

Curriculum Vitae Contact Information

Name: SHANE THOMAS MUELLER, PH.D.
Position: Associate Professor
Human Factors & Applied Cognitive Science Program
Dept. of Cognitive and Learning Sciences
Michigan Technological University

Address: 1400 Townsend Drive
Houghton, MI 49931
Phone: (906) 487-1159
Email: shanem@mtu.edu
smueller@obereed.net
Web: <http://shanetmueller.info>

Education

- University of Michigan:
Ph. D., August 2002, in Cognitive Psychology
- Drew University:
B. A. summa cum laude, 1996 with degrees in Mathematics and Psychology

Academic and Research Experience

- Associate Professor, 2015-present.
Assistant Professor, 2011-2015.
Michigan Technological University, Dept. of Cognitive and Learning Sciences, Houghton MI.
- Senior Scientist, 2006–2016. (Senior Research Scientist II to V)
Klein Associates Division, Applied Research Associates, Inc., Dayton, OH
- Postdoctoral Researcher, 2003–2006
Richard M. Shiffrin, Sponsor
Dept. of Psychological and Brain Sciences, Indiana University
- Graduate Student Research Assistant, 1997–2002.
David E. Meyer, advisor
Department of Psychology, University of Michigan
- Academic Research Assistant, 1996
C. Robin Timmons, advisor
Department of Psychology, Drew University

Administrative Service

College and University

- Chair, Cognitive and Learning Sciences Promotion & Tenure Committee (2016—2018,2020-2021)
- Member, Research Advisory Council, Michigan Technological University (2016—present)
- Member, Graduate Advisory Council, Michigan Technological University (Sep. 2013–Apr. 2015).
- MTU University Senate Alternate, member of Academic Policy Committee; President Evaluation. (April 2015-April 2017).
- Research Advisory Council, (Sep 2015-present)
- College of Science and Arts Dean Reappointmentment committee. (Spring 2016).

Research Community

- Academic Editor, peerJ

Served as Ad Hoc Reviewer for:

- Acta Psychologica
- Attention, Perception, and Psychophysics
- Biologically-inspired Cognitive Architectures
- Brain and Behavior
- Cognitive Science Society
- Cognitive Systems Research
- Computer-Aided Geometric Design
- Frontiers in Psychology
- Human Factors & Ergonomics Society
- International Journal of Machine Consciousness
- Journal of Cognitive Engineering and Decision Making
- Journal of Experimental Psychology: Human Performance & Perception
- Journal of Experimental Psychology: Learning, Memory & Cognition
- Journal of Memory and Language
- Journal of Mathematical Psychology
- Journal of Open Research Software
- Memory and Cognition
- Military Psychology
- PeerJ
- Perception & Psychophysics
- PLoS ONE
- Psychological Review
- Psychonomic Bulletin & Review
- SAGE Open

Other Service:

- Member of the Extended Process Similarity Review Panel (EPSRP), ICANN.
- Homeland Defense and Security Information Analysis Center (HDIAC) SME in the Homeland Defense and Security and Critical Infrastructure Protection focus areas.
- Program Committee, International Conference for Cognitive Modeling (ICCM), 2008; 2010; 2013
- ICCM Awards Committee, 2010
- Advisory Committee, George Mason University Center of Excellence in Neuroergonomics, Technology, and Cognition (CENTEC), sponsored by AFRL. 2010–2014.
- Program Committee, International Conference on Biologically-Inspired Cognitive Architectures, 2010; 2013
- Organizing Committee, AAI Fall Symp. on Biologically-Inspired Cognitive Architectures I & II, (2008, 2009)
- AFOSR Cognition & Decision Program Grant Reviewer
- Univ. of Michigan Dept. of Psychology Subject Recruitment Committee, 1998–1999.
- Univ. of Michigan Dept of Psychology, Cognition and Perception Forum Committee, 1997–1998.
- Student Representative to Drew University Senate, 1994–1996.

Teaching Experience

- Psychology 5210: Advanced Statistical Analysis & Design I (Graduate course) (Spring 2012; Fall 2014,2016,2018,2020: 8-35 students)
Including on-line coursebook and youtube series <http://pages.mtu.edu/~shanem/psy5210>
- Psychology 5220: Advanced Statistical Analysis & Design II (Graduate course)
<http://pages.mtu.edu/~shanem/psy5220>
Michigan Technological University (Spring 2013, 2015, 2017, 2021: 5–18 students)
- Explanation in Artificial Intelligence (Graduate Seminar)
Michigan Technological University (Spring 2018).
- Psychology 6990: Learning & Memory (Graduate Course)
Michigan Technological University (Fall 2012).
- Psychology 6990: Cognitive Modeling (Graduate Course)
Michigan Technological University (Spring 2013).
- Psychology 3000/3001: Research Methods and Experimental Design I/II, Michigan Technological University.
Taught Fall 2011-Spring 2015.
- Psychology 240: Introduction to Cognitive Psychology, University of Michigan (Winter 2003; 300 students)
- Psychology 341: Advanced Laboratory in Cognitive Psychology, University of Michigan
(Fall 2002 & Winter 2003 (80 students)
- Psychology 613/614: Advanced Statistical Methods in Psychology, University of Michigan
Fall, 1999 & Winter, 2000 (90 students; Graduate Student Instructor for Prof. Richard Gonzalez)
- Psychology 340: Introduction to Cognitive Psychology, University of Michigan
Fall 1996, Winter 1997 (120 students; Graduate Student Instructor for Profs. John Jonides and William Gehring)
- Department of Psychology Statistical Consultant, University of Michigan
Fall 2000 to Winter 2002
- Primary Supervisor of Undergraduate Students working on honors/independent research projects, Univ. Michigan
Winter 2001 through Spring 2003.

Awards and Honors

- MTU Institute for Cybersystems and Computing (ICC) Research Award, 2017.
- Recognized as ranking among the top 10% of MTU instructors based on student evaluation scores (4.9 or higher):
 - PSY 5210 (Graduate Statistics I) 2012; 2018
 - PSY 5999: Explanation in AI(2018)
- Winner, Outstanding Platform Presentation; Chemical Biological Defense (CBD) Physical Science and Technology Conference, 2010 (Five awards selected from among approx. 800 presentations).
- Technical Achievement Award, Applied Research Associates, 2010.
- Winner, Best paper; Behavior Representation in Modeling and Simulation (Conference), March 2010.
- Winner, Best Research: Information Systems Technology; Chemical Biological Defense (CBD) Physical Science and Technology Conference, 2008.
- Rackham Predoctoral Fellowship, (tuition & stipend) Fall 2000-Summer 2001
- Clyde Hamilton Coombs Scholarship in Mathematical Psychology, 1999
- Summer Research Partnership, University of Michigan Psychology Department, 1998
- James A. McClintock Award for Excellence in Psychology, Drew University, 1996
- Ciba Award in Science for Mathematics, Drew University, 1996
- Winifred B. Baldwin Fellowship from Drew University, 1996
- Honorable Mention, DOD Graduate Fellowship, 1996
- Honorable Mention, NSF Graduate Research Fellowship, 1996
- Drew University Scholar, 1992-1996
- Modern Woodmen of America College Scholarship, 1992-1996

Publications

1. Mueller, S. T. (2020). Cognitive Anthropomorphism of AI: How Humans and Computers Classify Images. *Ergonomics in Design: The Quarterly of Human Factors Applications*, 28(3), 12–19.
2. Tyburski, E., Mak, M., Samochowiec, A., Plichta, P., Bielecki, M., Rek-Owodzin, K., ... & Kucharska-Mazur, J. (2020). The relationship between cingulum bundle integrity and different aspects of executive functions in chronic schizophrenia. *Progress in Neuro-Psychopharmacology and Biological Psychiatry*, 109955.
3. Starns, J. J., Cataldo, A. M., Rotello, C. M., Annis, J., Aschenbrenner, A., Bröder, A., ... Mueller, S. T., ... & Dunn, J. (2019). Assessing theoretical conclusions with blinded inference to investigate a potential inference crisis. *Advances in Methods and Practices in Psychological Science*, 2(4), 335-349.
4. Mueller, S. T. (2019). A Cognitive Examination of Skill and Expertise in Word Games and Puzzles. In P. Ward, J. M. Schraagen, J. Gore, & E. Roth (Eds), *The Oxford Handbook of Expertise*. doi: 10.1093/oxfordhb/9780198795872.013.24
5. Dewey, J. A. & Mueller, S. T. (2019). Individual Differences in Sensitivity to Visuomotor Discrepancies, 10, 144. *Frontiers in Psychology*. <https://doi.org/10.3389/fpsyg.2019.00144>
6. Hoffman, R., Miller, T., Mueller, S. T., Klein, G. and Clancey, W. J. (2018). Explaining Explanation, Part 4: A Deep Dive on Deep Nets. *IEEE Intelligent Systems*, 33(3), 87–95.
7. Buschkuehl, M., Jaeggi, S. M., Mueller, S. T., Shah, P., & Jonides, J. (2017). Training change detection leads to substantial task-specific improvement. *Journal of Cognitive Enhancement*, 1-15. <https://doi.org/10.1007/s41465-017-0055-y>
8. Mueller, S. T. & Tan, Y.-Y. (2017). Cognitive perspectives on opinion dynamics: The role of knowledge in consensus formation and group polarization. *Journal of Computational Social Science*.
9. González-Giraldo Y., González-Reyes, R. E., Mueller, S. T., Piper, B. J., Adan, A., & Forero, D. A. (2017). Situation Awareness Performance in Healthy Young Adults Is Associated With a Serotonin Transporter Gene Polymorphism. *Psychological Reports*, 0033294117740136.
10. Hoffman, R. R., Mueller, S. T., & Klein, G. (2017). Explaining Explanation, Part 2: Empirical Foundations. *IEEE Intelligent Systems*, 32(4), 78-86.
11. Tan, Y-Y & Mueller, S. T. (2016). Adapting cultural mixture modeling for continuous measures of knowledge and memory fluency. *Behavior Research Methods*, 48, 843–856. DOI 10.3758/s13428-015-0670-4 <https://rdcu.be/5WCw>.
12. Piper, B., Mueller, S. T., Talebzadeh, S., & Jung, M. (2016). Evaluation of the validity of the Psychology Experiment Building Language tests of vigilance, auditory memory, and decision making. *PeerJ* 4:e1772; DOI 10.7717/peerj.1772
13. Piper, B., J., Mueller, S. T., Geerken, A. R., Dixon, K. L., Kroliczak, G., Miller, J. K. (2015). Reliability and validity of neurobehavioral function on the Psychology Experimental Building Language test battery in young-adults. *PeerJ* 3:e1460; DOI 10.7717/peerj.1460
14. Mueller, S. T., Perelman, B. S., Tan, Y., and Thanasuan, K. (2015). Development of the PEBL Traveling Salesman Problem Task: A Normative Data set and Brief Assessment Inventory. *Journal of Problem Solving*.
15. Mueller, S. T. (2015). Experiential Learning in the Experimental Method: Examining Hick’s Law. Submitted for inclusion in the eBook *Teaching Neuroscience: Practical Activities for an Engaged Classroom*. Society for Teaching in Psychology (Division 2 of APA). <http://teachpsych.org/ebooks/>
16. Rojas, J., González-Giraldo Y., Mueller, S. T., Piper, B., Adan, A., & Forero, D. A., (2015). Differences in planning performance, a neurocognitive endophenotype, are associated with a functional variant in PER3 gene *Chronobiology International*.

17. González-Giraldo Y., Rojas, J., Mueller, S. T., Piper, B., Adan, A., & Forero, D. A., (2015). BDNF Val66Met is associated with performance in a computerized visual-motor tracking test in healthy adults. *Motor Control*.
18. Mueller, S. T., Perelman, B. S., & Veinott, E. S. (2015) An optimization approach for mapping and measuring the divergence and correspondence between paths. *Behavior Research Methods*.
19. Thanasuan, K. & Mueller, S. T. (2014). Crossword expertise as recognition decision making: an artificial intelligence approach. *Frontiers in Psychology*. doi:10.3389/fpsyg.2014.01018
20. Gonzalez-Giraldo, Y., Rojas, J., Novoa, P., Mueller, S. T., Piper, B., Adan, A., & Forero, D. (2014). Functional polymorphisms in BDNF and COMT genes are associated with objective differences in arithmetical functioning in a sample of young adults. *Neuropsychobiology*.
21. Mueller, S. T. and Esposito, A.G. (2014). Computerized Testing Software for Assessing Interference Suppression in Children and Adults: The Bivalent Shape Task (BST). *Journal of Open Research Software* 2(1):e3, DOI: <http://dx.doi.org/10.5334/jors.ak>
22. Mueller, S. T. & Thanasuan, K. (2014). Associations and manipulations in the mental lexicon: A model of word-stem completion. *Journal of Mathematical Psychology*, 59, 30–40.
23. Mueller, S. T., & Piper, B. J. (2014). The Psychology Experiment Building Language (PEBL) and PEBL test battery. *Journal of Neuroscience Methods*, 222, 250–259.
24. Esposito, A. G., Baker-Ward, L., & Mueller, S. (2013). Interference Suppression vs. Response Inhibition: An Explanation for the Absence of a Bilingual Advantage in Preschoolers' Stroop Task Performance. *Cognitive Development*.
25. Fox, C. J., Mueller, S. T.; Gray, H. M.; Raber, J.; & Piper, B. J. (2013). Evaluation of a Short-Form of the Berg Card Sorting Test. *PLoS ONE* 8(5): e63885. doi:10.1371/journal.pone.0063885
26. Mueller, S. T., Perelman, B. S., & Simpkins, B. G. (2013). Pathfinding in the cognitive map: Network models of mechanisms for search and planning. *Biologically Inspired Cognitive Architectures*, 5, 94-111.
27. Tumkaya, S., Karadag, F., Mueller, S., Ugurlu, T. T., Oguzhanoglu, N. K., Ozdel, O., Atesci, F. C., & Bayraktutan, M. (2013). Situation Awareness in Obsessive Compulsive Disorder. *Psychiatry Research*.
28. Mueller, S. T. (2012). "Developing open source tests for psychology and neuroscience." Feature at opensource.com, December 2012.
29. Mueller, S. T., Weidemann, C. T. (2012). Alphabetic letter perceivability, similarity and bias. *Acta Psychologica*, 139(1), 19–37. <<http://dx.doi.org/10.1016/j.actpsy.2011.09.014>>
30. Sieck, W. R., Smith, J. L., Grome, A. P., Veinott, E., & Mueller, S. T. (2011): Violent and peaceful crowd reactions in the Middle East: cultural experiences and expectations, *Behavioral Sciences of Terrorism and Political Aggression*, DOI:10.1080/19434472.2011.616668.
31. Piper, B., Victoria, L., Massar, E., Kobel, Y., Benice, T., Chu, A., Olsen, R., Rice, D., Gray, H., & Mueller, S. T. (2011). Executive Function on the Psychology Experiment Building Language Tests. *Behavior Research Methods*, 43,1-14. <<http://dx.doi.org/10.3758/s13428-011-0096-6>>
32. Mueller, S.T. & Klein, G. (March-April 2011). Improving Users' Mental Models of Intelligent Software Tools," *Intelligent Systems, IEEE*, 26(2), 77–83. <<http://dx.doi.org/10.1109/MIS.2011.32>>
33. Mueller, S. T., Simpkins, B., Anno, G., Fallon, C. K., Price, O., & McClellan, G. E. (2011) Adapting the Task-Taxon-Task methodology to model the impacts of chemical protective gear. *Journal of Computational and Mathematical Organizational Theory*, SI: BRIMS 2010. <<http://dx.doi.org/10.1007/s10588-011-9093-7>>
34. Mueller, S. T. (2010). A partial implementation of the BICA Cognitive Decathlon using the Psychology Experiment Building Language (PEBL). *International Journal of Machine Consciousness*, 2, 273–288.

35. Simpkins, B., Sieck, W., Smart, P. and Mueller, S. (2010). Idea Propagation in Social Networks: The Role of ‘Cognitive Advantage’. In *Network-Enabled Cognition: The Contribution of Social and Technological Networks to Human Cognition*, Lulu Press, Raleigh, North Carolina, USA.
36. Mueller, S. T. (2009). A Bayesian recognitional decision model. *Journal of Cognitive Engineering and Decision Making*, 3(2), 111–130.
37. Mueller, S. T., & Krawitz, A. (2009). Reconsidering the two-second decay hypothesis in verbal working memory. *Journal of Mathematical Psychology*, 53, 14–25.
Available at <<http://www.obereed.net/docs/MuellerKrawitz-jmp.pdf>>.
38. Mueller, S. T., & Sieck, W. R. (2009). The Grammar of Society: The nature and dynamics of social norms, by Cristina Bicchieri (book review). *Journal of Behavioral Decision Making*, 22, 209–211.
39. Samsonovich, A., & Mueller, S. T. (2008). Toward a growing computational replica of the human mind. Preface to the *Papers from the AAAI Fall Symposium, Biologically Inspired Cognitive Architectures*, Menlo Park, AAAI Press.
40. Weidemann, C. T. & Mueller, S. T. (2008). Decision noise may mask criterion shifts: Reply to Balakrishnan and MacDonald (2008). *Psychonomic Bulletin and Review*, 15, 1031-1034.
Available at <<http://www.obereed.net/docs/WeidemannMueller2008.pdf>>.
41. Mueller, S. T., & Weidemann, C. T. (2008). Decision Noise: An explanation for observed violations of Signal Detection Theory. *Psychonomic Bulletin and Review*, 15, 465–494.
Available at <<http://www.obereed.net/docs/MuellerWeidemann2008.pdf>>.
42. Mueller, S. T., & Veinott, E. S. (2008). Cultural Mixture Modeling: A method for identifying cultural consensus. *ARA Technology Review*, 4, 39–45.
43. Zhang, J. & Mueller, S. T. (2005). A Note on ROC Analysis and Nonparametric Estimate of Sensitivity. *Psychometrika*, 70: 203-212.
Available at <<http://obereed.net/docs/ZhangMueller2005.pdf>>.
44. Mueller, S. T., Seymour, T. L., Kieras, D. E., & Meyer, D. E. (2003). Theoretical Implications of Articulatory Duration, Phonological Similarity, and Phonological Complexity Effects in Verbal Working Memory. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 29, 1353-1380.
Available at <<http://www.umich.edu/~bcalab/documents/MuellerSeymourKierasMeyer2003.pdf>>.
45. Mueller, S. T. (2002). The Roles of Cognitive Architecture and Recall Strategies in Performance of the Immediate Serial Recall Task. *Doctoral Thesis*, University of Michigan, Ann Arbor, Michigan.
Available at <<http://www.umich.edu/~bcalab/Mueller2002.pdf>>.
46. Meyer, D. E., Glass, J. M., Mueller, S. T., Seymour, T. L., Kieras, D. E. (2001). Executive-process interactive control: A unified computational theory for answering twenty questions (and more) about cognitive aging. *European Journal of Cognitive Psychology: Special Issue: Vol 13(1-2) Mar-Jun 2001*, United Kingdom: Psychology Press; 123-164.
Available at <<http://www.umich.edu/~bcalab/documents/MeyerGlassMuellerSK2001.pdf>>.
47. Kieras, D. E., Meyer, D. E., Mueller, S., & Seymour, T. (1999). Insights into working memory from the perspective of the EPIC architecture for modeling skilled perceptual-motor performance. In P. Shah & A. Miyake (Eds.) *Models of Working Memory: Mechanisms of Active Maintenance and Executive Control*, Cambridge: Cambridge University Press.
Available at <<http://www.umich.edu/~bcalab/documents/KierasMeyerMuellerS1999.pdf>>.

Refereed Conference Proceedings and Published Abstracts

48. Alam, L., & Mueller, S. T. (2021). The Myth of Diagnosis as Classification: Examining the Effect of Explanation on Patient Satisfaction and Trust in AI Diagnostic Systems. In *AAAI workshop on AI in Healthcare*. <https://www.researchsquare.com/article/rs-138628/latest.pdf>

49. Mueller, S. T., Agarwal, P., Linja, A. Dave, N. & Alam, L. (2020). The Unreasonable Ineptitude of Deep Image Classification Networks. Proceedings of the 2020 conference of the Human Factors and Ergonomic Society (HFES), (online) November 2020.
50. Mueller, S. T., Alam, L., Funke, G., Linja, A., Mamun, T., I., & Smith, S. (2020). Examining methods for combining speed and accuracy in a go/no-go vigilance task. Proceedings of the 2020 conference of the Human Factors and Ergonomic Society (HFES), (online) November 2020.
51. Mueller, S. T., Tan, Y. Y. S., & Flint, I. (2019, July). Development and Evaluation of a Model of Human Comfort and Cognitive Ability for Moderate Differences in Thermal Environment. In International Conference on Human-Computer Interaction (pp. 395-411). Springer, Cham.
52. Mueller, S. T. (2018). Panel on Explainable Artificial Intelligence (XAI). in Proceedings of the 23rd International Command and Control Research & Technology Symposium (ICCRTS), 6-9 Nov, Pensacola, FL, USA. DOI: 10.13140/RG.2.2.10893.38888
53. Roose, K., Veinott, E. S., & Mueller, S. T. (2018). The Tracer Method: The Dynamic Duo Combining Cognitive Task Analysis and Eye Tracking. Proceedings of the CHI Play Conference, Melbourne, October 2018.
54. Hoffman, R. R., Klein, G., & Mueller, S. T. (2018). Explaining explanation for “Explainable AI”. Proceedings of the 2018 conference of the Human Factors and Ergonomic Society (HFES), Philadelphia PA, October 2018.
55. Mueller, S. T. & Veinott, E. S. (2018). Testing the effectiveness of crossword games on immediate and delayed recall for scientific vocabulary and concepts. *Proceedings of the 40th Annual conference of the Cognitive Science Society*. Madison, WI.
56. Sumner, C., Verran, S., & Mueller, S. T. (2018). Equality in Dictator Games: Methodological Concerns in Interpreting Default-Mode Strategies and Norms for Equity. Proceedings of the 40th Annual conference of the Cognitive Science Society. Madison, WI.
57. Mueller, S. T., & Nelson, B. (2018). A Computational Model of Sensemaking in a Hurricane Prediction Task. *Proceedings of the International Conference on Cognitive Modeling*, Madison WI, July 2018.
58. Perelman, B. S., Mueller, S. T., & Schaefer, K. E. (2017, March). Evaluating path planning in human-robot teams: Quantifying path agreement and mental model congruency. In Cognitive and Computational Aspects of Situation Management (CogSIMA), 2017 IEEE Conference on (pp. 1-7). IEEE.
59. Mueller, S. T., Tan, Y.-Y., North, H., & Steelman, K. (2016). A minimal model of eye movement applied to visual search and change detection. 14th International Conference on Cognitive Modeling (ICCM), Pennsylvania State University, August, 2016.
60. Perelman, B. S. & Mueller, S. T. (2016). Considerations Influencing Human TSP Solutions and Modeling Implications. 14th International Conference on Cognitive Modeling (ICCM), Pennsylvania State University, August, 2016.
61. Thanasuan, K., & Mueller, S. T. (2016). Investigating and Simulating the Effect of Word Fragments as Orthographic Clues in Crossword Solutions. 14th International Conference on Cognitive Modeling (ICCM), Pennsylvania State University, August, 2016.
62. Perelman, B. S., & Mueller, S. T. (2015). Modeling Strategic Optimization Criteria in Spatial Combinatorial Optimization Problems. *Journal of Vision* September 2015, Vol.15, 472. doi:10.1167/15.12.472
63. Perelman, B. S. & Mueller, S. T. (2015). Identifying mental models of search in a simulated flight task using a pathmapping approach. In Proceedings of the 18th International Symposium on Aviation Psychology, OH.
64. Mueller, S. T., & Thanasuan, K. A (2013). Model of Constrained Knowledge Access in Crossword Puzzle Players. Proceedings of the 2013 International Conference on Cognitive Modeling (ICCM12), Ottawa, CA, July 2013. <http://iccm-conference.org/2013-proceedings/175/index.html>

65. Perelman, B., & Mueller, S. T. (2013). A Neurocomputational Approach to Modeling Human Behavior in Simulated Unmanned Aerial Search Tasks. Proceedings of the 2013 International Conference on Cognitive Modeling (ICCM12), Ottawa, CA, July 2013. <http://iccm-conference.org/2013-proceedings/papers/0036/paper0036.pdf>
66. Perelman, B. S. & Mueller, S. T. (2013). Examining memory for search using a simulated aerial search and rescue task. In Proceedings of the 17th International Symposium on Aviation Psychology, OH.
67. Zimmerman, L. A., Mueller, S. T., Marcon, J. L., Daniels, J. B., & Vowels, C. L. (2011). Improving soldier threat detection skills in the operational environment. *Proceedings of the Interservice/Industry Training, Simulation, and Education Conference (IITSEC)*, 2011.
68. Ribeiro, S.C.S., Harsányi, E., MalloyDiniz, M.F., Mueller, S.T., & Kummer, A.M.E. (2011). Comparison of manual and computerized versions of the tests Tower of London (TOL), Stroop and Wisconsin Card Sorting Test (WCST). Abstract published in Revista Neurociências, the Brazilian Journal of Neurociências, 19. <http://www.revistaneurociencias.com.br/edicoes/2011/revista%20congresso%20online.pdf>
69. Ribeiro, S.C.S., Harsányi, E., MalloyDiniz, L.F., Mueller, S.T., & Kummer, A.M.E. (2011). Computer usage habits influence the performance of the Raven and the computerized versions of the Tower of London Test, Test, Wisconsin Card Sorting and Stroop test? Abstract published in Revista Neurociências, the Brazilian Journal of Neurosciences, 19. <http://www.revistaneurociencias.com.br/edicoes/2011/revista%20congresso%20online.pdf>
70. Veinott, E. S., & Mueller, S. T. (2011). Indecision in the Pocket: An Analysis of the Quarterback Decision Making Environment. *Proceedings of the Tenth International Conference on Naturalistic Decision Making (NDM 10)*, Orlando, FL.
71. Mueller, S. T., Simpkins, B., & Rasmussen, L. (2010) Incorporating representation when modeling cultural dynamics: Analysis of the bounded influence conjecture *Proceedings of the Workshop on Cognitive Social Sciences: Grounding the Social Sciences in the Cognitive Sciences? Portland, Oregon, August 2010*. Available at <http://www.cogsci.rpi.edu/public_html/rsun/public_html/wsp2010/proc-wsp2010-3.pdf>
72. Fallon, C.K., Murphy, A.K.G, Zimmerman, L., & Mueller, S.T. (2010). The Calibration of Trust in an Automated System: A Sensemaking Process. In *Proceedings of The 2010 International Symposium on Collaborative Technologies and Systems*. Chicago, IL., pp. 390—395.
73. Fallon, C.K., Dominguez, C. O. & Mueller, S.T. (2010). Using an Experiential User Guide in Submarine System Embedded Training to Improve the Calibration of Trust in Automated Systems. In *Proceedings of the Undersea Human Systems Integration Symposium 2010*, Providence RI.
74. Mueller, S. T. (2010). Adapting the Task-Taxon-Task methodology to model the impacts of chemical protective gear. The 19th annual conference on *Behavior Representation in Modeling and Simulation*, Charleston, SC, March 2010. **Winner, Best Paper, 2010**
75. Mueller S. T., Zimmerman, L. Cheng, K., Crary, D., Simpkins, B., Gabbard, S., and McClellan, G. (2009). Establishing a set of cognitive tests to predict the effect of novel protection suit design concepts. *Chemical Biological Defense (CBD) Science and Technology Conference*, Dallas, TX, November 2009.
76. Sieck, W. R., & Mueller, S. T. (2009). Cultural variations in collaborative decision making: Driven by beliefs or social norms? *Proceedings of the International Workshop on Intercultural Collaboration, February 2009*, Palo Alto, CA.
77. Mueller, S. T., Klein, G., & Burns, C. (2009). Experiencing the tool without experiencing the pain: Concepts for an Experiential User Guide. *Proceedings of the Ninth International Conference on Naturalistic Decision Making, June 2009* London, UK. (Acceptance rate: 25%)
78. Rodriguez, J., McClellan, G., Grome, B., Crandall, B., & Mueller, S. T. (2008). Modeling human factors involved in chemical/biological warning and reporting. *Chemical Biological Defense (CBD) Physical Science and Technology Conference*, New Orleans, LA, November 2008. **Winner, Best Research: Information Systems Technology**

79. McClellan, G., Mueller, S. T., Cox, D., & Anno, G. (2008). Cognitive performance prediction with the T3 methodology. *Chemical Biological Defense (CBD) Physical Science and Technology Conference*, New Orleans, LA, November 2008.
80. Mueller, S. T., & Minnery, B. (2008). Adapting the Turing Test for Embodied Neurocognitive Evaluation of Biologically-Inspired cognitive agents. **Keynote address** at *AAAI Fall Symposium on Biologically Inspired Cognitive Architectures*, November, 2008, Arlington, Virginia.
81. Klein, H. A., Veinott, B., & Mueller, S. T., (2008). Cultural influences on multinational interactions: A Framework. *AAAI Fall Symposium on Adaptive Agents in cultural contexts*, November, 2008, Arlington, Virginia.
82. Mueller, S. T. & Veinott, E. S. (2008). Cultural mixture modeling: Identifying cultural consensus (and disagreement) using finite mixture modeling. In *B. C. Love, K. McRae, & V. M. Sloutsky (Eds.), Proceedings of the 30th Annual Conference of the Cognitive Science Society* (pp. 64-70). Austin, TX: Cognitive Science Society.
83. Mueller S. T. (2008). Is the Turing Test Still Relevant? A plan for developing the Cognitive Decathlon to test intelligent embodied behavior. *Proceedings of the Nineteenth Midwest Artificial Intelligence and Cognitive Science Conference (MAICS 2008)*, Cincinnati, OH, April, 2008
84. Mueller, S. T., & Shiffrin, R. M. (2007). Incorporating connotation of meaning into models of semantic representation: An application to text corpus analysis. In *D. S. McNamara & J. G. Trafton (Eds.), Proceedings of the 29th Annual Cognitive Science Society* (pp. 64-70). Austin, TX: Cognitive Science Society.
85. Mueller, S. T., Jones, M., Minnery, B. S., & Hiland, J. M. H. (2007). The BICA Cognitive Decathlon: A test suite for biologically-inspired cognitive agents. *Paper read at the Behavior Representation in Modeling and Simulation (BRiMS) conference*, Norfolk, VA, March, 2007.
86. Mueller, S. T. & Zhang, J. (2006). ROC analysis and non-parametric estimate of sensitivity. *Appearing in the Third workshop on ROC analysis in Machine Learning*, Pittsburgh, USA, July 2006.
87. Mueller, S. T. & Shiffrin, R. M. (2006). REM II: A Model of the Developmental Co-Evolution of Episodic Memory and Semantic Knowledge. *Paper presented at the International Conference on Learning and Development (ICDL)*, Bloomington, IN, June, 2006.
88. Mueller, S. T. (2004). An introduction to PEBL: The Psychology Experiment Building Language. *Annual meeting of the Society for Computers in Psychology (SCiP)*, Minneapolis, MN, November, 2004.

Research Reports & Miscellaneous Documents

89. Hoffman, R. R., Clancy, W. J., & Mueller, S. T. (2020). Explaining AI as an Exploratory Process: The Peircean Abduction Model. arXiv preprint arXiv:2009.14795. arXiv preprint. <https://arxiv.org/abs/2009.14795>
90. Alam, L., Linja, A., Mamun, T. I., & Mueller, S. T. (2020). Agent-based epidemic simulation models in R. github. Retrieved from: <https://digitalcommons.mtu.edu/michigantech-p/2599>
91. Mueller, S. T., Hoffman, R. R., Clancey, W., Emrey, A., & Klein, G. (2018). Explanation in Human-AI Systems: A Literature Meta-Review, Synopsis of Key Ideas and Publications, and Bibliography for Explainable AI. arXiv preprint <https://arxiv.org/abs/1902.01876>
92. Hoffman, R. R., Mueller, S. T., Klein, G., & Litman, J. (2018). Metrics for explainable AI: Challenges and prospects. arXiv preprint arXiv:1812.04608.
93. ICANN Document (2014). EPSRP Evaluation Report: Greece-Greek. <https://www.icann.org/en/system/files/files/epsrp-greece-30sep14-en.pdf>
94. ICANN Document (2014). EPSRP Evaluation Report: EU-Greek. <https://www.icann.org/en/system/files/files/epsrp-bulgaria-30sep14-en.pdf>
95. ICANN Document (2014). EPSRP Evaluation Report: Bulgaria-Cyrillic <https://www.icann.org/en/system/files/files/epsrp-bulgaria-30sep14-en.pdf>

96. Zimmerman, L. A., Mueller, S. T., Grover, J., & Vowels, C. L. (2013). Determining the Requisite Components of Visual Threat Detection to Improve Operational Performance. (ARI Technical Report #1340). Fort Belvoir, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.
97. Zimmerman, L. A., Leins, D. A., Marcon, J., Perelman, B., Singer, J. T., Mueller, R., & Vowels, C. L. (2013). Improving visual threat detection: Research to validate the Threat Detection Skills Trainer. (ARI Technical Report). Fort Belvoir, VA: U. S. Army Research Institute for the Behavioral and Social Sciences.
98. Zimmerman, L., Mueller, S. T. et al. (2013). Improving visual threat detection: Validation of the threat detection skills trainer. Technical report, Fort Belvoir, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.
99. Mueller, S. T. (2012). Applied Statistical Analysis for Psychology in R: A Graduate Course. Createspace Press. ISBN 978-147522818. Available at <https://www.createspace.com/3856417> and <http://www.tech.mtu.edu/~shanem/docs/coursebook.pdf>
100. Zimmerman, L. A., Mueller, S. T., Daniels, J., Marcon, J. L., & Vowels, C. L. (September, 2012). Developing training exemplars for the requisite components of visual threat detection. (ARI Technical Report 1322). Fort Belvoir, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. Available at <http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA565508>.
101. Mueller, S. T. & Weidemann, C. T. (2011). Experiment and Data from Mueller and Weidemann's (2008) Decision Noise Experiment. PEBL Technical Report Series [On-line], #2011-01. Available at <http://sites.google.com/site/pebltechnicalreports/home>.
102. Mueller, S. T. (2010). Delineating Cultural Models. Technical report for AFRL Subcontract No. RQ000746, Prime FA8650-09-D-6939 to SRA, Intl., Project #135599.000 TO 009 to Applied Research Associates. DTIC document #ADA542838. Available at <http://oai.dtic.mil/oai/oai?verb=getRecord&metadataPrefix=html&identifier=ADA542838>.
103. Zimmerman, L. A., Mueller, S. T., Grover, J., & Vowels, C. L. (2010). Determining the Requisite Components of Visual Threat Detection to Improve Operational Performance (Final Report A prepared under Subcontract ARI-ARA-07-001, Task order 14938 (DRC); Contract # W74V8H-04-D-0048 for U.S. Army Research Institute for the Behavioral and Social Sciences, Arlington, VA). Fairborn, OH: Klein Associates Division of Applied Research Associates.
104. Zimmerman, L. A., Veinott, E. S., Meissner, C. M., Fallon, C., & Mueller, S. T. (2010). Field Training and Testing of Interview and Elicitation Methods (Final Report prepared under Contract #W91CRB-09-C-0082 for US Army RDECOM Acquisition Center, Aberdeen Proving Ground, MD). Fairborn, OH: Klein Associates Division of Applied Research Associates.
105. Mueller, S. T. (2010). Experiential User Guide Workshop course book. Available through Lulu press at: <http://www.lulu.com/product/paperback/eug-workshop/13033696>
106. Mueller, S. T. (2010). *The PEBL Manual, Programming and Usage guide for the Psychology Experiment Building Language, Version 0.11*. Lulu Press, Raleigh, North Carolina, USA. ISBN 978-0-557-65817-6. Available through the Lulu Press, or via free download from <http://pebl.sf.net>.
107. Klein, G., Hoffman, R., & Mueller, S. T. (2010). Naturalistic model of causal reasoning: Developing an Experiential User's Guide (EUG) to Understand Fusion Algorithms and Simulation Models. *Final report for AFRL Contract #FA8650-04-D-6546 Delivery Order #13*.
108. Mueller, S. T., Zimmerman, L. A. McClellan, G. E., Crary, D. J. & Cheng, K. E. (2009). Cognitive Performance Prediction with the T3 Methodology. *Interim Technical Report Prepared under Contract #HDTRA-1-08-C-0025*.
109. Gruenenfelder, T. M. & Mueller, S. T. (2008). The Degree distributions of Randomly growing networks can be well fit by power law distributions. *Research on Spoken Language Processing, Progress Report No. 29*.
110. Gruenenfelder, T. M. & Mueller, S. T. (2007). Power law degree distributions can fit averages of non-power law distributions. *Research on Spoken Language Processing, Progress Report No. 28*.

111. Mueller, S. T., Sieck, W., & Veinott, E. S. (2007). Cultural metrics: A finite mixture models approach. *Final report for the Advanced Decision Architectures Collaborative Technology Alliance, sponsored by the Army Research Laboratory.*
112. Sieck, W. R., Smith, J. L., McHugh, A. P., Veinott, E. S., & Mueller, S. T. (2007). Crowd Cultures: An investigation of decision making in Middle Eastern Crowds. *Final report for "Crowd Member Decision Making in the Middle East", Phase II SBIR contract sponsored by Air Force Research Laboratory (AFRL/HE).*
113. Mueller, S. T. (2007). The BICA Test Specification. *Final report for DARPA/IPTO's Biologically-Inspired Cognitive Architecture (BICA) program, Phase I.*
114. Mueller, S. (1998). Reinforcement Learning in Signal Detection. *Master's Thesis, The University of Michigan, Ann Arbor, MI.*

Workshops, Symposia and Conferences Organized and Contributed to

115. ICCRTS Panel on Explainable AI. Institute for Command and Control Research Technical Sessions, Pensacola FL, November 8, 2018.
116. Automation At Rest. Blue Sky Workshop for Air Force Research Lab. October, 2017, Pensacola Florida Institute for Human and Machine Cognition, Discussant.
117. 2015 Society for Computers in Psychology (SCiP) annual conference. November, 2015, Chicago, IL. Conference organizing committee.
118. The 2015 Midwest Cognitive Science Conference (MWCogsci-5). Conference held on Mackinac Island, MI, May 10-11, 2015. Conference organizer/chair. <http://mwcsc5.mtu.edu/index.html>
119. The Upper Peninsula Interdisciplinary Student Research Conference (Conference chair). Conference held in Houghton, MI April 22, 2014. Abstracts published in the Proceeding of the UPISRC. <https://sites.google.com/a/mtu.edu/upirs/>
120. Knowing How West Meets East: Measuring Cultural Knowledge using Cultural Consensus Model Analysis. (2011). Professional Development Workshop; Academy of Management, San Antonio TX.
121. Tutorial on using the Psychology Experiment Building Language (PEBL) in the Laboratory, the Field, and the Classroom. (2011). Tutorial held at the 33rd annual meeting of the Cognitive Science Society, Boston MA, July 2011. https://sourceforge.net/apps/mediawiki/pebl/index.php?title=CogSci2011_Tutorial
122. Workshop on developing an experiential user guide (EUG). (2010) *For Singapore Defence Science Technology Agency (DSTA)*, Oct. 2010.
123. Workshop on Qualitative methods in trust. (2010) *For Air Force Research Laboratory*, June 2010
124. Workshop on Sensemaking in Intelligence Analysis, *Intelligence Research Projects Agency (IARPA) ICARUS program*, July 2009.

Other Conference Presentations and Posters

125. Veinott, E., Khaewratana, W., & Mueller, S. T. (2019). Game-Based Learning: The Effect of Word Games and Elaboration on Learning Science Concepts. Proceedings of the Connected Learning Summit, Irvine CA.
126. Linja, A., Alam, L., & Mueller, S. T. (2019). What the AI saw: Examining human predictions of deep image classification errors. Midwest Cognitive Science Conference, Columbus OH. https://www.researchgate.net/publication/333246714_What_the_AI_saw_Examining_human_predictions_of_deep_image_classification_errors
127. Khaewratana, W., Mueller, S. T. & Veinott, E. S., (2018). Wait until tomorrow: Exploring the size of delay on the effectiveness of crossword games for learning scientific vocabulary. Meaningful Play 2018, East Lansing, MI.

128. Sumner, C., Verran, S., & Mueller, S. T. (2018). Equality in Dictator Games: Methodological Concerns in Interpreting Default-Mode Strategies and Norms for Equity. Proceedings of the 40th Annual conference of the Cognitive Science Society. Madison, WI.
129. Mueller, S. T. & Nelson, B. (2017). On the Use of Fuzzy Mental Models for Prediction, Decision, and Error Diagnosis in a Weather Prediction Task. Abstracts of the Psychonomic Society (22).
130. Nelson, B. L. & Mueller, S. T. (2017). The Use of Mental Models for Hurricane Prediction and Evacuation Decisions. Society for Judgment and Decision Making, Vancouver, CA, November, 2017.
131. Schreifels, D. & Mueller, S. T. (2017). A lightweight hybrid model of visual search and target-based saliency. OPAM XXV.
132. Dewey, J. & Mueller, S. T. (2016). Do stable psychological traits predict sensitivity to loss of control? *APS Annual Convention*, Chicago, IL, May, 2016.
133. Tan, Y.-Y. & Mueller, S. T. (2016). Attention to detail drives cross-cultural differences in visual attentional tasks. *APS Annual Convention*, Chicago, IL, May, 2016.
134. Fontaine, A., Coane, J., Piper, B., & Mueller, S. T. (2015). Test-Retest Reliability of PEBL Executive Control Tasks. *Annual meeting of the Psychonomic Society*, Chicago, IL, November, 2015.
135. Tan, Y.-Y. & Mueller, S. T. (2015). An Investigation of Visual Search Performance Among Easterners and Westerners. *Annual meeting of the Psychonomic Society*, Chicago, IL, November, 2015.
136. Mueller, S. T., Tan, Y.-Y., Mohamed, A., & Pérez, Y. B. (2015). A multi-national norming study for executive function tests. *Annual meeting of the Society for Computers in Psychology (SCiP)*, Chicago, IL, November 2015.
137. Mueller, S. T. & Thanasuan, K. (2015). Modeling the sources of fluent expert memory access and search in competitive crossword players. Annual Summer Interdisciplinary Conference (ASIC 2015), Mammoth, CA, July 2015.
138. Tan, Yin-Yin; Mueller, S. T. (2015). Westerners, Not Easterners, Have Global Visual Attentional Advantage in a Global-Local Task *5th Midwest Cognitive Science Conference*, Mackinac Island, MI, May 2015.
139. Mueller, S. T. & Thanasuan, K. (2015). Assessing fluent expert memory access and search in competitive crossword players: The role of orthographic and semantic information in memory search. *5th Midwest Cognitive Science Conference*, Mackinac Island, MI, May 2015.
140. Thanasuan, K. & Mueller, S. T. (2015). Using Cognitive Word Games to improve Lexical Associations and Recognition Decision Making Processes. *5th Midwest Cognitive Science Conference*, Mackinac Island, MI, May 2015.
141. Mueller, S. T., Perelman, B., & Veinott, E. S. (2014). An optimization approach for measuring the divergence and correspondence between paths. *Annual meeting of the Society for Computers in Psychology*, Long Beach, CA, November 2014.
142. Tan, Y., & Mueller, S. T. (2014). Accessing Cultural Groups Using a Geographic Paired-Learning Task via Cultural Mixture Modeling. *Annual meeting of the Society for Computers in Psychology (SCiP)*, Long Beach, CA, November 2014.
143. Mueller, S. T. & Thanasuan (2014). Assessing fluent expert memory access and search in competitive crossword players: The dual versus single route hypothesis. Psychonomic Society Meeting, Long Beach CA, November 2014.
144. Mueller, S. T. & Thanasuan, K. (2014). Modeling expert memory search, knowledge access, and decision making: A model of crossword puzzle play. *Annual meeting of the Society for Mathematical Psychology*, Quebec City, Quebec, CA, July 2014.
145. Buschkuhl, M., Jaeggi, S. M., Mueller, S. T., Shah, P. & Jonides, J. (2014). Training on Change Detection Leads to Substantial Task-Specific Improvements. Annual meeting of the Association for Psychological Science.
146. Perelman, B., & Mueller, S. T. (2014). Modeling Problem Solving in Search and the Traveling Salesman Problem. The Annual Meeting of the Midwest Psychological Association, Chicago, IL, May 2014.

147. Thanasuan, K. & Mueller, S. T. (2014). Examining Lexical Access via a Crossword Task: Independent or Coactive Routes? The Annual Meeting of the Midwest Psychological Association, Chicago, IL, May 2014.
148. Tan, Y. Y. & Mueller, S. T. (2014). Identifying Latent Knowledge in a Geographic Paired-Learning Task via Cultural Mixture Modeling. The Annual Meeting of the Midwest Psychological Association, Chicago, IL, May 2014.
149. Thanasuan, K. & Mueller, S. T. (2013). Crossword Expertise as Recognition Making: An Artificial Intelligence Approach. The Society for Computers in Psychology, Toronto CA, Nov. 2013.
150. Piper, B. J., Gandsey, H. M., Doster, J., Olsen, R. H., Miller, J. K., & Mueller, S. T. (2013). Assessing Neurocognitive Function Over the Lifespan With the Psychology Experiment Building Language (PEBL) Test Battery. *Healthy Aging Conference*.
151. Mueller, S. T. & Perelman, B. (2013). Examining Memory For Search Using a Simulated Aerial Search and Rescue Task. *Annual Symposium on Aviation Psychology, Dayton OH*, April 2013.
152. Esposito, A. E., Baker-Ward, L., and Mueller, S. (2013). Interference Suppression vs. Response Inhibition: Preschoolers Demonstrate a Bilingual Advantage with a New Stroop Task. *Poster presented at the biennial meeting of the Society for Research in Child Development, Seattle, Washington*. Abstract ID: 1532979.
153. Mueller, S. T., & Piper, B. (2012). Ten years of open source psychology: The Psychology Experiment Building Language and Test Battery. *Paper presented at the Annual meeting of the Society for Computers in Psychology (SCiP), Minneapolis, MN, Nov., 2012*
154. Mueller, S. T., & Thanasuan, K. (2012). Associations and manipulations in the mental lexicon: A model of word-stem completion. *Paper presented at the 44th Annual meeting of the Society for Mathematical Psychology, Columbus, OH, July, 2012*.
155. Thanasuan, K. & Mueller, S. T. (2012). An Investigation of Memory Access Skills Related to Crossword Expertise. *Midwest Cognitive Science Conference, Bloomington, IN, May 2012*.
156. Mueller, S. T., McClellan, G., Fallon, C., Price, O., Crary, D., & Simpkins, B. (2010). Assessing the cognitive impact of chemical protective gear and heat stress. *Presented at the Chemical Biological Defense (CBD) Science and Technology Conference, Orlando, FL, November 2010. Winner, Outstanding Platform Presentation*
157. Mueller, S. T., McClellan, G., Fallon, C., Price, O., Crary, D., & Simpkins, B. (2010). Using the Task-Taxon-Task Method Analyze Slowing of M198 Howitzer Teams in Chemical Protective Gear *Presented at the Chemical Biological Defense (CBD) Science and Technology Conference, Orlando, FL, November 2010*.
158. Mueller, S. T., & McClellan, G. (2010). Cultural Modeling Approaches to Embedding Genuine Cultural Data in Consequence Management *Presented at the Chemical Biological Defense (CBD) Science and Technology Conference, Orlando, FL, November 2010*.
159. Mueller, S. T. (2010). A cognitive account of belief intransigence in opinion dynamics. *Presented at the Computational Social Science Conference, Phoenix, AZ, November 2010*.
160. Mueller, S. T. (2010). Exploring the role of consistent belief systems in group opinion dynamics. *Presented at the Ninth Annual Summer Interdisciplinary Conference (ASIC), Bend, OR, 2010*.
161. Mueller S. T., Zimmerman, L. Crandall, B., Cheng, K., Crary, D., & McClellan, G. (2009). A Qualitative analysis of MOPP gear and the warfighter. *Poster presented at the Chemical Biological Defense (CBD) Science and Technology Conference, Dallas, TX, November 2009*.
162. Rodriguez J., Antrim, S., Bergman, J., Crandall, B., Grome, A., Millage, K., McClellan, G., Mueller, S., & Tanner, W. (2009). *A Quantitative Model of Human Factors Involved in Chemical/Biological Warning & Reporting*. *Poster presented at the Chemical Biological Defense (CBD) Science and Technology Conference, Dallas, TX, November 2009*.
163. Veinott, E. S., Cox, D. & Mueller, S. T. (2009). Social media supporting disaster response: Evaluation of a lightweight collaborative tool. *Naturalistic Decision Making 9, London, UK, June, 2009*.

164. Mueller, S. T. (2009). Application of Cultural Mixture Modeling to Infer Cultures of Belief. *Paper presented at ONR Global Human Social, Cultural, and Behavioral Influences Workshop*, Istanbul, Turkey, June 2–4, 2009.
165. Veinott, E. & Mueller, S. T. (2008). Indecision in the pocket: An analysis of the relative success of fast and slow quarterback passing decisions. *Northern California Symposium on Statistics and Operations Research in Sports*, Menlo Park, CA, Oct., 2008.
166. Weidemann C. T. & Mueller S. T. (2008). Decision noise may mask criterion shifts. *Paper presented at the 41st Annual meeting of the Society for Mathematical Psychology*, Washington, DC, July, 2008.
167. Mueller S. T. Sieck, W. R., & Veinott, E. S. (2008). The Culture of Teams: Methods and Metrics. *Poster presented at the ARL Advanced Decision Architectures Collaborative Technology Alliance Technical Exchange Meeting*, Boulder, CO, Feb., 2008.
168. Mueller S. T. & Veinott, E. S. (2008). Cultural Mixture Modeling: An extension of cultural consensus theory using finite mixture modeling, *Paper presented at the 41st Annual meeting of the Society for Mathematical Psychology*, Washington, DC, July, 2008.
169. Weidemann C. T. & Mueller S. T. (2007). Decisional noise as a source for violations of Signal Detection Theory. *Paper presented at the 40th Annual meeting of the Society for Mathematical Psychology*, Irvine CA, July, 2007.
170. Mueller, S. T. (2007). Inferring contextual semantics from text using a model of human episodic memory and conceptual knowledge formation *Paper read at the 4th Midwest Computational Linguistic Colloquium*, West Lafayette, IN, April, 2007.
171. Mueller, S. T. (2006). The BICA Cognitive Decathlon. Presented at the *BICA Technical Exchange Meeting*, August 2006, San Francisco, CA.
172. Mueller, S. T. & Shiffrin, R. M. (2006). REM II: A Bayesian model of the organization of the semantic and episodic memory systems. *Poster presented at the annual meeting of the Cognitive Neuroscience Society*, San Francisco, CA, April 2006.
173. Mueller, S. T. (2006). Examining representations formed by the co-evolution of episodic and semantic memory. *Paper presented at the 2006 Hoosier Mental Life Conference*, Bloomington, IN, March 2006.
174. Weidemann, C. T., & Mueller, S. T. (2005). Decision criteria and confidence judgements: Implications for signal detection theory. *Paper presented at the 12th Australasian Mathematical Psychology Conference*, University of Adelaide, Australia, December 2005.
175. Mueller, S. T., & Weidemann, C. T. (2005). Is the use of confidence ratings in signal detection tasks fundamentally flawed? *Paper presented at the Society for Judgment and Decision Making*, Toronto, Canada, November 2005.
176. Mueller, S. T., & Shiffrin, R. M. (2005). A Transformation based model of letter string identification. *Paper presented at the Annual Meeting of the Society for Mathematical Psychology*, University of Memphis, Memphis, TN, 2005. Available at <<http://obereed.net/MuellerShiffrin2005.pdf>>.
177. Krawitz, A., Mueller, S. T., Kieras, D. E., & Meyer, D. E. (2004). Executive control operations for updating verbal working memory. *Poster presented at the 45th Annual Meeting of the Psychonomic Society*, 2004.
178. Krawitz, A., Mueller, S. T., Kieras, D. E., & Meyer, D. E. (2004). Executive control operations for updating of verbal working memory. *Poster presented at the Cognitive Neuroscience Summer School on Working Memory*, Bled, Slovenia, June 2004.
179. Mueller, S. T. (2003). Strategic and architectural loci of the recency effect in immediate serial recall. *Paper read at the Annual Meeting of the Society for Mathematical Psychology*, Weber State University, Ogden, Utah, July 2003.
180. Fencsik, D. E., Seymour, T. L., Mueller, S. T., Kieras, D. E., & Meyer, D. E. (2002). Representation, Retention, and Recognition of Information in Visual Working Memory. *Poster presented at the 43rd Annual Meeting of the Psychonomic Society*, 2002. Available at <<http://www.umich.edu/~bcalab/documents/FencsikSeymourMuellerKM2002.pdf>>.

181. Mueller, S. T., Seymour, T. L., Krawitz, A., Kieras, D. E., & Meyer, D. E. (2001). Implications of articulatory duration and phonological similarity effects in working memory. *Poster presented at the 42nd Annual Meeting of the Psychonomic Society, 2001*.
Available at <<http://www.umich.edu/~bcalab/documents/pnomic01a.pdf>>.
182. Mueller, S. T. (2001). A Similarity-based stimuli selection procedure. *Paper presented at the Purdue Mini-Conference on Mathematical Psychology, November 10-11, 2001*.
183. Mueller, S. T., & Meyer, D. E. (2001). Insights about verbal working memory and serial recall enabled by precise quantitative measurement of phonological dissimilarity. *Poster presented at the Annual Meeting of the Society for Mathematical Psychology, Brown University, Providence, RI*.
Available at <<http://www.umich.edu/~bcalab/documents/smp2001.pdf>>.
184. Mueller, S. T., & Meyer, D. E. (2001). A neural network model of verbal working memory based on transient activation patterns. *Poster presented at the annual meeting of the Cognitive Neuroscience Society, 2001*.
Available at <<http://www.umich.edu/~bcalab/documents/cns2001.pdf>>.
185. Mueller, S. T., & Meyer, D. E. (2000). Psychophysical chemistry of phonological similarity: a formal similarity metric based on principled phonetic feature analysis. *Paper presented at the Annual Meeting of the Society for Mathematical Psychology, Queen's University, Kingston, Ontario, Canada*.
186. Mueller, S. T., Seymour, T. L., Glass, J., Kieras, D., & Meyer, D. E. (2000). Components of cognitive control in verbal working memory revealed by computational modeling with the Executive-Process Interactive-Control (EPIC) architecture. *Poster presented at the 9th Cognitive Aging Conference, Atlanta, Georgia*.
Available at <<http://www.umich.edu/~bcalab/documents/cac2k.pdf>>.
187. Meyer, D. E., Mueller, S. T., Seymour, T. L., & Kieras, D. E. (2000). Brain loci of temporal coding and serial-order control for verbal working memory revealed by computational modeling and focal lesion analysis of memory-span performance (Abstract). *Journal of Cognitive Neuroscience, Vol. 12 (Supplement): Cognitive Neuroscience Society Annual Meeting Program 2000. Poster presented at the meeting of the Cognitive Neuroscience Society, San Francisco, CA, April, 2000*.
Available at <<http://www.umich.edu/~bcalab/documents/cns2000.pdf>>.
188. Zhang, J. & Mueller, S. T. (1999). Non-parametric estimates of sensitivity and response bias in signal detection framework. *Paper presented at the Annual meeting of the Society for Mathematical Psychology, University of California at Santa Cruz*.
189. Meyer, D.,E., Kieras, D. E., Mueller, S., & Seymour, T. (1999). Benefits of computational modeling for cognitive neuroscience studies of verbal working memory. *Poster presented at the Cognitive Neuroscience Society Annual Meeting*.
Available at <<http://www.umich.edu/~bcalab/documents/cns99.pdf>>.
190. Kieras, D. E. , Meyer, D. E., Mueller, S., & Seymour, T. (1998). An EPIC computational model of verbal working memory. *Poster presented at the 39th Annual Meeting of the Psychonomic Society, 1998*.
Available at <<http://www.umich.edu/~bcalab/documents/pnomic98a.pdf>>.
191. Mueller, S., & Zhang, J. (1998). Reinforcement learning of a cutoff criterion in the signal detection framework. *Paper presented at the Annual meeting of the Society for Mathematical Psychology, Vanderbilt University, Nashville, TN*.
192. Zhang, J. & Mueller, S. (1997). Reinforcement learning of choice probability. *Paper presented at the Annual meeting of the Society for Mathematical Psychology, Indiana University, Bloomington, IN*.
193. DeFillipi, J.; Levy, S.; Maybar, J.; Miller, A.; Moyer, M.; & Mueller, S. (1996) Factors affecting acquiescence in children: interviewer characteristics, accuracy, and modality of post-event information. *Poster presented at the Annual Meeting of the Eastern Psychological Association, Philadelphia, PA, March, 1996*.
194. DeFillipi, J.; Levy, S.; Maybar, J.; Miller, A.; Moyer, M.; & Mueller, S. (1996) Distinguishing original from post-event information: Exploring children's memory with a source monitoring task. *Paper presented at the Annual Meeting of the Eastern Psychological Association meeting, Philadelphia, PA, March, 1996*.

Software

(Unless otherwise noted, all software is available at <http://obereed.net>.)

195. PEBL: The Psychology Experiment Building Language, A cross-platform programming language for creating experiments, used by researchers and clinicians around the world. Available at <http://pebl.sf.net>.)
Total Project Downloads: 235,818 (Sept 2018) Version history:
 - Version 2.1, Mar. 2019. Downloads: 33,436.
 - Version 2.0, Jun. 2016. Downloads: 42,352.
 - Version 0.14, Jul. 2014. Downloads 52,444.
 - Version 0.13, Dec. 2012. Downloads: 28,270.
 - Version 0.12, Aug. 2011. Downloads: 13,973.
 - Version 0.11, Jul. 2010. Downloads: 15,641.
 - Version 0.10, Nov. 2009. Downloads: 4228.
 - Version 0.09, Oct. 2008. Downloads: 5460.
 - Version 0.08, Jul. 2007. Downloads: 5125.
 - Version 0.07, May, 2006. Downloads: 6256.
 - Version 0.06, Jan., 2006. Downloads: 762.
 - Version 0.05, Jul., 2005. Downloads: 493.
 - Version 0.04, Mar., 2005. Downloads: 1365.
 - Version 0.03, Sep., 2004. Downloads: 197.
 - Version 0.02, Jan., 2004. Downloads: 247.
 - Version 0.01, Oct., 2003. Downloads: 106.
196. PEBL Test Battery, freely-available behavioral tests useful in laboratory and clinical settings.
 - Version 2.0: 110 tasks
 - Version 0.14: 100 tasks
 - Version 0.13: 63 tasks
 - Version 0.12: 57 tasks
 - Version 0.6: 49 tasks
 - Version 0.5: 37 tasks
 - Version 0.4: 24 tasks
 - Version 0.3: 20 tasks
 - Version 0.2: 14 tasks
 - Version 0.1: 8 tasks
197. Available at <http://pebl.sf.net/battery.html>.
198. Schreifels, Dave J., & Mueller, Shane T. (2018, April 16). A Naturalistic Image Set for Visual Search. Zenodo. <http://doi.org/10.5281/zenodo.1219145>
199. Mueller, S. T. (2017). Knowledge space model for opinion dynamics (Version 1.0). CoMSES Computational Model Library. Retrieved from: <https://www.comses.net/codebases/5808/releases/1.0.1/>
200. Perelman, B. S. & Mueller, S. T. (2013). A Synthetic Task Environment for Experimentally Testing Human Factors Effects in Unmanned Aerial Search. [Computer program]. <https://sites.google.com/a/mtu.edu/aerialste>.

201. pathmapping toolkit. A set of R software algorithms to determine the distance between behavioral paths. Available from <https://sites.google.com/a/mtu.edu/mapping/>.
202. PSIMETRICA. A suite of software tools written in LISP, C, and C++ for analyzing and comparing the phonological similarity between word pairs as well as entire sets of words.
203. Word and Nonword Generation and Creation. Software for analyzing text corpora in order to extract conditional probabilities of letters, and to use these probabilities to create word-like nonwords and evaluate the wordliness of text strings. Also, programs to determine the 'neighborhood distribution' of words or nonwords—the number of words in the dictionary that are different distances from a text string.
204. Similarity Based Stimulus Selection Software. A tool for selecting sets of words based on their phonological, semantic, and graphemic inter-word similarities, utilizing PSIMETRICA, Latent Semantic Analysis (LSA), Levenshtein distance, and the Toronto Noun Pool.
205. Hierarchical Clustering Tree Measurement. An implementation of Boorman & Olivier's techniques for measuring the distance between clustering trees, written in R.

Research Support

- **A Model of Individual Rider Comfort**
Sponsor: Ford Motor Company. 2018.
Total value: \$23,000.
Goal: To collect data and develop predictive models of the effect of thermal environment on human comfort and cognition.
- **A Naturalistic Approach to Explanation**
Sponsor: DARPA
Total value: \$898,000. 2017-Present.
Goal: To establish psychological theory of explanation in artificial intelligence.
- **Behavioral and Computational Metrics for Evaluating Visual Similarity and Confusability of Candidate International Domain Names (IDNs)**
Sponsor: Internet Corporation for Assigned Names and Numbers (ICANN).
Total value: \$16,000.
Goal: To establish measures and guidelines for behavioral assessment of visual similarity in internet domain names.
- **Delineating Cultural Models II (MTU)**
Sponsor: Air Force Research Laboratory via SRA Intl. Fall 2012–2015
Total value: \$92,363.
Goal: To develop formal models and analysis methods for identifying mental models and cultural knowledge.
- **Delineating Cultural Models I (MTU)**
Sponsor: Air Force Research Laboratory via Applied Research Associates, Fall 2011
Total value: \$19,824
Goal: To develop formal models and analysis methods for identifying mental models and cultural knowledge.

Support at ARA

- **Workshop on developing an experiential user guide (EUG).**
Sponsor: Singapore Defence Science Technology Agency (DSTA), October 2010.
Total value: \$26,000.
Goal: To develop and conduct workshop course for training human factors professionals and software engineers to develop an Experiential User Guide that provides guidance for the genuine cognitive challenges of using intelligent software tools.
- **Delineating Cultural Models.**
Sponsor: Air Force Research Lab, Subcontract #RQ000746 (TO 009) under Prime Task Order #S280000129; Prime Contract #FA8650-09-D-6939 (ICER-AFRL), July 2009–2011.
Total value: \$120,000.
Goal: Understand the types of representations that are adequate for representing cultural information, as well as the data collection methods that are useful for doing so.
- **Threat Detection in the Current Operational Environment.**
Sponsor: Army Research Institute, June 2009–2011.
Total value: \$250,041.
Goal: Understand the types of threats that today's soldiers face in operational situations, and determine ways to train expert threat detection for novices.
- **Cognitive Performance Prediction with the T3 Methodology.**
Sponsor: Defense Threat Reduction Agency (DTRA), Contract #HDTRA-1-08-C-0025, May 2008–2011.
Total value: \$1,013,928.
Goal: To provide a well-founded model for predicting cognitive performance while wearing protective equipment.

- **Experiential User Guide and Naturalistic Models of Causal Reasoning**
Sponsor: Air Force Research Laboratory, Sensemaking and Organizational Effectiveness Branch (AFRL/RHXS), Task Order #13 of the TACS Contract #FA8650-04-D-6546, January 2008-2010.
Total value: \$430,219.
Goal: To develop novel user guides concepts for experiential training of users on complex intelligent software systems.
- **Human Factors for Networked CB Sensors in C4I Systems.**
Sponsor: Defense Threat Reduction Agency (DTRA), #HDTRA1-07-C-0105, August 2007–June 2009.
Total value: \$1,334,988.
Goal: Develop agent-based model of decision making and sensemaking expertise in chem/bio threat detection.
- **Naturalistic Evaluation of Cognitive Architectures**
Sponsor: Defense Advanced Research Program Agency (DARPA), contract #FA8650-05-C-7257, September 2005–May 2007. PI from June 2006–May 2007
Total value: \$535K + \$49K extension.
Goal: Develop BICA *Cognitive Decathlon*, version of Turing test to evaluate embodied intelligence of AI agents.
- **Advanced Decision Architectures Collaborative Technology Alliance**
Sponsor: U.S. Army Research Laboratory, June 2007–Sept. 2007
Goal: Develop cultural metrics to reveal cultural consensus and evaluate hybrid cultural models for ad hoc teams.
- **Crowd Member Decision Making in the Middle East**
Sponsor: Air Force Research Laboratory (AFRL/HE), Phase II SBIR Contract, June 2007–present
Goal: Develop statistical techniques to assess culturally-dependent mental models about crowd actions.