

Dario D. Salvucci

Curriculum Vitae

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Contact

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Education

Carnegie Mellon University, Pittsburgh, PA

- Ph.D., Computer Science, 1999
 - *Advisor:* John R. Anderson
 - *Committee:* Herbert A. Simon, Kenneth R. Koedinger, Keith Rayner
- M.S., Computer Science, 1997

Princeton University, Princeton, NJ

- B.S.E., Computer Science, 1994 (*summa cum laude*)

Employment

Drexel University, Philadelphia, PA

- Associate Dean of Academic Operations, College of Computing & Informatics, 2025–Present
- Professor of Computer Science, 2012–Present
 - courtesy appointment in Psychology, 2009–Present
 - courtesy appointment in Information Science & Technology, 2001–2013 (formation of CCI)
- Department Head, Computer Science, 2015–2018
- Associate Dean of Research, College of Computing & Informatics, 2015
- Associate Dean of Undergraduate Studies, College of Computing & Informatics, 2013–2014
- Associate Department Head of Undergraduate Affairs, 2012–2013
- Associate Department Head of Graduate Affairs, 2011–2012
- Associate Professor of Computer Science, 2007–2012
- Assistant Professor of Computer Science, 2001–2007

Nissan Cambridge Basic Research, Cambridge, MA

- Postdoctoral Research Associate, 1999–2001

Honors

Faculty Leadership Award, Drexel College of Computing & Informatics, 2020

Allen Newell Award Honorable Mention [to student co-author], ICCM 2016

**Fulbright-Nokia Distinguished Chair in Information and Communications Technologies,
U.S. Fulbright Distinguished Chair Awards, 2015-2016**

[one of roughly 40 Distinguished Chairs selected across all areas of arts, sciences, and humanities]

Best of CHI Award Honorable Mention, ACM CHI Conference, 2013
Intel Outstanding Student Paper Award [to student co-author], AutoUI 2012
Best of CHI Award, ACM CHI Conference, 2009
Outstanding Teaching Award, Drexel University College of Engineering, 2008
Best of CHI Award Honorable Mention, ACM CHI Conference, 2007
Best Poster Award, International Conference on Cognitive Modeling, 2006
National Science Foundation CAREER Award, 2002-2007
Fred Burggraf Award for excellence by a young researcher, Transportation Research Board, 2002
[presented by U.S. Secretary of Transportation Norman Y. Mineta]
Siegel-Wolf Award for Best Applied Paper, International Conference on Cognitive Modeling, 2001
National Science Foundation Graduate Research Fellowship, 1994-1997
Junior and Senior Prize for highest achievement in Computer Science, Princeton University, 1993-1994
George A. Miller Prize for best Cognitive Science independent study, Princeton University, 1994
Joseph Elgin Prize for service in the community, Princeton University, 1994
Inducted into Phi Beta Kappa and Tau Beta Pi, Princeton University, 1994
Class of 1883 English Prize for best essay by a first-year engineer, Princeton University, 1991

Publications

Books

Salvucci, D. D., & Taatgen, N. A. (2011). *The Multitasking Mind*. New York: Oxford University Press.

Journal Articles

Grahn, H., Kujala, T., Hautaoja, T., Salvucci, D. D. (2024). Investigating the situational dynamics of visual information sampling in lateral vehicle control – subjective vs. objective estimates of spare visual capacity. *Transportation Research Part F: Traffic Psychology and Behaviour*, 107, 98-114.

Daniali, M., Galer, P. D., Lewis-Smith, D., Parthasarathy, S., Kim, E. Salvucci, D. D., Miller, J. M., Haag, S., & Helbig, I. (2023). Enriching representation learning using 53 million patient notes through human phenotype ontology embedding. *Artificial Intelligence in Medicine*, 139, 102523-102523.

Salvucci, D. D. (2021). Interactive grounding and inference in learning by instruction. *Topics in Cognitive Science*, 13, 488-498.

Laird, J. E., Gluck, K., Anderson, J., Forbus, K., Jenkins, O., Lebiere, C., Salvucci, D., Scheutz, M., Thomaz, A., Trafton, G., Wray, R. E., Mohan, S., Kirk, J. R. (2017). Interactive task learning. *IEEE Intelligent Systems*, 32, 6-21.

Kujala, T., & Salvucci, D. D. (2015). Modeling visual sampling on in-car displays: The challenge of predicting safety-critical lapses of control. *International Journal of Human-Computer Studies*, 79, 66-78.

Salvucci, D. D. (2014). The 2011 Benjamin Franklin Medal in computer and cognitive science presented to John R. Anderson. *Journal of the Franklin Institute*, 351, 98-102.

Salvucci, D. D. (2013). Integration and reuse in cognitive skill acquisition. *Cognitive Science*, 37, 829-860.

Zhao, S., Brumby, D. P., Chignell, M., Salvucci, D., & Goyal, S. (2013). Shared input multimodal mobile interfaces: Interaction modality effects on menu selection in single-task and dual-task environments. *Interacting with Computers*.

- Salvucci, D. D., & Taatgen, N. A. (2011). Toward a unified view of cognitive control. *Topics in Cognitive Science*, 3, 227–230.
- Gunzelmann, G., Moore, L. R., Salvucci, D. D., & Gluck, K. A. (2011). Sleep loss and driver performance: Quantitative predictions with zero free parameters. *Cognitive Systems Research*, 12, 154–163.
- Salvucci, D. D. (2009). Rapid prototyping and evaluation of in-vehicle interfaces. *ACM Transactions on Human-Computer Interaction*.
- Salvucci, D. D., & Beltowska, J. (2008). Effects of memory rehearsal on driver performance: Experiment and theoretical account. *Human Factors*, 50, 834-844.
- Salvucci, D. D., & Taatgen, N. A. (2008). Threaded cognition: An integrated theory of concurrent multitasking. *Psychological Review*, 115, 101-130.
- Salvucci, D. D., Mandalia, H. M., Kuge, N., & Yamamura, T. (2007). Lane-change detection using a computational driver model. *Human Factors*, 49, 532-542.
- Salvucci, D. D. (2006). Modeling driver behavior in a cognitive architecture. *Human Factors*, 48, 362-380.
- John, B. E., & Salvucci, D. D. (2005). Multi-purpose prototypes for assessing user interfaces in pervasive computing systems. *IEEE Pervasive Computing*, 4, 27-34.
- Salvucci, D. D. (2005). A multitasking general executive for compound continuous tasks. *Cognitive Science*, 29, 457-492.
- Kushleyeva, Y., Salvucci, D. D., & Lee, F. J. (2005). Deciding when to switch tasks in time-critical multitasking. *Cognitive Systems Research*, 6, 41-49.
- Salvucci, D. D., & Gray, R. (2004). A two-point visual control model of steering. *Perception*, 33, 1233-1248.
- Salvucci, D. D., & Liu, A. (2002). The time course of a lane change: Driver control and eye-movement behavior. *Transportation Research Part F*, 5, 123-132.
- Salvucci, D. D., & Macuga, K. L. (2002). Predicting the effects of cellular-phone dialing on driver performance. *Cognitive Systems Research*, 3, 95-102.
- Salvucci, D. D., Boer, E. R., & Liu, A. (2001). Toward an integrated model of driver behavior in a cognitive architecture. *Transportation Research Record*, 1779, 9-16.
- Salvucci, D. D., & Anderson, J. R. (2001). Automated eye-movement protocol analysis. *Human-Computer Interaction*, 16, 39-86.
- Salvucci, D. D. (2001). Predicting the effects of in-car interface use on driver performance: An integrated model approach. *International Journal of Human-Computer Studies*, 55, 85-107.
- Salvucci, D. D. (2001). An integrated model of eye movements and visual encoding. *Cognitive Systems Research*, 1, 201-220.
- Rushton, S. K., & Salvucci, D. D. (2001). An egocentric account of the visual guidance of locomotion. *Trends in Cognitive Sciences*, 5, 6-7.
- Salvucci, D. D., & Anderson, J. R. (2001). Integrating analogical mapping and general problem solving: The path-mapping theory. *Cognitive Science*, 25, 67-110.

Conference Papers

- Schwartz, D., Salvucci, D., Osmanlioglu, Y., Vallett, R., Ostrander, L., Dion, G., & Shokoufandeh, A. (2025). A minimal neural network for reproducible gesture recognition on knitted capacitive touch sensors. In *International Workshop on Reproducible Research in Pattern Recognition* (pp. 46-59).
- Kupitz, C., Eberhart, A., Schmidt, D., Stevens, C. A., Shimizu, C., Hitzler, P., Salvucci, D. D., Maruyama, B., & Myers, C. (2021). Toward undifferentiated cognitive models. In *Proceedings of the 19th International Conference on Cognitive Modeling*.

- Salvucci, D. D. (2020). Interactive grounding and inference in instruction following. In *Proceedings of the 18th International Conference on Cognitive Modeling* (pp. 236-240).
- Daniali, M., Salvucci, D. D., & Schultheis, M. T. (2020). Understanding driver behavior after concussion: A machine-learning approach. In *Proceedings of the Human Factors and Ergonomics Society Annual Meeting* (pp. 1911-1915). Santa Monica, CA: Human Factors and Ergonomics Society.
- Split, M., Daniali, M., Tessier, J. M., Salvucci, D. D., & Schultheis, M. T. (2020). Driving after concussion; An innovative combination of virtual reality and machine learning classifiers. *International Neuropsychological Society (INS) 2020*.
- Khosroshahi, E. B., Salvucci, D. D., Gunzelmann, G., & Veksler, B. Z. (2019). A unified model of fatigue in a cognitive architecture: Time-of-day and time-on-task effects on task performance. In A.K. Goel, C.M. Seifert, & C. Freksa (Eds.), *Proceedings of the 41st Annual Conference of the Cognitive Science Society* (pp. 567-573). Montreal, QB: Cognitive Science Society.
- Khosroshahi, E. B., & Salvucci, D. D. (2016). A model of visual location learning. In *Proceedings of the Human Factors and Ergonomics Society 60th Annual Meeting*. Santa Monica, CA: Human Factors and Ergonomics Society.
- Salvucci, D. D., & Kujala, T. (2016). Balancing structural and temporal constraints in multitasking contexts. In *Proceedings of the 38th Annual Meeting of the Cognitive Science Society*.
- Salvucci, D. D. (2016). Cognitive code: An embedded approach to cognitive modeling. In *Proceedings of the 14th International Conference on Cognitive Modeling* (pp. 15-20). University Park, PA: The Pennsylvania State University.
- Khosroshahi, E. B., Salvucci, D. D., Veksler, B. Z., & Gunzelmann, G. (2016). Capturing the effects of moderate fatigue on driver performance. In *Proceedings of the 14th International Conference on Cognitive Modeling* (pp. 163-168). University Park, PA: The Pennsylvania State University.
- [Allen Newell Award Honorable Mention]**
- Salvucci, D. D. (2014). Endowing a cognitive architecture with world knowledge. In *Proceedings of the 36th Annual Meeting of the Cognitive Science Society*.
- Nourzad, S. H. H., Salvucci, D. D., & Pradhan, A. (2014). Computational modeling of driver distraction by integrating cognitive and agent-based traffic simulation models. To appear in *Proceedings of the International Society for Computing in Civil and Building Engineering 2014*.
- Lee, J., Lee, J. D., & Salvucci, D. D., (2013). A saliency-based search model: Application of the saliency map for driver-vehicle interfaces. To appear in *Proceedings of the Human Factors and Ergonomics Society 57th Annual Meeting*. Santa Monica, CA: Human Factors and Ergonomics Society.
- Salvucci, D. D. (2013). Distraction beyond the driver: Predicting the effects of in-vehicle interaction on surrounding traffic. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems: CHI 2013*. New York: ACM Press.
- [Best of CHI Award Honorable Mention]**
- Lee, J., Lee, J. D., & Salvucci, D. D. (2012). Evaluating the distraction potential of connected vehicles. To appear in *Proceedings of the International Conference on Automotive User Interfaces and Interactive Vehicular Applications (AutoUI) 2012*.
- [Intel Outstanding Student Paper Award]**
- Gould, S. J. J., Brumby, D. P., Cox, A. L., González, V. M., Salvucci, D. D., & Taatgen, N. A. (2012). Multitasking and interruptions: A SIG on bridging the gap between research on the micro and macro worlds. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems: CHI 2012*.
- Bogunovich, P., & Salvucci, D. D. (2011). The effects of time constraints on user behavior for deferrable interruptions. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems: CHI 2011*.

- Bogunovich, P., & Salvucci, D. D. (2010). Inferring multitasking breakpoints from single-task data. In *Proceedings of the 32nd Annual Conference of the Cognitive Science Society* (pp. 1732-1737). Austin, TX: Cognitive Science Society.
- Mankowski, W., Shokoufandeh, A., & Salvucci, D. D. (2010). Canonical patterns of oriented topologies. In *Proceedings of the Twentieth Conference of the International Association for Pattern Recognition*.
- Salvucci, D. D., & Bogunovich, P. (2010). Multitasking and monotasking: The effects of mental workload on deferred task interruptions. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems: CHI 2010* (pp. 85-88). New York: ACM Press.
- Salvucci, D. D. (2010). On reconstruction of task context after interruption. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems: CHI 2010* (pp. 89-92). New York: ACM Press.
- Gunzelmann, G., Moore, L. R., Salvucci, D. D., & Gluck, K. A. (2009). Fluctuations in alertness and sustained attention: Predicting driver performance. In *Proceedings of the Ninth International Conference on Cognitive Modeling*.
- Salvucci, D. D., Monk, C. A., & Trafton, J. G. (2009). A process-model account of task interruption and resumption: When does encoding of the problem state occur? In *Proceedings of the Human Factors and Ergonomics Society 53rd Annual Meeting* (pp. 799-803). Santa Monica, CA: Human Factors and Ergonomics Society.
- Brown, Q., Salvucci, D. D., Lee, F. J., & Alevan, V. (2009). Who helps when the tutor is asleep? In *Proceedings of the 14th International Conference on Artificial Intelligence in Education*.
- Mankowski, W., Bogunovich, P., Shokoufandeh, A., & Salvucci, D. D. (2009). On computing canonical subsets of graph-based behavioral representations. In *Proceedings of Seventh LAPR Workshop on Graph-based Representation in Pattern Recognition*.
- Mankowski, W., Bogunovich, P., Shokoufandeh, A., & Salvucci, D. D. (2009). Finding canonical behaviors in user protocols. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems: CHI 2009* (pp. 1323-1326). New York: ACM Press.
- [Best of CHI Award]**
- Salvucci, D. D., Taatgen, N. A., & Borst, J. (2009). Toward a unified theory of the multitasking continuum: from concurrent performance to task switching, interruption, and resumption. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems: CHI 2009* (pp. 1819-1828). New York: ACM Press.
- Brumby, D. P., Howes, A., & Salvucci, D. D. (2009). Dialing while driving? Understanding the contribution of strategy adaptation in dynamic multitask environments. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems: CHI 2009* (pp. 1629-1638). New York: ACM Press.
- Brown, Q., Lee, F. J., Salvucci, D. D., & Alevan, V. (2008). Interface challenges for mobile tutoring systems. Presented at The 9th International Conference on Intelligent Tutoring Systems.
- Brown, Q., Lee, F. J., Salvucci, D. D., & Alevan, V. (2008). The design of a mobile intelligent tutoring system. Presented at The 9th International Conference on Intelligent Tutoring Systems.
- Brumby, D. P., Salvucci, D. D., & Howes, A. (2007). An empirical investigation into dual-task trade-offs while driving and dialing. In *Volume 2 Proceedings of the 21st BCS HCI Group Conference*. Swindon, UK: BCS.
- Brumby, D. P., Salvucci, D. D., & Howes, A. (2007). Dialing while driving? A bounded rational analysis of concurrent multi-task behavior. In *Proceedings of the 8th International Conference on Cognitive Modeling* (pp. 121-126). Psychology Press/Taylor & Francis.
- Brumby, D. P., Salvucci, D. D., Mankowski, W., & Howes, A. (2007). A cognitive constraint model of the effects of portable music-player use on driver performance. In *Proceedings of the Human Factors and Ergonomics Society 51st Annual Meeting* (pp. 1531-1535). Santa Monica, CA: Human Factors and Ergonomics Society.

- Salvucci, D. D., Markley, D., Zuber, M., & Brumby, D. P. (2007). iPod distraction: Effects of portable music-player use on driver performance. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems: CHI 2007* (pp. 243-250). New York: ACM Press.
- Brumby, D. P., Howes, A., & Salvucci, D. D. (2007). A cognitive constraint model of dual-task trade-offs in a highly dynamic driving task. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems: CHI 2007* (pp. 233-242). New York: ACM Press.
- [Best of CHI Award Honorable Mention]**
- Salvucci, D. D., Taatgen, N. A., & Kushleyeva, Y. (2006). Learning when to switch tasks in a dynamic multitasking environment. In *Proceedings of the Seventh International Conference on Cognitive Modeling* (pp. 268-273). Trieste, Italy: Edizioni Goliardiche.
- Nguyen, T. M., & Salvucci, D. D. (2006). Piano playing: A model of sight-reading and rhythmic timing. In *Proceedings of the Seventh International Conference on Cognitive Modeling* (pp. 208-212). Trieste, Italy: Edizioni Goliardiche.
- Salvucci, D. D., Zuber, M., Beregovaia, E., & Markley, D. (2005). Distract-R: Rapid prototyping and evaluation of in-vehicle interfaces. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems: CHI 2005* (pp. 581-589). New York: ACM Press.
- Salvucci, D. D. (2005). Modeling tools for predicting driver distraction. In *Proceedings of the Human Factors and Ergonomics Society 49th Annual Meeting* (pp. 1149-1152). Santa Monica, CA: Human Factors and Ergonomics Society.
- Mandalia, H. M., & Salvucci, D. D. (2005). Using support vector machines to infer driver intentions. In *Proceedings of the Human Factors and Ergonomics Society 49th Annual Meeting*. Santa Monica, CA: Human Factors and Ergonomics Society.
- Kuge, N., Salvucci, D., & Yamamura, T. (2005). Research on a lane change intent inference system based on a driver model with cognitive scientific validity. In *Proceedings of the Society of Automotive Engineers of Japan Annual Congress*.
- Kushleyeva, Y., Salvucci, D. D., & Lee, F. J. (2004). Deciding when to switch tasks in time-critical multitasking. In *Proceedings of the Sixth International Conference on Cognitive Modeling* (pp. 14-19). Mahwah, NJ: Lawrence Erlbaum Associates.
- [Allen Newell Award for Best Student Paper]**
- Salvucci, D. D., Kushleyeva, Y., & Lee, F. J. (2004). Toward an ACT-R general executive for human multitasking. In *Proceedings of the Sixth International Conference on Cognitive Modeling* (pp. 267-272). Mahwah, NJ: Lawrence Erlbaum Associates.
- John, B. E., Salvucci, D. D., Centgraf, P., & Prevas, K. (2004). Integrating models and tools in the context of driving and in-vehicle devices. In *Proceedings of the Sixth International Conference on Cognitive Modeling* (pp. 130-135). Mahwah, NJ: Lawrence Erlbaum Associates.
- John, B.E., Prevas, K., Salvucci, D. D., & Koedinger, K. (2004). Predictive human performance modeling made easy. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems: CHI 2004* (pp. 455-462). New York: ACM Press.
- Salvucci, D. D. (2004). Inferring driver intent: A case study in lane-change detection. In *Proceedings of the Human Factors and Ergonomics Society 48th Annual Meeting* (pp. 2228-2231). Santa Monica, CA: Human Factors and Ergonomics Society.
- Salvucci, D. D., Chavez, A. K., & Lee, F. J. (2004). Modeling effects of age in complex tasks: A case study in driving. In *Proceedings of the 26th Annual Conference of the Cognitive Science*.
- Salvucci, D. D., John, B.E., Prevas, K., & Centgraf, P. (2004). Interfaces on the road: Rapid evaluation of in-vehicle devices. Presented at HCIC 2004.
- Salvucci, D. D., & Lee, F. J. (2003). Simple cognitive modeling in a complex cognitive architecture. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems: CHI 2003*. New York: ACM Press.

- Salvucci, D. D., & Siedlecki, T. (2003). Toward a unified framework for tracking cognitive processes. In *Proceedings of the 25th Annual Conference of the Cognitive Science Society*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Lebiere, C., Gray, R., Salvucci, D., & West, R. (2003). Choice and learning under uncertainty: a case study in baseball batting. In *Proceedings of the 25th Annual Conference of the Cognitive Science Society*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Salvucci, D. D. (2002). Modeling driver distraction from cognitive tasks. In *Proceedings of the 24th Annual Conference of the Cognitive Science Society* (pp. 792-797). Mahwah, NJ: Lawrence Erlbaum Associates.
- Salvucci, D. D., & Macuga, K. L. (2001). Predicting the effects of cell-phone dialing on driver performance. In *Proceedings of the Fourth International Conference on Cognitive Modeling*. [Siegel-Wolf Award for Best Applied Paper]
- Salvucci, D. D. (2001). Predicting the effects of in-car interfaces on driver behavior using a cognitive architecture. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems: CHI 2001* (pp. 120-127). New York: ACM Press.
- Salvucci, D. D., Boer, E. R., & Liu, A. (2001). Toward an integrated model of driver behavior in a cognitive architecture. In *Transportation Research Board 80th Annual Meeting*. [Fred Burggraf Award for excellence by young researchers]
- Salvucci, D. D., Liu, A., & Boer, E. R. (2001). Control and monitoring during lane changes. In *Vision in Vehicles 9* (pp. 201-212).
- Liu, A., & Salvucci, D. D. (2001). Modeling and prediction of human driver behavior. In *Proceedings of the Ninth International Conference on Human-Computer Interaction*.
- Salvucci, D. D., & Anderson, J. R. (2000). Intelligent gaze-added interfaces. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems: CHI 2000* (pp. 273-280). New York: ACM Press.
- Salvucci, D. D. (2000). A model of eye movements and visual attention. In *Proceedings of the Third International Conference on Cognitive Modeling* (pp. 252-259). Veenendaal, The Netherlands: Universal Press.
- Salvucci, D. D. (2000). An interactive model-based environment for eye-movement protocol visualization and analysis. In *Proceedings of the Eye Tracking Research and Applications Symposium* (pp. 57-63). New York: ACM Press.
- Salvucci, D. D., & Goldberg, J. H. (2000). Identifying fixations and saccades in eye-tracking protocols. In *Proceedings of the Eye Tracking Research and Applications Symposium* (pp. 71-78). New York: ACM Press.
- Salvucci, D. D. (1999). Inferring intent in eye-movement interfaces: Tracing user actions with process models. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems: CHI 99* (pp. 254-261). New York: ACM Press.
- Salvucci, D. D., & Anderson, J. R. (1998). Tracing eye movement protocols with cognitive process models. In *Proceedings of the Twentieth Annual Conference of the Cognitive Science Society* (pp. 923-928). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Salvucci, D. D. (1998). Interpreting eye movements with process models. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems: CHI 98 Conference Summary* (pp. 66-67). New York: ACM Press.

Book Chapters

- Vallett, R., McDonald, D.Q., Salvucci, D., Dion, G. and Shokoufandeh, A. (2024). Advanced manufacturing of touch-sensitive textiles. In *Artificial Intelligence in Manufacturing* (pp. 205-232). Academic Press.

- Brumby, D. P., Janssen, C. P., Kujala, T., & Salvucci, D. D. (2018). Computational Models of User Multitasking. In A. Oulasvirta, P. O. Kristensson, X. Bi, & A. Howes (Eds.), *Computational Interaction*. Oxford University Press.
- Salvucci, D. D. (2011). Multitasking. In J. D. Lee & A. Kirlik (Eds.), *The Oxford Handbook of Cognitive Engineering*. New York: Oxford University Press.
- Salvucci, D. D. (2011). Cognitive architectures for modeling driver behavior. In D. Fisher, M. Rizzo, J. Caird, J. Lee (Eds.), *Handbook of Driving Simulation for Engineering, Medicine, and Psychology* (pp. 42.1-42.9). New York: CRC Press.
- Salvucci, D. D. (2007). Integrated models of driver behavior. In W. D. Gray (Ed.), *Integrated Models of Cognitive Systems* (pp. 356-367). New York: Oxford University Press.
- Salvucci, D. D., & Anderson, J. R. (1998). Analogy. In J. R. Anderson & C. Lebiere (Eds.), *The Atomic Components of Thought* (pp. 343-383). Hillsdale, NJ: Lawrence Erlbaum Associates.

Edited Volumes

- Salvucci, D. D., & Gunzelmann, G. (Eds.) (2010). *Proceedings of the 10th International Conference on Cognitive Modeling*. Philadelphia, PA: Drexel University.

Short Papers & Abstracts

- Khosroshahi, E. B., & Salvucci, D. D. (2016) A preliminary model of situation awareness in a cognitive architecture. Poster presented at the 38th Annual Meeting of the Cognitive Science Society, Philadelphia, PA; August 10-13, 2016.
- Doiron, M. J., Khosroshahi, E., Vickers, K. L., Salvucci, D. D., Manning, K. J., & Schultheis, M. T. (2016). Machine learning algorithms and virtual reality: Using technology to inform our understanding of cognition and driving in TBI. Poster presented at the 44th Annual Meeting of the International Neuropsychological Society, Boston, MA; February 3-6, 2016.
- Mankowski, W., Bogunovich, P., Shokoufandeh, A., & Salvucci, D. D. (2009). Computing the canonical subset of user protocols. In *Proceedings of the 31st Annual Meeting of the Cognitive Science Society*, Amsterdam, The Netherlands.
- Salvucci, D. D. (2008). Using ACT-R for rapid prototyping and evaluation of in-vehicle interfaces. In *Proceedings of the 2008 ACT-R Workshop*, Carnegie Mellon University, Pittsburgh, PA.
- Salvucci, D. D., & Beltowska, J. (2008). Predicting cognitive driver distraction with Threaded Cognition theory. In *Proceedings of the Thirtieth Annual Conference of the Cognitive Science Society*.
- Salvucci, D. D., & Taatgen, N. A. (2007). An integrated approach to modeling concurrent multitasking. In *Proceedings of the Twenty-Ninth Annual Conference of the Cognitive Science Society*.
- Salvucci, D. D., Taatgen, N. A. (2006). An integrated approach to multitasking in ACT-R. In *Proceedings of the 2006 ACT-R Workshop*, Carnegie Mellon University, Pittsburgh, PA.
- Brumby, D. P., & Salvucci, D. D. (2006). Towards a cognitive constraint analysis of human multitasking. In *Proceedings of the Seventh International Conference on Cognitive Modeling* (pp. 353-354). Trieste, Italy: Edizioni Goliardiche.
- [Best Poster Presentation, First Prize]**
- Mankowski, W., & Salvucci, D. D., & Shokoufandeh, A. (2006). Graph-based lane change detection. In *Proceedings of the Seventh International Conference on Cognitive Modeling* (pp. 383). Trieste, Italy: Edizioni Goliardiche.
- Chavez, A. K., & Salvucci, D. D. (2003). An ACT-R model of the Wickens tracking task. Poster presented at the Twenty-Fifth Annual Conference of the Cognitive Science Society, Boston, MA; July 31 - August 2, 2003.

Kushleyeva, Y., & Salvucci, D. D. (2003). Human multitasking: Towards an ACT-R task-independent general executive. Poster presented at the Twenty-Fifth Annual Conference of the Cognitive Science Society, Boston, MA; July 31 - August 2, 2003.

Salvucci, D. D., & Anderson, J. R. (2000). Interpreting eye-movement protocols. Poster presented at the Twenty-Second Annual Conference of the Cognitive Science Society, Philadelphia, PA; August 13-15, 2000.

Salvucci, D. D. (1998). Interpreting eye movements with process models. Poster presented at the ACM CHI 1998 Doctoral Consortium and Conference, Los Angeles, CA; April, 1998.

Salvucci, D. D., Anderson, J. R., & Douglass, S. (1997). Encoding and response strategies in complex skill acquisition. Poster presented at the Nineteenth Annual Conference of the Cognitive Science Society, Stanford, CA; August, 1997.

Other Writing

Salvucci, D. D., & Taatgen, N. A. (2011). Simulating human multitasking with a cognitive architecture. *AISB Quarterly*.

Doctoral Dissertation

Salvucci, D. D. (1999). Mapping eye movements to cognitive processes. Doctoral dissertation, Department of Computer Science, Carnegie Mellon University.

Patents

"Method and system for intention estimation and operation assistance", with N. Kuge & T. Yamamura. United States Patent #7349767, March 25, 2008.

Presentations

Invited Talks

From Amish to Xbox: One View of Technology in America. Invited talk, Fulbright Center American Voices Seminar, University of Turku, Finland: October 9-10, 2015.

Eye movements and cognitive models. Invited talk, University of Turku, Finland: October 9, 2015.

Walk, text, and chew gum: A computational approach to understanding human multitasking. Invited talk, Niilo Mäki Institute, Jyväskylä, Finland: October 6, 2015.

Eye movements and cognitive models. Invited talk, Eye Tracking & Brain Research Seminar, University of Jyväskylä, Finland: September 1, 2015.

Levels of automation and HMI design: Theory and implications. Invited talk, Transportation Research Board Annual Meeting 2015: January 11, 2015.

Using cognitive models to evaluate the distraction potential of in-vehicle devices. Invited panel talk, Society of Automotive Engineers Annual Meeting: January 24, 2014.

Walk, text, and chew gum: A computational approach to understanding human multitasking. Invited Dean's Lecture, College of Engineering, Drexel University: May 14, 2013.

Walk, text, and chew gum: A computational approach to understanding human multitasking. Invited talk, Children's Hospital of Philadelphia: March 20, 2012.

Walk, text, and chew gum: A computational approach to understanding human multitasking. Invited talk, Information Science Seminar Series, Penn State University: April 25, 2011.

Walk, text, and chew gum: A computational approach to understanding human multitasking. Invited talk, Computer Science Seminar Series, Villanova University: November 15, 2010.

Composing models of driver behavior. Invited talk, Persistent and Generative Cognitive Models Workshop, Mesa, AZ: November 8-11, 2010.

Cognitive supermodels. Invited talk, European ACT-R Workshop, Groningen, The Netherlands: April 16-17, 2010.

A unifying theory of multitasking. Invited plenary talk, International Conference on Cognitive Modeling, Manchester, UK: July 24-26, 2009.

A unifying theory of multitasking. Invited talk, George Mason University, Fairfax, VA: March 25, 2009.

A unifying theory of multitasking. Invited talk, Naval Research Laboratory, Washington, DC: March 16, 2009.

Threaded cognition: A computational theory of concurrent multitasking. Invited talk, University of Wisconsin, Madison, WI: September 12, 2008.

Threaded cognition and driver distraction. Invited symposium talk, APA Annual Convention, Boston, MA: August 14-17, 2008.

Cognitive architectures and driving. Invited talk, Operator Performance Workshop, Transportation Research Board Annual Meeting, Washington, DC: January 13, 2008.

An integrated theory of concurrent multitasking. Invited talk, Northeastern University, Boston, MA: November 7, 2007.

Interaction off the desktop: Predicting driver distraction with cognitive models. Invited talk, PhiCHI chapter of ACM SIGCHI, Drexel University, Philadelphia, PA: September 13, 2005.

Modeling human multitasking in compound continuous tasks. Invited workshop, Integrated Models of Cognitive Systems, Saratoga Springs, NY: March 3-6, 2005.

The ACT-R driver model. Invited workshop, Transportation Research Board Annual Meeting 2005, Washington, DC: January 9-13, 2005.

ACT-R and driving. Invited symposium, Cognitive Science 2004, Chicago, IL: August 5-7, 2004.

Predicting driver distraction with cognitive models. Invited seminar, Special Series on Cognitive Architectures, Carnegie Mellon University, Pittsburgh, PA: March 22, 2004.

Predicting driver distraction with cognitive models. Invited talk, Southern New Jersey Chapter of the Human Factors and Ergonomics Society, FAA William J. Hughes Technical Center, Atlantic City, NJ: February 25, 2004.

Predicting driver distraction with cognitive models. Invited talk, Philadelphia Chapter of the Human Factors and Ergonomics Society, CHI Systems, Wayne, PA: February 18, 2004.

Interfacing ACT-R with external simulations. Invited symposium, ACT-R Workshop, Carnegie Mellon University, Pittsburgh, PA; July 26, 2003.

Predicting the effects of driver distraction: An integrated model approach. Invited talk, Cognitive Science Colloquia Series, Rensselaer Polytechnic Institute, Troy, NY; January 17, 2003.

Modeling and predicting effects of multimodal support systems on complex dynamic tasks. Invited talk, ONR Workshop, George Mason University, Fairfax, VA; May 22-24, 2002.

Predicting the effects of driver distraction: An integrated model approach. Invited talk, General Motors Research Laboratory, Warren, MI; March 15, 2002.

Modeling driver distraction in a cognitive architecture. Invited talk, Driver Distraction Workshop, Transportation Research Board Annual Meeting, Washington, DC; January 13, 2002.

Modeling and predicting driver behavior in ACT-R. Invited talk, Workshop on ACT-R Models of Human-System Interaction, Air Force Research Laboratory, Mesa, AZ; January 10, 2002.

ACT-R in the real world. Invited commentary, ACT-R PGSS, Berkeley Springs, WV; July 22, 2001.

Understanding driver distraction: Can cognitive modeling help? Invited seminar, LowellCHI Group, University of Massachusetts, Lowell, MA; May 17, 2001.

Predicting the effects of driver distraction by on-board devices: An integrated model approach. Invited seminar, HCI Institute, Carnegie Mellon University, Pittsburgh, PA; March 14, 2001.

Eye-movement data analysis. Invited panel, Eye-Tracking Research and Applications Symposium, Palm Beach, FL; November 5-8, 2000.

A domain-independent model of eye movements and visual encoding. Invited talk, University of Massachusetts, Amherst, MA; September 29, 2000.

Modeling driver behavior in a cognitive architecture. Invited talk, Human Operator Modeling Group, MIT Man-Vehicle Laboratory, Cambridge, MA; September 19, 2000.

What the driver's eye tells the car's brain (with A. Liu). Invited symposium, International Congress of Psychology, Stockholm, Sweden; July 23-28, 2000.

Relating actions and intentions. Invited talk, Behavior Group, MIT Media Laboratory, Cambridge, MA; May 9, 2000.

Toward machine understanding of user intent: Interpreting eye movements with hidden Markov models. Invited talk, Just Research, Pittsburgh, PA; May 13, 1999.

Implicit and explicit learning. Invited panel, ACT-R Workshop, Carnegie Mellon University, Pittsburgh, PA; August 4-5, 1997.

Grants

Virtual Reality Driving and Brain Injury in the Clinic (2019-2024), with M. Schultheis. National Institutes of Health (#1R01HD096066-01A1), \$2,001,533. [Co-PI, 5%]

Toward Undifferentiated Cognitive Agents: Translating Instructions to Knowledge (2018-2021). Air Force Office of Scientific Research (#FA9550-18-1-0371), \$426,261. [PI]

Modeling the Impact of Fatigue on Driver Behavior (2015-2018). Air Force Research Laboratory, \$195,854. [PI]

Inference of Driver Intentions (2012). Nissan Motor Company (gift), \$30,000. [PI]

Cognitive Supermodels: Large-Scale Models of Skill and Knowledge Developed in a Cognitive Architecture (2011-2014). Office of Naval Research, \$501,876. Submitted August 2011. [PI] (Funded as a continuation of “Metacognition as Multitasking,” 2008-2011)

Inference of Driver Intentions (2011). Nissan Motor Company (gift), \$10,000. [PI]

Metacognition as Multitasking: Theory and Models of Strategic Multitasking in Complex Dynamic Tasks (2008-2011). Office of Naval Research (#N00014-09-1-0096), \$414,651. [PI]

Defining Virtual Reality Driving in Traumatic Brain Injury (2007-2011), with M. Schultheis. National Institutes of Health, \$991,769. [Co-PI, 15%].

Multitasking and Learning in a Cognitive Architecture (2005-2008). Office of Naval Research (#N00014-03-1-0036), \$336,811. [PI]

ITR: Rapid Evaluation of User Interfaces in Multitasking Environments (2004-2008), with F.J. Lee. National Science Foundation (#IIS-0426674), \$1,000,000. [PI]

REU: Development of the Drexel Driving Simulator (2004-2005). National Science Foundation (supplement to #IIS-0133083), \$6,000. [PI]

REU: Involving Undergraduate Students in the Tracking Cognitive Processes Project (2003-2004). National Science Foundation (supplement to #IIS-0133083), \$12,830. [PI]

An Integrated Approach to Tracking Driver Cognitive State (2003-2004), with A. Shokoufandeh. Nissan Motor Company, \$60,000. [PI]

Modeling Human Multitasking in the ACT-R Cognitive Architecture (2002-2005). Office of Naval Research (#N00014-03-1-0036), \$278,014. [PI]

Using a Cognitive Architecture to Track Driver Cognitive State (2002-2003). Nissan Motor Company, \$60,000. [PI]

Rapid Prototyping and Evaluation of In-Vehicle Devices (2002-2004). Ford Motor Company (gift), \$120,000. [PI]

Driving Simulator (2001). Nissan Motor Company (equipment gift), \$14,000.

CAREER: A Computational Architecture for Tracking Cognitive Processes (2002-2007). National Science Foundation (#IIS-0133083), \$336,063. [PI]

External Service

Program Committee, International Conference on Cognitive Modeling (ICCM) 2022

Program Committee, International Conference on Cognitive Modeling (ICCM) 2021

Program Committee, International Conference on Cognitive Modeling (ICCM) 2020

External Chair, International Conference on Cognitive Modeling (ICCM) 2015

Editorial Board, *ACM Transactions on Computer-Human Interaction* (2011-2013)

Editorial Board, *Psychological Review* (2010-present)

Editorial Board, *Human Factors* (2008-2013)

Franklin Institute Committee on Science and the Arts (2008-present)

Associate Chair for Papers/Notes, ACM CHI Conference 2011

Program Committee, Association for the Advancement of Artificial Intelligence (AAAI) 2011

Conference Chair, International Conference on Cognitive Modeling (ICCM) 2010

Editorial Board, *International Journal of Human-Computer Studies* (2005-2010)

Program Committee and Awards Committee, Cognitive Science Society Annual Conference 2009

Program Committee, International Conference on Cognitive Modeling (ICCM) 2009

Program Chair, Human Performance Modeling Technical Group (HPM-TG), Human Factors and Ergonomics Society (HFES), 2006-2008

Program Committee, International Conference on Cognitive Modeling (ICCM) 2007

Program Committee, American Association for Artificial Intelligence (AAAI) Conference 2007

Program Committee, International Conference on Cognitive Modeling (ICCM) 2006

Tutorials Selection Committee, ACM CHI 2006

Executive Committee, Transportation Research Board for Simulation and Measurement of Vehicle and Operator Performance (AND30)

Panel Organizer: Applications of cognitive architectures, ACT-R Workshop 2000

Media Mention

“The Art of Multitasking.” KYW-TV CBS 3, March 2011.
(highlights work on multitasking and distraction)

“On your side: Drivesafe.ly.” KYW-TV CBS 3, January 2011.
(commentary on new technology for alleviating driver distraction)

Driver distraction and iPods. *Reg Hardware* (3/30/07), *PhysOrg* (3/27/07), *TidBits* (4/3/07), *Ars Technica* (4/4/07), *Seattle Post-Intelligencer* (4/10/07), *Chronicle of Higher Education* (5/4/07), *ABC News 13* (5/07), *WKRC Cincinnati* (9/25/07), *Teen Vogue* (5/08).
(mention study of iPod distraction while driving)

"Global brain conference in Trieste", *Il Piccolo*, July 2006. (in Italian)
(mentions work on cognitive modeling, with photo and quotes on Italian influences on research)

"Computer-aided brains." *Scientific American Mind*, 16 (3); October 2005.
(mentions work on predicting driver distraction with cognitive models)

"Cellular phones." *Consumer Reports*; February 2002.
(mentions results of empirical study of driver distraction from cellular phones)

"For the future, click here...". *Science et Vie Micro*, 166; December 1998.
(mentions work on intelligent interfaces and "eye typing")