David L. Westbrook

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Education

M.S., Computer Science, University of Massachusetts, 1987.
B.A., Summa Cum Laude, Computer Science, SUNY Oswego, 1985.

Professional Experience

Senior Research Fellow, Advanced Networked Systems Research Group, , University of Massachusetts, September 2011 - present.
Senior Research Fellow, Engineering Research Center For Collaborative Adaptive Sensing of the Atmosphere, University of Massachusetts, March 2004 - present.
Research Fellow, Experimental Knowledge Systems Laboratory, University of Massachusetts, September 2003 – September 2004.
Lab Manager, Experimental Knowledge Systems Laboratory, University of Massachusetts, January 2002 – September 2003.
Acting Lab Manager, Experimental Knowledge Systems Laboratory, University of Massachusetts, May 2001 – January 2002.
Technical Manager, Experimental Knowledge Systems Laboratory, University of Massachusetts, July 1997 – May 2001.
Staff Associate Programmer, Experimental Knowledge Systems Laboratory, University of Massachusetts, September 1989 – July 1997.
Staff Assistant Programmer, Cooperative Distributed Problem Solving Laboratory, University of Massachusetts, September 1987 – September 1989.
Research Assistant, Cooperative Distributed Problem Solving Laboratory, University of Massachusetts, September 1985 – September 1987.

Research Positions

Research Fellow, Partnerships for Innovation: Building Innovation Capacity, National Science Foundation. 2016 - present.
Research Fellow, Future Internet Architecture Project, National Science Foundation. 2011-2016.
Research Fellow, HazardSEES Type 2: Next Generation, Resilient Warning Systems for Tornadoes and Flash Floods, National Science Foundation. 2013 - 2016.
Research Fellow, Engineering Research Center For Collaborative Adaptive Sensing of the Atmosphere, National Science Foundation. 2004 - 2011.

Programmer, Evidence Extraction and Link Discovery. DARPA / IAO, 2001 – 2004.
Project Manager, Effects-based Operations. Air Force Research Laboratory, 2001 – 2004.
Lead Programmer, Rapid Knowledge Formation. DARPA/ISO, 2000 – 2003.
Programmer, Convivial Computers, The Case for Natural Semantics. DARPA/ ITO, 1999 – 2002.
Project Manager, Course of Action Simulation, Testing, Evaluation and Revision. DARPA/ISO, 1999 – 2002.
Programmer, Building and Acquiring Interactionist Ontologies. DARPA/AFOSR, 1997 – 2000.
Project Manager, Mixed Initiative Plan Evaluation and Repair. DARPA/Rome Laboratory, 1997 – 2000.
Programmer, AIDE, The Data Analyst's Assistant. SBIR (ACSIOM Labs, Inc.), National Science Foundation, 1997.
Lead Programmer, Campaign-at-a-Glance, Conceptual Models for Visualization, Information Extraction and Simulation. DARPA, 1996 – 1999.
Lead Programmer, A Substrate and Tools for Experimental Testbeds. ARPA/ Rome Laboratory, 1995 – 1999.
Programmer, Experimental Methods for Evaluating Planning Systems. ARPA/ Rome Laboratory, 1993 – 1997.
Lead Programmer, Visualization and Simulation for Interactive Plan Development and Plan Steering. DARPA, 1991 – 1994.
Programmer, Intelligent Real-time Problem Solving. AFOSR, 1989 – 1992.
Programmer, An Adaptive Planner for Real-time Uncertain Environments. DARPA, 1989 – 1992.
Programmer, A Distributed Firefighting System. RADC/NAIC Consortium, 1989.
Programmer, Knowledge Base Retrieval using Plausible Inference. AFOSR, 1988 – 1991.
Programmer, UMass Parallel Common Lisp System. NSF/CER, 1987 – 1988.

Major Implementation and Supervision Efforts

GNS: Global Name Service; a global name service for a mobility-centric, trustworthy internetwork, 2011 - present.
ACS: Alert Control System; a hazardous weather sensor aggregation and dissemination architecture, 2013 - present.
MC&C: Meteorological Command and Control; an end-to-end architecture for a hazardous weather detection sensor network, 2004 - 2012.
AIID: Architecture for the Interpretation of Intelligence Data; a blackboard based architecture for information interpretation, 2002 – 2004.
HATS; a simulation of terrorist threats and intelligence gathering, 2002 – 2004.
HAC: Hierarchical Agent Control; a multi-agent distributed agent control architecture, 1998 – 2004.
CTF: Capture the Flag; a planning and simulation architecture, 1998 – 2004.

AIDE: Automated Intelligent Data Exploration; an exploratory data analysis toolkit, 1997 – 1998.
ACS: Air Campaign Simulator; a tool for the analysis of air operation plans, 1995 – 1998.
TransSim: Force and Deployment Transportation Simulator; an interactive plan steering testbed, 1991 – 1994.
MESS: Multiple Event Stream Simulator; general purpose hybrid discrete event and real time simulation substrate, 1990 – 1995.
CLIP/CLASP: Common Lisp Instrumentation Package / Common Lisp Statistical Analysis Package, 1991 – 2004.
Phoenix: Firefighting Simulation; a testbed for planning and simulation in complex realtime environments, 1989 – 1995.
DVMT: The Distributed Vehicle Monitoring Testbed, 1985 – 1989.

Book Chapters

Paul R. Cohen, Scott Anderson and David Westbrook. 1996. Plan Steering and Mixed-Initiative Planning. Advanced Planning Technology: Technological Achievements of the ARPA/Rome Laboratory Planning Initiative, A. Tate, Editor. AAAI Press, pp. 113-118.

Journal Articles

Michael Zink, Eric Lyons, David Westbrook, Jim Kurose, and David Pepyne. Closed-loop Architecture for Distributed Collaborative Adaptive Sensing of the Atmosphere: Meteorological Command & Control. International Journal of Sensor Networks, Inderscience. 7(1/2), 4-18, February 2010.

Scott D. Anderson, David M. Hart, David L. Westbrook and Paul R. Cohen. A Toolbox for Analyzing Programs. International Journal on Artificial Intelligence Tools, Vol. 4, Nos. 1 & 2, pp. 257-279, 1995.

Conference Papers

Abhigyan Sharma, Xiaozheng Tie, Hardeep Uppal, Arun Venkataramani, David Westbrook, Aditya Yadav. A global name service for a highly mobile internetwork, Proceedings of ACM SIGCOMM, Chicago, IL, USA, 2014.

D. Pepyne, D. McLaughlin, D. Westbrook, E. Lyons, E. Knapp, S. Frasier, and M. Zink. Dense Radar Networks for Low-Flyer Surveillance. In Proceedings of the International Conference on Technologies for Homeland Security (HST), Boston, MA, USA, November 2011.

Bo An, V. Lesser, D. Westbrook, and M. Zink. Agent-mediated Multi-step Optimization for Resource Allocation in Distributed Sensor Networks. In

Proceedings of 10th International Conference on Autonomous Agents and Multiagent Systems – Innovative Applications Track (AAMAS 2011), Taipei, Taiwan, May 2011.

V. Chandrasekar, David McLaughlin, Mike Zink, Jerry Brotzge, Brenda Philips, Yanting Wang, Sanghun Lim, Francesc Junyent, Nitin Bharadwaj, Eric Lyons, David Westbrook. The CASA IP1 Test-bed after 5 Years Operation: Accomplishments, Breakthroughs, Challenges and Lessons Learned, ERAD 2010 - The Sixth European Conference On Radar In Meteorology and Hydrology, Sibiu, Romania, September 6 - 10, 2010.

Brenda Philips, David Westbrook, David Pepyne, Ellen Bass, Don J. Rude. Evaluation of the CASA System in the NOAA Hazardous Weather Test Bed. 24th International Conf. on Interactive Information Processing Systems (IIPS) for Meteor., Ocean., and Hydrology, 88th American Meteorology Society Annual Meeting, New Orleans, LA, January 24, 2008.

D. Pepyne, D. Westbrook, B. Philips, E. Lyons, M. Zink, and J. Kurose. Distributed Collaborative Adaptive Sensor Networks for Remote Sensing Applications. In Proceedings of American Control Conference, Seattle, WA, USA, June 2008.

J. Kurose, E. Lyons, D. McLaughlin, D. Pepyne, B. Philips, D. Westbrook, and M. Zink. An End-User-Responsive Sensor Network Architecture for Hazardous Weather Detection, Prediction and Response. In Proceedings of the Asian Internet Engineering Conference (AINTEC), Pathumthani, Thailand, November 2006.

M. Zink, D. Westbrook, S. Abdallah, B. Horling, V. Lakamraju, E. Lyons, V. Manfredi, J. Kurose, and K. Hondl. Meteorological Command and Control: An End-to-end Architecture for a Hazardous Weather Detection Sensor Network. In Proceedings of the Workshop on End-to-End, Sense-and-Respond Systems, Applications, and Services, Seattle, WA, USA, June 2005.

Gary W. King, Brent Heeringa, Joe Catalano, David L. Westbrook, and Paul Cohen. Models of Defeat. In Proceedings of the Second International Conference on Knowledge Systems for Coalition Operations, 2002. pp. 85-90.

Marc Atkin, David Westbrook, Gary W. King, Brent Heeringa, Andrew Hannon and Paul Cohen. SPT: Hierarchical Agent Control: A Framework for Defining Agent Behavior. To appear in Proceedings of Fifth International Conference on Autonomous Agents, 2001.

Marc Atkin, David Westbrook, Paul Cohen. Domain-General Simulation and Planning with Physical Schemas. In Proceedings of Winter Simulation Conference, pp. 1730-1738, 2000.

Marc Atkin, David Westbrook, Paul Cohen. HAC: A Unified View of Reactive and Deliberative Activity. In Working Notes of the Fourteenth European Conference on Articial Intelligence Workshop on Balancing Reactivity and Social Deliberation in Multi-Agent Systems. 2000. Also Technical Report 00-50, Department of Computer Science, University of Massachusetts, Amherst.

Scott D. Anderson, Adam Carlson, David L. Westbrook, David M. Hart and Paul R. Cohen. Tools for Experiments in Planning. In Proceedings of the Sixth IEEE International Conference on Tools with AI. IEEE Computer Society Press, pp. 615-623. 1994.

Other Publications

B. Philips, C. League, J. Nimrod, G. Whitworth, W. Diaz, E.J. Bass, D. Westbrook, A. Gessner, and S.H. Lim, 2009. "CASA Radar Systems for Improved Decision Making." 2009 Fall Meeting of the Oklahoma Emergency Management Association, Tulsa, OK, September 29-October 1, 2009.

McLaughlin, D., D. Pepyne, V. Chandrasekar, B. Philips, J. Kurose, M. Zink, K. Droegemeier, S. Cruz-Pol, F. Junyent, J. Brotzge, D. Westbrook, N. Bharadwaj, Y. Wang, E. Lyons, K. Hondl, Y. Liu, E. Knapp, M. Xue, A. Hopf, K. Kloesel, A. Defonzo, P. Kollias, K. Brewster, R. Contreras, B. Dolan, T. Djaferis, E. Insanic, S. Frasier, and F. Carr. Short-Wavelength Technology and the Potential For Distributed Networks of Small Radar Systems. Bull. Amer. Meteor. Soc., 90, 1797-1817. 2009.

D. McLaughlin, D. Pepyne, B. Philips, J. Kurose, M. Zink, E. Knapp, D. Westbrook, E. Lyons, A. Hopf, A. DeFonzo, R. Contreras, T. Djaferis, E. Insanic, S. Frasier, V. Chandrasekar, F. Junyent, N. Bharadwaj, Y. Liu, Y. Wang, K. Droegemeier, M. Xue, J. Brotzge, F. Carr, K. Kloesel, K. Brewster, S. Cruz-Pol, and K. Hondl. Short-Wavelength Technology and the Potential for Distributed Networks of Small Radar Systems. Submitted to the Bulletin of the American Meteorological Society (BAMS). 2008.

Philips, B., Westbrook, D., Pepyne, D., Bass, E. J., Rude, D.J., Brotzge, J. User Evaluations Of Adaptive Scanning Patterns in the CASA Spring Experiment. IEEE Geoscience and Remote Sensing Society. July 6-11, Boston, MA. 2008.

B. Philips, D. Pepyne, D. Westbrook, E. Bass, J. Brotzge, W. Diaz, K. Kloesel, J. Kurose, D. McLaughlin, H. Rodriguez, M. Zink. Integrating End User Needs Into System Design and Operation: The Center for Collaborative Adaptive Sensing of the Atmosphere (CASA). In Proceedings of the 87th AMS Annual Meeting, San Antonio, TX, USA, January 2007.

J. Brotzge, D. Westbrook, M. Zink. The Meteorological Command and Control Structure of a Dynamic, Collaborative, Automated Radar Network. In 21st

International Conference on Interactive Information Processing Systems (IIPS) for Meteorology, Oceanography, and Hydrology, San Diego, CA, USA, January 2005.

J. Brotzge, K. Brewster, B. Johnson, B. Philips, M. Preston, D. Westbrook, and M. Zink. CASA'S First Test Bed: Integrative Project #1. In 32nd Conference on Radar Meteorology, American Meteorological Society, Albuquerque, NM, USA, October 2005.

Michael Zink, David Westbrook, Eric Lyons, Kurt Hondl, Jim Kurose, Francesc Junyent, Luko Krnan and V. Chandrasekar. "NetRad: Distributed, Collaborative and Adaptive Sensing of the Atmosphere. Calibration and Initial Benchmarks", International Conference on Distributed Computing in Sensor Systems, Marina Del Rey, CA, USA, June 30 - July 1, 2005.

Refereed Workshops

Beal, Carole R., Joseph Beck, David Westbrook, and Paul R. Cohen. 2002. Intelligent modeling of the User in Interactive entertainment. AAAI Spring Symposium on Artificial Intelligence and Interactive Entertainment, 2002.

Marc S. Atkin, Gary W. King, David L. Westbrook and Paul R. Cohen. 2000. Some Issues in AI Engine Design. AAAI Spring Symposium on Artificial Intelligence and Interactive Entertainment, 2000.

Marc S. Atkin, David L. Westbrook and Paul R. Cohen. Capture the Flag Military Simulation Meets Computer Games. Presented at AAAI Spring Symposium on Adjustable Autonomy. 1998.

Marc Atkin, David L. Westbrook, Paul R. Cohen and Gregory D. Jorstad. AFS and HAC: Domain-General Agent Simulation and Control. Presented at AAAI Workshop on Software Tools for Developing Agents, AAAI Press, 1998, pp. 89-95.

Scott D. Anderson, Adam Carlson, David L. Westbrook, David M. Hart and Paul R. Cohen. Tools for Empirically Analyzing AI Programs. In Preliminary Papers of the Fifth International Workshop on Artificial Intelligence and Statistics. Ft. Lauderdale FL, January 1995, pp. 35-41.

Scott D. Anderson, Adam Carlson, David L. Westbrook, David M. Hart and Paul R. Cohen. 1994. Tools for Experiments in Planning. In Proceedings, ARPA/ Rome Laboratory Planning Initiative Workshop, M.H. Burstein, Ed. Morgan Kaufmann Publishers, Inc., 1994, pp. 423-432.

Tech Reports

Marc Atkin, David Westbrook and Paul R. Cohen. Planning in Continuous Adversarial Domains. Technical Report 00-17, Department of Computer Science, University of Massachusetts, Amherst.

David L. Westbrook, Scott D. Anderson, David M. Hart and Paul R. Cohen. 1994. Common Lisp Instrumentation Package: User Manual. Technical Report 94-26. Department of Computer Science, University of Massachusetts.

Scott D. Anderson, Adam Carlson, David L. Westbrook, David M. Hart, and Paul R. Cohen. 1993. Common Lisp Analytical Statistics Package: User Manual. Technical Report 93-55. Department of Computer Science, University of Massachusetts.

Greenberg, Michael and David L. Westbrook. The Phoenix Testbed. Technical Report 90-19, Department of Computer Science, University of Massachusetts, 1990.