

# AvSP SWAP Human Performance Modeling Publications

## February, 2003

### Journals, Books, Conference Proceedings

Callantine, T. (2002). A representation of air traffic control clearance constraints for intelligent agents. In A. El Kamel, K. Mellouli, and P. Bourne (Eds.), Proceedings of the 2002 IEEE International Conference on Systems, Man, and Cybernetics, #WA1C2, (CD-ROM).

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Callantine, T. (2001). Agents for analysis and design of complex systems. Proceedings of the 2001 IEEE International Conference on Systems, Man, and Cybernetics, 567-573.

Callantine, T. (2001). Analysis of flight operational quality assurance data using model-based activity tracking. SAE Technical Paper 2001-01-2640. Warrendale, PA: SAE International.

Callantine, T. (2001). The crew activity tracking system: Leveraging flight data for aiding, training, and analysis. Proceedings of the 20th Digital Avionics Systems Conference, 5.C.3-1-5.C.3-12 (CD-ROM).

Deutsch, S. & Pew, R. (2002). Modeling human error in a real-world teamwork environment. Proceedings of the Twenty-fourth Annual Meeting of the Cognitive Science Society (pp. 274-279), Fairfax, VA

Gore, B. F., and Corker, K. M. (2002). Increasing aviation safety using human performance modeling tools: An Air Man-machine Integration Design and Analysis System application. In M. J. Chinni (Ed). 2002 Military, Government and Aerospace Simulation, 34(3), 183-188. San Diego: Society for Modeling and Simulation International.

Gore, B.F. (2002). Human performance cognitive-behavioral modeling: A benefit for occupational safety. In B. Chase & W. Karwowski (Eds.), International Journal of Occupational Safety and Ergonomics (JOSE), 8 (3), 339-351.

Gore, B. F. (2002). An emergent behavior model of complex human-system performance: An aviation surface related application. VDI Bericht 1675, 1 (1), 313-328, Düsseldorf, Germany: VDI Verl

Gore, B.F., & Corker, K.M. (2001). Human error modeling predictions: Increasing occupational safety using human performance modeling tools. In B. Das, W. Karwowski, P. Modelo, and M. Mattila (eds.), Computer-Aided Ergonomics and Safety (CAES) 2001 Conference Proceedings, July 28 - August 4, Maui, Hawaii.

Lebiere, C., Biefeld, E., Archer, R., Archer, S., Allender, L., and Kelley, T. D. (2002). Imprint/ACT-R: Integration of a task network modeling architecture with a cognitive architecture and its application to human error modeling. In M. J. Chinni (Ed). 2002 Military, Government and Aerospace Simulation, 34(3), 13-19. San Diego: Society for Modeling and Simulation International.

McCarley, J. S., Wickens, C. D., Goh, J., and Horrey, W. J. (2002). A computational model of attention / situation awareness. Proceedings of the 46th Annual Meeting of the Human Factors and Ergonomics Society. 1669-1673. Santa Monica: Human Factors and Ergonomics Society.

### Technical Reports

Byrne, M. D., & Kirlik, A. (2003). Integrated Modeling of Cognition and the Information Environment: A Closed-Loop, ACT-R Approach to Modeling Approach and Landing with and without Synthetic Vision System (SVS) Technology. Technical Report AHFD-03-4/NASA-03-3, Institute of Aviation. University of Illinois at Urbana-Champaign.

Byrne, M. D., & Kirlik, A. (2002). Integrated Modeling of Cognition and the Information Environment: Closed-Loop, ACT-R Modeling of Aviation Taxi Errors and Performance. Technical Report AHFD-02-19/NASA-02-10, Institute of Aviation, University of Illinois at Urbana-Champaign.

Callantine, T. (2002). CATS-based agents that err. NASA Contractor Report 2002-211858. Moffett Field, CA: NASA Ames Research Center.

Callantine, T. (2002). CATS-based air traffic controller agents. NASA Contractor Report 2002-211856. Moffett Field, CA: NASA Ames Research Center.

Callantine, T. (2002). Activity tracking for pilot error detection from flight data. NASA Contractor Report 2002-211406. Moffett Field, CA: NASA Ames Research Center.

Corker, K.M., Gore, B.F., Guneratne, E., Jadhav, A., & Verma, S. (2003). SJSU/NASA coordination of Air MIDAS safety development human error modeling: NASA aviation safety program. Integration of Air MIDAS human visual model requirement and validation of human performance model for assessment of safety risk reduction through the implementation of SVS technologies, (Interim Report and Deliverable NASA Contract Task Order #: NCC2-1307), Moffett Field, CA.

Deutsch, S., & Pew, R. (2003). Modeling the NASA baseline and SVS-equipped approach and landing scenarios in D-OMAR. BBN Report No. 8364. Contractor Report.

Deutsch, S., & Pew, R. (2001). Modeling human error in D-OMAR. BBN Report No. 8328. Contractor Report.

Goodman, A., Hooey, B. L., and Foyle, D. C. (2003). **Developing Cognitive Models of Approach and Landing with Augmented Displays, NASA Milestone Report.**

Gore, B.F., Verma, S., Jadhav, A., Delnegro, R., & Corker, K.M. (2002). Human error modeling predictions: Air MIDAS human performance modeling of T-NASA. NASA Ames Research Center Contract No.21-1307-2344. CY01 Final Report.

Keller, J. W., and Leiden, K. (2002). Information to Support the Human Performance Modeling of a B757 Flight Crew during Approach and Landing: RNAV. Contractor Report.

Keller, J. W., and Leiden, K. (2002). Information to Support the Human Performance Modeling of a B757 Flight Crew during Approach and Landing SVS Addendum. Contractor Report.

**Lebiere, C., Biefeld, E., Archer, R., (2003) Cognitive models of approach and landing. Contractor Report.**

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Uhlarik, J. and Prey, C.M. (2002). Functional Allocation Issues and Tradeoffs (FAIT) Analysis of Synthetic Vision Systems (SVS). Contractor Report.

Wickens, C. D., & McCarley, J. S. (2001). Attention-Situation Awareness (A-SA) Model of Pilot Error (Final Technical Report ARL-01-13/NASA-01-6). Savoy, IL: University of Illinois, Aviation Research Lab.

Wickens, C. D. (2002). Spatial Awareness Biases (ARL-02-6/NASA-02-4). Savoy, IL: University of Illinois, Aviation Research Lab.

Wickens, C. D., McCarley, J. S. and Thomas, L. (2003). Attention-Situation Awareness (A-SA) Model, Contractor Report.

Upcoming

Byrne, M. D., & Kirlik, A. (in prep). Marrying cognitive and ecological analyses to support computational modeling of dynamic decision making in aviation. To appear in: A. Kirlik (Ed.), Working with Technology in Mind: Brunswikian Resources for Cognitive Science & Engineering. New York: Oxford University Press.

Byrne, M. D., & Kirlik, A. (in prep). Integrating cognitive architectures and ecological analyses: Closing the loop. Manuscript to be submitted to Cognitive Science.

Byrne, M. D., & Kirlik, A. (in prep). Modeling to support error diagnosis in commercial taxi operations. Manuscript to be submitted to The International Journal of Aviation Psychology.

Corker, K., Gore, B.F., Jadhav, A., & Verma, S. (submitted 2003). Human-system modeling in flight deck synthetic vision systems: performance prediction and validation. Society of Automotive Engineers (SAE) World Aviation Congress, Aerospace Congress and Exposition, September 8-13, Montreal Canada (SAE Paper #:TBD).

#### Miscellaneous

Pew, R., & Deutsch, S. (2003). Modeling human error in an air traffic control environment. Contractor MIT Colloquium presentation.