dense recording of algebraic reasoning reveal the dynamic spatial processing of number and arithmetic.
6. **Marghetis, T.**, Karlapudi, A., Guay, B., & Landy, D. (*in prep*). Public estimation of large-scale social structure reflects domain-general cognitive processing.
7. **Marghetis, T.**†**,** McComsey, M.†, & Cooperrider, K.† (*in prep*). Spatial words anchor non-linguistic spatial cognition. †shared first-authorship

8. **Marghetis, T.**, Núñez, R., & Bergen, B., (*in prep*). The spatial structure of mathematical reasoning: Evidence from spontaneous metaphorical gestures.
9. **Marghetis, T.,** Tillman, K., & Srinivasan, M. (*in prep*). Learning to point to the future: The developmental timecourse of metaphorical gestures for time.
10. Nishimi, A.*, Walker, E., Bergen, B., & **Marghetis, T.** (*in prep*). Did it happen "next," afterward, or to the right? Listeners integrate speech, order-of-mention, and gesture to infer the temporal order of events. *undergraduate student advisee
11. Zerkle, S., **Marghetis, T.**, Emmory, K., & Bergen, B. (*in prep*). The benefits of iconicity in second-language acquisition of sign language: Initial guessing and rate of learning. *undergraduate student advisee

## RESEARCH PRESENTATIONS

### Invited Talks

1. "A recipe for revolution? Understanding sudden changes of mind and behavior." Colorado College, Colorado Springs, USA. April, 2020.
2. "Breakthroughs, breakdowns, breakups: Understanding the stable regimes and sudden revolutions of human cognition." Concordia University, Montreal, Canada. October, 2019.
3. "Regimes and revolutions in communication and cognition." University of California, Merced. February, 2019.
4. "Regimes and revolutions in human cognition." Santa Fe Institute. January, 2019.
5. "An old-fashioned theory of digital propaganda: Does gesture propagate cultural knowledge?" Center for Research in Language, UC San Diego. May, 2016.
6. "Every number in its place: Spatial foundations of calculation and conceptualization." Cognitive Development Lab, University of Chicago. April, 2015.
7. "Questions and concerns from friends and enemies of Embodied Cognition." *Bridging Neuroscience and Embodiment: The Many Bodies of Embodied Cognition*, Advanced Course at the Champalimaud Neuroscience Programme, Portugal. October, 2013.
8. "Closing remarks: Which body?" *Bridging Neuroscience and Embodiment: The Many Bodies of Embodied Cognition,* Advanced Course at the Champalimaud Neuroscience Programme, Portugal. October, 2013.

### Invited Workshop Participation

1. *Cultures of Mathematical Research Training.* Hamburg, Germany. June, 2015.

**Panels, Workshops, and Courses Organized**

2. Tillman, K.†, Walker, E.†, **Marghetis, T.†**, Bender, A., Sieghard, B., Srinivasan, M., Barner, D., Santiago, J., Bergen, B., Núñez, R., Casasanto, D., & Boroditsky, L. (July 2014). Origins of time: New insights into the psychological foundations of time. *Symposium at the 36th Annual Conference of the Cognitive Science Society.* Austin, TX: Cognitive Science Society. †*symposium co-organizers*
3. Invited organizer, *Bridging Systems Neuroscience and Embodied Cognition: The Many Bodies of Embodied Cognition*. Advanced Course at the Champalimaud Neuroscience Programme, Lisbon, Portugal (October 2013). sites.google.com/a/neuro.fchampalimaud.org/embodied-cognition

**Conference or Workshop Talks**

1. **Marghetis, T.** Samson, K., & Landy, D. (July 2019). The complex system of mathematical creativity. *41st Annual Meeting of the Cognitive Science Society*. Montreal, Canada.
2. **Marghetis, T.** (May 2019). Doing Math as Design: How Math-Doers Create Their Own Ecosystems for Thinking. *Workshop on the Future of Embodied Design for Mathematical Imagination and Cognition.* University of Wisconsin, Madison, USA.
3. **Marghetis, T.,** Guay, B., Karlapudy, A., & Landy, D. (July 2018). The psychophysics of society: Uncertain estimates of invisible entities. *40th Annual Meeting of the Cognitive Science Society*, Madison, USA.
4. Verhoef, T., Walker, E., **Marghetis, T.**, & Coulson, S. (July 2018). Neural measures of sensitivity to a culturally evolved space-time language: Shared biases and conventionalization. *40th Annual Meeting of the Cognitive Science Society*. Madison, USA.
5. Verhoef, T., Walker, E., & **Marghetis, T.** (April 2018). Cognitive biases and cultural evolution in the emergence of space-time mappings in language. *EvoLang 12*, Toruń, Poland.
6. **Marghetis, T.** (September 2017). Motion and the expert conceptualization of limits and continuity. *European Society for Cognitive Psychology*. Potsdam, Germany.
7. Verhoef, T., Walker, E., & **Marghetis, T.** (September 2017). Cognitive biases and cultural evolution in the emergence of space-time mappings in language. *50th Meeting of the Societas Linguistica Europaea,* Zurich, Switzerland.

8. Nishimi, A., Walker, E., Bergeb, B. K., & **Marghetis, T.** (July 2017). Listeners integrate speech, gesture, and discourse structure to interpret the temporal structure of complex events. *39th Annual Meeting of the Cognitive Science Society*. Austin, TX: Cognitive Science Society.
9. Klein, S. & **Marghetis, T.** (December 2016). Shaping experiment from the inside out. *A Body of Knowledge: Embodied Cognition and the Arts,* Irvine, CA, USA.
10. Landy, D., Karlapudi, A., Guay, B., & **Marghetis, T.** (November 2016). Domain-general psychophysical scaling, not issue-specific biases, explains most apparent political ignorance. *37th Annual Conference of the Society for Judgment and Decision Making,* Boston, MA, USA.
11. Klein, S. & **Marghetis, T.** (August 2016). Shaping Experiment from the Inside Out. *4S (Society for Social Studies of Science),* Barcelona, Spain.
12. Landy, D., Silbert, N., & **Marghetis, T.** (August 2016). Measuring The Wisdom of Nations. *49th Annual Meeting of the Society for Mathematical Psychology*, New Brunswick, NJ, USA.
13. **Marghetis, T.,** Walker, E., & Verhoef, T. (August 2016). Where is tomorrow? How high is a year? Space-time metaphors emerge from individual biases, social interaction, and cultural transmission. *8th Conference in Evolutionary Linguistics,* Bloomington, IN, USA.
14. Tillman, K. **Marghetis, T.**, Barner, D., & Srinivasan, M. (August 2016). Deconstructing *tomorrow*: How children learn the semantics of time. *38th Annual Conference of the Cognitive Science Society.* Austin, TX: Cognitive Science Society. (34% acceptance rate)
15. Verhoef, T., Walker, E., & **Marghetis, T.** (August 2016). Cognitive biases and social coordination in the emergence of temporal language. *38th Annual Conference of the Cognitive Science Society.* Austin, TX: Cognitive Science Society. (34% acceptance rate)
16. **Marghetis, T.**, Goldstone, R. L., & Landy, D. (June 2016). Automaticity of numerical magnitude processing during the solution of algebraic equations. *Canadian Society for Brain, Behavior, and Cognitive Science*, Ottawa, Canada.
17. McComsey, M., Cooperrider, K., & **Marghetis, T.** (January 2016). Sources of within-population variability in spatial communication and reasoning: Evidence from Juchitán, Mexico. (Special Session on Language, Culture, and Cognition in Spatial Reference.) *90th Annual Meeting of the Linguistic Society of America*, Washington, DC.

18. Cooperrider, K., McComsey, M., & **Marghetis, T.** (September 2015). Spatial frames of reference in gesture: Evidence from bilingual Mexico. *6th International Conference on Spatial Cognition*, Rome, Italy.
19. **Marghetis, T.**, Eberle, L.*, & Bergen, B. (July 2015). The mental number line spreads by gestural contagion. *37th Conference of the Cognitive Science Society,* Pasadena, CA. (31% acceptance rate) *undergraduate student advisee
20. Cooperrider, K., McComsey, M., & **Marghetis, T.** (November 2014). Gesture and spatial frames of reference in bilingual Mexico. *12th Conceptual Structure, Discourse, and Language Conference,* Santa Barbara, CA.
21. **Marghetis, T.**, Eberle, L. *, Bergen, B. (November 2014). Gesture shapes the conceptualization of abstract mathematical concepts. *12th Conceptual Structure, Discourse, and Language Conference,* Santa Barbara, CA. *undergraduate student advisee
22. **Marghetis, T.**, & Youngstrom, K.* (July 2014). Pierced by the number line: Integers are associated with back-to-front sagittal space. *36th Annual Conference of the Cognitive Science Society,* Quebec, Canada. (41% acceptance rate) *undergraduate student advisee
23. **Marghetis, T.**, McComsey, M., & Cooperrider, K. (July 2014). Spatial reasoning in bilingual Mexico: Delimiting the influence of language. *36th Annual Conference of the Cognitive Science Society,* Quebec, Canada. (41% acceptance rate)
24. **Marghetis, T.,** & Guerra, E. (March 2014). Spatial grounding of 'coordinating elements' in language and cognition. *Converging Evidence? Embodied Views of Basic Categories in Language and Cognition*, Marburg, Germany.
25. **Marghetis, T.**†, Kanwal, J.†, & Bergen, B. (August 2013). Placing Numbers in Behavioral Space: Activity-Specific Interactions between Number and Space with a Single Response Button. *35th Annual Conference of the Cognitive Science Society,* Berlin, Germany. (28% acceptance rate) †authors contributed equally
26. **Marghetis, T.**, Goldin-Meadow, S., & Coulson, S. (July 2012). Speech-gesture mismatch and the neural response to mathematical information. *Fifth Conference of the International Society for Gesture Studies*, Lund, Sweden.
27. Núñez, R., & **Marghetis, T.** (July 2012). Arithmetic in action: Evidence in gesture of the flexible deployment of complementary embodied conceptualizations of abstract arithmetic. *5th Conference of the International Society for Gesture Studies*, Lund, Sweden.

28. **Marghetis, T.**, Bergen, B., & Núñez, R. (July 2012). Metaphorical conceptualization of arithmetic: Evidence in gesture of the flexible deployment of complementary construals of abstract arithmetic. *4th Annual Meeting of the UK Cognitive Linguistics Association*, London, UK.
29. **Marghetis, T.,** Bergen, B., & Núñez, R. (July 2012). Metaphoric mathematics in action: Evidence in gesture of multiple conceptual metaphors for arithmetic. *Researching and Applying Metaphor (RaAM) 9*, Lancaster, UK.
30. **Marghetis, T.**, Bergen, B. & Núñez, R. (May 2012). Flexible conceptualization in mathematics: Evidence in gesture of multiple and complementary construals of abstract arithmetic. *Conceptual Structure, Discourse, and Language (CSDL) 11*, Vancouver, Canada.
31. **Marghetis, T.**, & Sheredos, B. (December 2010). Warranting inference: Lessons from Cauchy and Cognitive Science. *1st Annual Meeting of the Association for the Philosophy of Mathematical Practice,* Brussels, Belgium.
32. Sheredos, B., & **Marghetis, T.** (December 2010). Toward a new psychologistic logic: Some anti-Fregean (and Fregean!) hypotheses. *Workshop From Cognitive Science and Psychology to an Empirically-Informed Philosophy of Logic,* Amsterdam, Netherlands. (35% acceptance rate)
33. **Marghetis, T.**, & Núñez, R. (March 2010). Dynamic construals, static formalisms: Evidence from co-speech gesture during mathematical proving. *Symposium on Mathematical Practice and Cognition,* at *AISB 2010*, Leicester, UK.
34. **Marghetis, T.** (May 2009). Metaphor and explanation: The case of mathematical proof. *Transformation Through Learning Graduate Symposium*, Montreal, Canada.
35. **Marghetis, T.** (February 2009). What makes a textbook proof a satisfactory explanation for the reader? *12th Conference on Research in Undergraduate Mathematics Education (RUME)*, Raleigh, USA.

**Conference or Workshop Posters**

1. Schille-Hudson, E., **Marghetis, T.**, Miniard, D., Landy, D., & Attari, S. (2019). Big, hot, or bright? Integrating cues to perceive home energy use. *41st Annual Meeting of the Cognitive Science Society*. Montreal, Canada.
2. **Marghetis, T.**, Goldstone, R., & Landy, D. (November 2018). Multiscale spatial structure in the cultural ecosystem of written numerals. *59th Annual Meeting of the Psychonomic Society*. New Orleans, USA.

3. Setzler, M.*, **Marghetis, T.***, & Kim, M. (July 2018). Creative leaps in musical ecosystems: early warning signals of critical transitions in professional jazz. *40th Annual Meeting of the Cognitive Science Society*. Austin, TX: Cognitive Science Society. *joint first authors
4. **Marghetis, T.,** Landy, D., & Attari, S. (November 2017). Estimating and correcting misperceptions of household energy use. *Society for Judgment and Decision Making.* Vancouver, Canada.
5. **Marghetis, T.**, Penticuff, M., Kirsh, D., Goldstone, R., & Landy, D. (November 2017). External Structure Helps Problem Solving by Facilitating 'Mental Projection.' *58th Annual Meeting of the Psychonomic Society*. Vancouver, Canada.
6. Manzo, D., Samson, K., Ottmar, E., **Marghetis, T.**, & Landy, D. (October 2017). Assessing symbol sense by identifying strategic solutions. *39th Annual PME-NA (North American Chapter of the International Group for the Psychology of Mathematics Education),* Indianapolis, USA.
7. **Marghetis, T.,** Landy, D., & Goldstone, R. (November 2016). The Role Of Space In Complex Mathematics: Stable Grounding Or Soft-Assembled Skills? *57th Annual Meeting of the Psychonomic Society*, Boston, USA.
8. **Marghetis, T.,** Landy., D., & Goldstone, R. L., (September 2016). An eye for mathematics: The visual system is retrained to see algebraic structure in notations. *Domain-General and Domain-Specific Foundations of Numerical and Arithmetic Processing,* Tübingen, Germany.
9. Nishimi, A.*, Walker, E., **Marghetis, T.**, Núñez, R., & Bergen, B. (July 2016). Did it happen "next" or to the right? Listeners integrate gesture, speech, and order-of-mention to determine the temporal order of events. *7th Conference of the International Society for Gesture Studies,* Paris, France. *undergraduate student advisee
10. Tillman, K., **Marghetis, T.**, Barner, D., & Srinivasan, M. (November 2015). Placeholder structures in word learning: The case of deictic time. *40th Boston University Conference on Language Development,* Boston, USA.
11. Tillman, K., **Marghetis, T.**, Barner, D., & Srinivasan, M. (October 2015). The development of explicit and implicit spatial representations of time. *9th Biennial Meeting of the Cognitive Development Society,* Columbus, USA.
12. Tillman, K., **Marghetis, T.**, Barner, D., & Srinivasan, M. (March 2015). When time becomes a place: Temporal gestures, timelines, and the development of children's

spatial understanding of time. *Biennial Meeting of the Society For Research In Child Development*, Philadelphia, USA.

13. **Marghetis, T.**, Tillman, K, Srinivasan, M., & Barner, D. (July 2014). Learning to put time in its place: The development of spatial gestures for time. *6th Conference of the International Society for Gesture Studies (ISGS),* La Jolla, USA.
14. Guerra, E., **Marghetis, T.**, & Knoeferle, P. (August 2013*)*. Spatial meanings for function words? The link between conjunctions and spatial representation. *35th Annual Conference of the Cognitive Science Society,* Berlin, Germany.
15. Coulson, S., **Marghetis, T.**, Wagner-Cook, S., & Goldin-Meadow, S. (April 2013). The situated meaning of mathematical symbols: ERPs to mathematical equations are modulated by the relation between accompanying speech and gesture. *20th Meeting of the Cognitive Neuroscience Society.* San Francisco, USA.
16. **Marghetis, T.**, Walker, E., Bergen, B., & Núñez, R. (July 2011). Making SNAP judgments: Rethinking the spatial representation of number. *33rd Conference of the Cognitive Science Society*, Boston, USA. (73% acceptance rate)

**Campus or Departmental Talks**

17. Marghetis, T. (April 2010). Static formalisms, dynamic construals: Evidence from gesture during mathematical proving. *Gesture Group San Diego*, UC San Diego.
18. Marghetis, T. (February 2009). Satisfaction with a proof as an explanation. *Concordia University Mathematics Education Seminar Series*, Montreal, Canada.
19. Marghetis, T. (September 2008). The roles of proof in mathematics. Talk at the *Concordia University Mathematics Education Seminar Series*, Montreal, Canada.
20. Marghetis, T. (2003). Paradox: Rational but unreal. Invited Commentary at the *Montreal Inter-University Seminar on the History and Philosophy of Science*, Concordia University, Montreal, Canada.

## GRANTS, AWARDS, AND FELLOWSHIPS

| | |
|---|---|
| 2015 | **Academic Senate Research Grant (**$12,275**),** UC San Diego<br>(authored by Tyler Marghetis, awarded to PhD advisor Rafael Núñez) |
| 2015 | **Interdisciplinary Research Award** (one of three recipients), UC San Diego |
| 2009 – ’13 | **Robert J. Glushko & Pamela Samuelson Fellowship** ($16,000), UCSD |
| 2013 | **Fellow, *Latin American School for Education, Cognitive, & Neural Sciences*.**<br>Bahia, Brazil. |

2012 **Summer Graduate Teaching Fellow**, UC San Diego
2009 – ’12 **Doctoral Fellowship** ($60,000), FQRSC, Canada
2011 **Graduate Excellence Award** ($3,000), UC San Diego
2010 **Superior Teaching Award**, Department of Cognitive Science, UC San Diego
2009 **OGS Graduate Fellowship** ($15,000; declined), Ontario, Canada
2005, ’08 **CIS Top-8 Academic All-Canadian**, Canadian Intercollegiate Sport (CIS)
2008 **Power Corporation of Canada Fellowship** ($5000), Concordia University
2008 **New Millennium Graduate Scholarship** ($1500), Concordia University
2008, ’09 **Nick Herscovics Graduate Scholarship**, Concordia University

## TRAVEL GRANTS

2014 **Robert J. Glushko & Pamela Samuelson Foundation Travel Grant** ($500)
2013 **Robert J. Glushko & Pamela Samuelson Foundation Travel Grant** ($600)
2012 **Grindley Travel Grant** (£500), *British Experimental Psychology Society*
2012 **Graduate Travel Bursary** (£160), *Researching and Applying Metaphor*, UK
2012 **Graduate Travel Grant** ($300), *CSDL Conference*, Vancouver, Canada
2012 **Dean of Social Sciences Travel Grant** ($500), UC San Diego
2011 **Glushko Travel Award** ($500), UC San Diego
2010 **Travel Award** (£75), *Artificial Intelligence and Simulation of Behaviour Society*

## TEACHING EXPERIENCE

### Instructor of Record, Department of Cognitive Science, UC San Diego

Cognitive Foundations of Mathematics (Spring 2014, ‘15, enrollment: 36, 35)
Distributed Cognition (Fall 2014, enrollment: 165)
Introduction to Research Methods (Summer 2015, enrollment: 36)
Analogy and Conceptual Systems (Summer 2012, ‘13, enrollment: 25, 12)

### Instructor of Record, Department of Mathematics & Statistics, Concordia University

Algebra and Functions (Fall 2008, Winter 2009, enrollment: 55)

### Teaching Assistant

Language (Instructor: Rafael Núñez, Spring 2010; Ben Bergen, Spring 2012)
Cognitive Foundations of Mathematics (Instructor: Rafael Núñez, Spring 2010)
Distributed Cognition (Instructor: Ed Hutchins, Fall 2010, 2013; David Kirsh, Fall 2012)
Gesture and Cognition (Instructor: Kensy Cooperrider, Summer 2011)
Design and Analysis of Experiments (Instructor: Rafael Núñez, 2010, 2011, 2012)
An Uncensored Introduction to Language (Instructor: Ben Bergen, Spring 2013)
Minds and Brains (Instructor: Mary Boyle, Summer 2011)
Introduction to Computing (Instructor: Mary Boyle, Summer 2011)
Head Teaching Assistant, Department of Cognitive Science, UC San Diego (2012-2013)

### Secondary School Teaching Experience

Substitute teacher (mathematics, physical education), Selwyn Academy High School (2006)

## MENTORSHIP

Mentorship is central to my research practice. Mentored undergraduate students have gone on to top graduate programs (e.g., Berkeley, UNC Chapel Hill) and research positions in industry and at national agencies (e.g., Sony, NASA).

### Undergraduate Honors Theses Advised

Graves, B. (2018). Cultural evolution of tools for thinking. Psychological and Brain Sciences, Indiana University.

Nishimi, A. (2015). Exploring the effects of metaphorical gesture on comprehension and recall. Cognitive Science, UC San Diego.

Zerkle, S. (2014). How does iconicity affect sign learning? Cognitive Science, UC San Diego.

### Undergraduate Research Mentorship (UC San Diego and Indiana University)

Myrna Aboudiab (Human Biology)
Natalie Allen (Psychology)
Nicholas Boyd (Psychology)
Carly Jane Casper (Psychology)
Anthony Chan (Psychology)
Richard Chen (Cognitive Science)
Jordan Conway (Cognitive Science)
Luke Eberle (Cognitive Science)
Brittany Fitzgerald (Molecular Biology)
Alec Gasperian (Cognitive Science)
Breely Graves (Psychology)
Saiuth Malpeddi (Psychology)
Gylmar Moreno (Cognitive Science)
Andie Nishimi (Cognitive Science)

Chau Nguyen (Communication)
Jeremiah Palmerston (Cognitive Science)
Chloe Sanossian (Computing & the Arts)
Sarah Saturday (Cognitive Science)
Victoria Updike (Psychology)
Melissa Wedeen (Cognitive Science)
Kendall Youngstrom (Cognitive Science)
Sandy Zerkle (Psychology)

## PROFESSIONAL SERVICE

Organizing Committee, *Sixth Conference of the International Society for Gesture Studies*. University of California, San Diego (July 2014). Website: http://isgs.ucsd.edu/

Programme Committee, *Symposium on Mathematical Practice and Cognition II*. Turing Centenary Conference of the AISB Society (Birmingham, UK, July 2012)

Organizer of the "*WA" Speaker Series,* Cognitive Science, UC San Diego (2010-2012)

Founder and organizer of the *Concordia University Mathematics Education Seminar Series,* Department of Mathematics, Concordia University (2008-2009)

## PAST AND CURRENT PROFESSIONAL MEMBERSHIPS

American Psychological Association (APA)
Association for the Philosophy of Mathematical Practice
Association for Psychological Science (APS)
Cognitive Science Society
Fields Institute network on the "Empirical Study of Mathematics and How it is Learned"
International Society for Gesture Studies (ISGS)
Linguistic Society of America (LSA)
Psychonomic Society
Society for the Study of Artificial Intelligence and the Simulation of Behaviour (AISB)
Spatial Network (NSF Spatial Intelligence and Learning Center)

## EDITING, ADVISING, AND REVIEWING

Associate Editor, *Frontiers in Psychology (Theoretical and Philosophical Psychology)*

Grant advisory board: *How Dynamic Gestures and Directed Actions Contribute to Mathematical Proof Practices* (U. S. Dept. of Education—Institute of Educational Sciences)

Grant reviewer for: *National Science Foundation (NSF)*

Ad-hoc journal reviewer for: *Behavior Research Methods, Cognitive Linguistics, Cognitive Processing, Cognitive Psychology, Cognitive Research Principles and Implications, Cognitive Semiotics, Cognitive Science Society (Conference), Conceptual Structure, Discourse, and Language* (edited volume), *iConference 2016 (Information Studies), Journal of the Learning Sciences, Language and Cognition, Logica Universalis, Perception, Topics in Cognitive Science (TopiCS), Synthese*

## PRESS COVERAGE AND MEDIA INTERVIEWS

09/16/2019 Correcting consumer misperception. "News and Views", *Nature Energy*.
https://www.nature.com/articles/s41560-019-0472-5

01/29/2015 Chickens Agree: Left Means Less; Right Means More. *The New York Times*.
www.nytimes.com/2015/01/30/science/left-means-less-even-for-chickens.html

09/01/2014 The Power of Mental Pictures. *The Chronicle of Higher Education*.
http://chronicle.com/article/The-Power-of-Mental-Pictures/148497/

## OTHER EMBODIED ACCOMPLISHMENTS

Olympic Alternate, 2008 Beijing Olympics, Canadian freestyle wrestling team (74 kg)

Four-time university national champion (Canada), five-time All-Canadian

National Team Athlete, 2002-2009, Canadian freestyle wrestling team

## REFERENCES

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