Cliff A. Joslyn

Mail Stop B265
Los Alamos National Laboratory
Los Alamos, NM 87545 USA
(505) 667-9096

Home:
716 Avenida Castellano
Santa Fe, NM 87501 USA
(505) 989-4764

joslyn@lanl.gov
http://www.c3.lanl.gov/~joslyn

Updated July, 2006

RESEARCH

Systems Science and Cybernetics; Knowledge Discovery in Databases and Knowledge Representation; applied order theory, lattice theory, and hierarchy theory; Generalized Information Theory (GIT) and Uncertainty Quantification; Computational Semiotics and semiotic modeling; Computational Biology, Bio-Informatics, and biological semiotics; cybernetic philosophy.

EDUCATION

- **PhD 1994 in Systems Science, SUNY at Binghamton**
  Dissertation: *Possibilistic Processes for Complex Systems Modeling*, **Advisor:** George Klir
- **MS 1989 in Systems Science, SUNY at Binghamton**
- **BA 1985 in Mathematics and Cognitive Science, Oberlin College**
  High Honors: Cybernetics and Cognitive Science.
  Systems Theory, Semiotics, Linguistics, Philosophy, Artificial Intelligence; minor in Religion.

CURRENT POSITIONS

Team Leader, Knowledge and Information Systems Science
Modeling, Algorithms, and Informatics Group (CCS-3)
Computer and Computational Sciences Division
Los Alamos National Laboratory, Los Alamos, New Mexico

Technical, supervisory, and budgetary managerial responsibility for team of research scientists, postdocs, and students; technical and programmatic leadership and liaison with multiple laboratory, academic, government, and corporate partners and customers; research in knowledge systems and computational linguistics; applications in computational biology, homeland defense, defense transformation, intelligence analysis, and digital libraries.

Visiting Faculty, Civil Engineering
University of New Mexico, Albuquerque, New Mexico

RESEARCH POSITIONS

- **Acting Team Leader, Los Alamos National Laboratory, 2000-2002**
  Distributed Knowledge Systems and Modeling; Modeling, Algorithms, and Informatics Group (CCS-3). Research leadership in knowledge systems, bioinformatics, data mining, and agent-based modeling.
- **Member of the Technical Staff, Los Alamos National Laboratory, 1998-1999**
  Research and development in distributed knowledge systems, data mining applications, and agent-based modeling of sociotechnical systems.
- **Postdoctoral Research Associate, Los Alamos National Laboratory, 1996-1998**
  Data mining; fraud detection; multidimensional knowledge discovery; generalized information theory.
- **NSF Postdoctoral Research Associate, NASA Goddard Space Flight Center, 1994-1996**
  Qualitative modeling, possibilistic modeling; spacecraft diagnostics and trend analysis; Discrete EVent Systems (DEVS) Modeling.
- **Graduate Fellow, NASA Goddard Space Flight Center, 1991-1994**
  Graduate Fellowship in support of dissertation research: possibilistic qualitative modeling, model-based diagnosis of spacecraft systems.

TEACHING APPOINTMENTS

- **Adjunct Instructor, Computer Science, University of New Mexico, Los Alamos, 1997**
  Instructor for "Introduction to UNIX" and "Advanced UNIX".
- **Instructor, Southern Maine Technical College, South Portland, Maine, Spring 1993**
  Designed and taught "Programming in ANSI C".
- **Instructor, AGS Information Services, Endwell, New York, 1990**
  Instructed corporate programming staff in the ANSI C programming language.
- **Instructor and Teaching Assistant, SUNY at Binghamton, 1987-1991:**
  - **Continuing Education, Course Design and Instruction** ANSI C Programming.
  - **Systems Science Department, Course Design and Instruction** Fundamentals of Mathematics, Introduction to Systems Science.
  - **Systems Science Department, Teaching Assistance** Artificial Intelligence; Information Systems Design; Inductive Modelling Methodologies (Systems Problem Solving); Systems Optimization; Discrete Structures; microcomputer support.

ADVISING

- **Student Supervision:** Los Alamos National Laboratory, 1996-present, instructed, supervised, and advised multiple graduate and undergraduate students on research and software systems development
- **Director of Central Intelligence (DCI) Postdoctoral Fellowship:** The proposal "Semantic Interoperability Technologies in Security Organizations" succesfully secured funding for researcher within the Trusted Information Sharing Research Program Area, 2005-present.
- **PhD Committee:** Margeret Heath, Dept. of Psychology, Free University of Brussels, 2004-present.
- **PhD Committee:** Sunil Donald, *The Development of Empirical Possibility Distributions in Risk Analysis*, Civil Engineering, University of New Mexico, 2003.
- **PhD Committee:** Kari Sentz, Systems Science, Binghamton University, 2002-2003.
- **MS Committee:** Gregory Chavez, *Optimization of Possibility Distribution Algorithms*, Department of Civil Engineering, University of New Mexico, 2002.
- **PhD Committee:** Johan Bollen, *A Cognitive Model of Adaptive Web Design and Navigation*, Department of Psychology, Free University of Brussels, 2001.
- **MS Committee:** Thomas Prang, *Unsupervised Data Mining in Nominally Supported Databases*, Department of Systems Science and Industrial Engineering, Binghamton University, 1998.

HONORS AND AWARDS

- **Nomination, Best Paper Award:** 2004 Intelligent Systems for Molecular Biology Conference (ISMB 04), "The Gene Ontology Categorizer", with SM Mniszewski, AG Fulmer, and GH Heaton
- **Distinguished Performance Award:** Large Team Award for IRS Fraud Detection Project, Los Alamos National Laboratory, September 1997.
- **Graduate Student Researchers Program Fellowship:** NASA Goddard Space Flight Center, 1991-1994. Advisor: Walter Truszkowski.
- **Dissertation Year Fellowship:** SUNY at Binghamton, 1991, declined.
- **Vickers Memorial Award:** International Society for the Systems Sciences, 1991; Member, Vickers Memorial Honorary Society, Vickers Award Selection Committee.
- **Conference Scholarship:** Gordon Research Conference on Control and Communications in Complex Systems, 1990.
- **High Honors:** Studies in Systems Science and Cognitive Science, Oberlin College, 1985.
- **Independent Major:** Cognitive Science, Oberlin College, 1983-1985.

FUNDING HISTORY

- **Los Alamos National Laboratory, Directed Research and Development:** *Host-Pathogen Interactions (Pathomics) in Avian Influenza*, 2006-present.
- **Department of Homeland Security, Science and Technology:** *Generalized Data-Driven Analysis and Integration*, 2005-present.
- **Department of Homeland Security, Science and Technology:** Knowledge extraction, ontology management, and machine learning technology for semantic networks, 2005-present.
- **Los Alamos National Laboratory, Directed Research and Development:** *Protein Function Inference*, 2002-present.
- **Sandia National Lab, ASCI Program:** *Epistemic Uncertainty Modeling*, September, 2000-present.
- **Los Alamos National Laboratory, ASCI Verification and Validation:** *Generalized Uncertainty Quantification for Engineering Modeling*, 2003-2005.
- **USS STRATCOM:** *Integrated Knowledge Engine (IKE)*, 2004-2005.
- **Department of Homeland Security, Science and Technology:** *Critical Infrastructure Protection/Decision Support System (CIP/DSS)*, 2003-2004.
- **Defense Advanced Research Projects Agency (DARPA):** Program development for bio-ontologies, 2004.
- **Engineering and Physical Sciences Research Council, Great Britain:** *LSI Study Group for Discovery, REAsoning and Modelling of Knowledge Applied to GEnomics (DREAMKAGE)*, 2003-2004.
- **Los Alamos National Laboratory, Industrial Business Development:** *Cooperative Research And Development Agreement on Knowledge Systems for Bioinformatics, Proctor & Gamble*, 2002-2004.
- **Los Alamos National Laboratory, Research Library:** *Active Recommendation Systems for a Library Without Walls*, 1999-2003.
- **Los Alamos National Laboratory, Directed Research and Development:** *Advanced Knowledge Integration In Assessing Terrorist Threats*, 2002.
- **Los Alamos National Laboratory, Industrial Business Development:** *Cooperative Research And Development Agreement on Knowledge Management, Xerox Corporation*, 2000-2001.
- **Physical Science Laboratory, New Mexico State University:** *Decision Structures of Socio-Technical Organizations*, 1999-2000.
- **National Academy of Sciences Postdoctoral Research Awards:**
  - **NASA Goddard Space Flight Center** *Possibilistic Qualitative Model-Based Diagnosis and Trend Analysis of Spacecraft Systems*, Contract # NASW 4352, 1994-1996.
  - **NIST Statistical Engineering Laboratory** *Possibilistic Representations of Measurement Combination Problems*, awarded simultaneously, declined.

PEER REVIEW AND SCIENTIFIC ORGANIZATION

Journals

- **Editorial Board:** *Int. J. General Systems; J. Biosemiotics; Advances in Complex Systems*
- **Reviewer:**
  - *Bioinformatics; Biosystems; BMC Bioinformatics; Complexity International*
  - *Computational and Mathematical Organization Theory; Information Fusion*
  - *Foundations of Science; IEEE Trans. on Fuzzy Systems*
  - *IEEE Trans. on Systems, Man, and Cybernetics; Information Sciences*
  - *Int. J. of Fuzzy Sets and Systems; Int. J. of Human-Computer Studies*
  - *Int. J. of Uncertainty, Fuzziness, and Knowledge-Based Systems*
  - *Reliability Engineering and System Safety; Journal of Web Semantics*
  - *Society for Computer Simulation Trans. on Simulation; Systems Research*

Panels and Committees

- **National Science Foundation:** Science and Engineering Information Integration and Informatics (SEIII) Program, 2005-2006.
- **Dept. of Homeland Security:** Institute for Discrete Sciences, University Affiliate Centers, 2006.
- **Los Alamos National Laboratory:** Laboratory Directed Research and Development (LDRD), Exploratory Research (ER) panels:
  - Computer Science, Knowledge Discovery, and Software Engineering, 2005
  - Theoretical Biology, 2003
  - Computer Science and Software Engineering, 2001-2002
- **DARPA Workshop on Computable Semantics for Complex Biological Systems:** Participant, March, 2005.
- **First and Second DARPA Workshops on Bio-Ontologies:** Chair, February and June, 2004.
- **UK Engineering and Physical Sciences Research Council:** Grant reviewer, 2004.
- **University of California Discovery Grants:** Life Sciences and Information Technology Program, 2003.
- **Pacific Northwest National Laboratory:** Laboratory Directed Research and Development (LDRD), external reviewer in Computational Science and Engineering Initiative, 2002.
- **Netherlands Organisation for Scientific Research:** Research Programme for the Cognitive Sciences, 2002.
- **National Science Foundation:** Information Technology Research (ITR) Initiative, 2001.

Conferences

- **Program Committee:** 2007 Joint Conference on AI, Simulation and Planning in High Autonomy Systems (AIS) and Conceptual Modeling and Simulation (CMS), Buenos Aires, February 8-10, 2007.
- **Program Committee:** 2006 IEEE International Conference on Systems, Man, and Cybernetics, Taipei, October, 2006.
- **Program Committee:** 2006 Joint Biolink and 9th Bio-Ontologies Meeting (JBB), 2006 Conference on Intelligent Systems for Molecular Biology (ISMB 06), Fortaleza, Brazil, August, 2006.
- **Program Committee:** 2006 Conference on Intelligent Systems for Molecular Biology (ISMB 06), Fortaleza, Brazil, August, 2006.
- **Organizing Committee:** Workshop on Machine Self-Replication, 10th International Conference on the Simulation and Synthesis of Living Systems (ALife X), Bloomington, Indiana, June, 2006.
- **Program Committee:** Workshop on the Semantic Web for the Life Sciences, 2006 Pacific Symposium on Biocomputing (PSB 06), Hawaii, January, 2006.
- **Organizing Committee:** DHS Institute for Discrete Sciences (IDS) Workshop on Data Integration and Dissemination, Washington, DC, November, 2005.
- **Program Committee:** Fourth European Conference on Computational Biolgoy (ECCB 05), Madrid, September, 2005.
- **Program Committee:** 2005 Conference on Intelligent Systems for Molecular Biology (ISMB 05), Detroit, Michigan, July, 2005.
- **Program Committee:** 2005 International Conference on Human-Computer Interface Advances for Modeling and Simulation (SIMCHI 05)
- **Program Committee:** 2005 IEEE International Conference on Systems, Man, and Cybernetics, Hawaii, October, 2005.
- **Program Committee:** 2004 IEEE International Conference on Computational Cybernetics (ICCC 04), Vienna, September, 2004.
- **International Advisory Board:** 2004 Workshop on Performance Metrics for Intelligent Systems, National Institute of Standards and Technology, Gaithersburg, MD, August, 2004.

- **Program Committee:** 2004 Conference on Intelligent Systems for Molecular Biology (ISMB 04), Glasgow, July, 2004.
- **Program Committee:** 2003 International Symposium of Uncertainty Modeling and Analysis (ISUMA 03), University of Maryland, September, 2003.
- **Program Committee:** Workshop on "Distributed Computing Architectures for Digital Libraries", 31th International Conference on Parallel Processing (ICPP), August, 2002.
- **International Advisory Board:** 2002 Workshop on Performance Metrics for Intelligent Systems, National Institute of Standards and Technology, Gaithersburg, MD, August, 2002.
- **Program Committee:** Wshop on Epistemic Uncertainty, Sandia National Lab, August, 2002
- **Program Committee:** 2002 Conference on AI, Simulation and Planning, Lisbon, April, 2002
- **Program Committee:** Workshop on "Theoretical Fundamentals of Intelligent Systems: Computational Semiotics", Joint Conference on Information Systems, Duke University, March 2002
- **Workshop Chair:** Los Alamos Workshop on Novel Approaches to Uncertainty Quantification, February, 2002.
- **Program Committee:** 2002 World Congress on Virtual Worlds and Simulation, January, 2002.
- **Executive and Scientific Committees:** First International Conference on Intelligent Networks and Social Evolution (Global Brain 1), Brussels, July 2001
- **International Advisory Board:** 2000 Workshop on Performance Metrics for Intelligent Systems, National Instiute of Standards and Technology, Gaithersburg, MD, August, 2000.
- **Program Committee:** 2000 World Congress on the Systems Sciences, Toronto, July, 2000.
- **Program Committee:** 2000 Conference on AI, Simulation and Planning, University of Arizona, Tucson, March, 2000.
- **Program Committee:** 1999 IEEE International Symposium on Computational Intelligence in Robotics and Automation, Monterey, California, 1999.
- **Program Committee, Workshop Co-Chair:** Workshop on "Semiotics of Autonomous Information Systems", 1998 Conference on Intelligent Systems and Semiotics, National Institute of Standards and Technology, Gaithersburg, Maryland, September, 1998.
- **Workshop Organizer and Co-Chair:** Workshop on Emergent Semantic and Computational Processes in Distributed Information Systems, Los Alamos National Laboratory, Los Alamos, New Mexico, August, 1998.
- **International Program Committee, Workshop Chair:** Workshop on "Semiotic Methods of Information and Knowledge Processing", 1997 Conference on Intelligent Systems and Semiotics, National Institute of Standards and Technology, Gaithersburg, Maryland, September, 1997.
- **Program Committee, Workshop Chair:** Workshop on "Uncertainty Representation in Decision-Making Systems", conference on *Intelligent Systems: A Semiotic Perspective*, National Institute of Standards and Technology, Gaithersburg, Maryland, October, 1996.
- **Program Committee:** Thirteenth European Meeting on Cybernetics and Systems Research; co-chair, Symposium on Systems Methodology; Vienna, April 1996.
- **Program Committee:** Conference on AI, Simulation and Planning in High Autonomy Systems, San Diego, March 1996.
- **Organizing Committee:** 1996 Conference of the Washington Evolutionary Systems Society.
- **Organizing and Scientific Committees:** International Workshop on the Foundations and Applications of Possibility Theory (FAPT '95), University of Ghent, December, 1995.

RESEARCH PROJECTS

- **Host-Pathogen Interactions (Pathomics) in Avian Influenza:** Ontological protein function annotatoin, Los Alamos National Laboratory Directed Research and Development, 2006-present.
- **Generalized Data-Driven Analysis and Integration:** LANL PI: DHS Science and Technology, 2005-present.
- **Semantic Networks for the Department of Homeland Security:** LANL POC: Ontologically enabled semantic network databases, 2005–present.

- **Theoretical and Computational Pathomics:** Knowledge systems technologies for analysis and management of host-pathogen interactions and social effects of infectious disease, 2004–present.
- **Protein Function Inference:** Measures in spaces of bio-ontological function, Los Alamos National Laboratory Directed Research and Development, 2002–present.
- **Epistemic Uncertainty Modeling:** PI: ASCI V&V, Sandia National Laboratories, 2000–present.
- **Principia Cybernetica Project:** Founder and Member of the Editorial Board for this project in the collaborative development of a distributed hypertext corpus for evolutionary theory and cybernetic philosophy, `http://pcp.vub.ac.be`, 1989–present.
- **Integrated Knowledge Engine (IKE):** Bayseian networks and domain modeling for horizontal integration, 2004–2005.
- **Critical Infrastructure Protection/Decision Support System:** Qualitative modeling and uncertainty quantification, Department of Homeland Security, Science and Technology, 2003–2004.
- **Significance and Generality in Ontologically Structured Lexical Databases:** PI: Los Alamos National Laboratory Directed Research and Development, 2002–2003.
- **Cellular Pathway Discovery Through Natural Language Knowledge Systems:** PI for Knowledge Systems: Cooperative Research And Development Agreement on Knowledge Management, Proctor & Gamble Corporation. 2002–2004.
- **Knowledge Discovery and Dissemination (KDD):** PI for Computer Science Division: Los Alamos National Laboratory, 2002–2003.
- **Active Recommendation Systems for a Library Without Walls:** Adaptive semantic information systems for recommendation in computer-human interactive library systems. 1999–2003.
- **Advanced Knowledge Integration In Assessing Terrorist Threats:** PI for Computer Science: Los Alamos National Laboratory Directed Research and Development, 2002.
- **Knowldege Management CRADA:** PI: Cooperative Research And Development Agreement on Knowledge Management, Xerox Corporation. 2000–2001.
- **Decision Structures of Socio-Technical Organizations:** PI: Modeling of agent community interaction with sociotechnical systems for a Government customer. Swarm. 1999–2000.
- **Electronic Fraud Detection System (EFDS):** Data mining algorithms for fraud detection in IRS electronically filed tax returns. UNIX/C, Matlab/S+, ProC/PL-SQL/Oracle, X/Motif. 1996-1999.
- **Computer-Aided Systems Theory–General Information Theory (CAST-GIT):** Classes for random sets; possibilistic distributions and histograms; and both general and possibilistic processes. UNIX, Centerline C++, Booch Components. 1992-1996.
- **Data Analysis and Systems Modeling Envrionment (DASME):** Project leader, Discrete EVent Systems (DEVS) modeling, possibilistic measurement. NASA Goddard Space Flight Center. UNIX, X-Windows, Motif, Centerline C++, Booch components. 1994-1996.
- `CYBSYS-L@BINGVMB.CC.BINGHAMTON.EDU`: Founder and moderator of this Electronic Mailing List for Systems Science and Cybernetics. `Internet/BITNET/LISTSERV`, 1989-1994.

INVITED PRESENTATIONS

- "Semantic Hierarchies as Ordered Data Objects", Extended MetaData Registry project (XMDR) project meeting, Lawrence Berkeley National Laboratory, Berkeley, California, July, 2006.
- "Reconstructibility Analysis as an Order Theoretical Knowledge Discovery Technique", special session on Reconstructibility Analysis, 2006 International Conference on Complex Systems, Boston, July, 2006.
- "Order Theoretical Knowledge Discovery for Homeland Defense", Second Conference on Mathematical Methods for Counterterrorism, Benedict College, Columbia, South Carolina, November, 2005
- "Poset Metric Approaches to the Management of Large Semantic Hierarchies", Computer Science Department, University of Manchester, July, 2005.
- "Management of Quantified Semantic Taxonomies for Biothreat Response", DIMACS Working Group on Order-Theoretic Aspects of Epidemiology, Rutgers University, March, 2005.
- "Order Theoretical Approaches to Automated Functional Annotation Using Bio-Ontologies", Orion Integrated Biosciences Virtual Seminar on Genomics and Bioinformatics, November, 2004.

- "Order Theoretical Knowledge Discovery", DIMACS Workshop on Applications of Order Theory to Homeland Defense and Computer Security, Rutgers University, September, 2004.
- "Combinatorial Knowledge Discovery for Bio-Ontology Management", Stanford Medical Informatics Colloquium, May, 2004.
- "Combinatorial and Lexical Approaches to Bio-Ontology Management", Computer Science Department, Manchester University, February, 2004.
- "Ontologies for Knowledge-Based Science: Building a Computational Semiotics", Information Science and Technology Colloquium Series, NASA Goddard Space Flight Center, Greenbelt, Maryland, November, 2003.
- "Multi-Poset-Based Ontologies for Real-World Knowledge Discovery", Computer Science Department, Old Dominion University, Norfolk, Virginia, September, 2003.
- "Meta-System Transition Theory" (with Valentin Turchin and Ben Goertzel), "Semiotic Closures and Autonomic Systems", "Semiotic Agent Systems and Second Order Cybernetics", Autonomic Computing Summit, IBM Academy of Technology, IBM TJ Watson Research Center, Yorktown Heights, New York, May, 2002.
- "Systems Science via Computational Semiotics and Generalized Information Theory", Center for Intelligent Systems, Binghamton University, Binghamton, New York, May, 2002.
- "Novel Uncertainty Quantification Methods Based on Generalized Information Theory", Uncertainty Quantification Working Group, LANL, Los Alamos, New Mexico, March, 2002.
- "Network Worlds: From Link Analysis to Virtual Places", 2002 Workshop on Virtual Worlds and Simulation (VWSim02), San Antonio, Texas, January, 2002.
- "Systems Concepts for the Simulation of Ultra-Large Networks", NSF Workshop on Modeling and Simulation of Ultra-Large Networks, November, 2001.
- "What Could We Mean By An 'Intelligent Web' ", Second `en.red.ando` Conference on the Intelligent Web, Barcelona, October, 2001.
- "How Distributed Knowledge Systems Facilitate Social Control in Semiotic Agent-Based Architectures", Wshop on Intelligent Networks and Social Evolution, Free University of Brussels, July, 2001.
- "A Semiotic Systems Approach to Knowledge Integration Environments and Technologies", National Security Agency, Fort Meade, MD, February, 2001.
- "A Semiotic Critique of the Limits of Formal Models", 2001 Workshop on Virtual Worlds and Simulation (VWSim01), Phoenix, Arizona, January, 2001.
- "A Semiotic Systems Approach to Distributed Knowledge Environments", Working group on a Distributed Knowledge Repository, SRI International AI Lab, Menlo Park, CA, July, 2000.
- "Agent Modeling from a Semiotic Perspective", Dagstuhl seminar on Agent-Oriented Software Approaches in Distributed Modeling and Simulation, Dagstuhl Castle, Germany, July, 1999.
- "Beyond Classical Information Theory: Non-Probabilistic and Semiotic Approaches to Representing Information Systems", post-graduate course on Information Warfare, Independent University; National Defense Institute; Lisbon, May, 1999.
- "Levels of Control and Closure in Complex Semiotic Systems", 7th Annual Washington Evolutionary Systems Conference, Ghent, Belgium, May 1999.
- "Semiotics in Systems Theory: What We've Been Missing", Washington Evolutionary Systems Society Microsymposium on Semiotics in Science and Engineering, Washington, DC, September 1998.
- "Empirical Approaches to General Information Theory", Department of Statistics, University of New Mexico, February 1997.
- "Semiotic Aspects of Control and Modeling Relations in Complex Systems", 1996 Workshop on Control Mechanisms for Complex Systems, New Mexico State University, December 1996.
- "Information Systems Applications from the Systems Scientific Perspective", Applied Research Laboratory, Pennsylvania State University, March 1996.
- "General Information Theory and Cybernetic Modeling", Computer Research and Applications Group, Los Alamos National Lab, New Mexico, February 1996.

- "The Systems Science Approach to Interdisciplinary Studies", Center Leo Apostel, Free University of Brussels, December 1995.
- "The Principia Cybernetica Project for Evolutionary and Cybernetic Theory", Washington Evolutionary Systems Society, Washington, DC, November 1995.
- "Two Concepts of Variety in Systems Descriptions", Center for Social and Organizational Learning, George Washington University, Washington, DC, September 1995.
- "Qualitative and Possibilistic Modeling", Center for Social and Organizational Learning, George Washington University, Washington, DC, March 1995.
- "Possibilistic and Fuzzy Modeling", Special Interest Group on Artificial Intelligence, NASA Goddard Space Flight Center, Greenbelt, Maryland, November 1994.
- "Possibility Theory and Possibilistic Automata", Department of Systems Science, Johannes Kepler University, Linz, Austria, July 1991.

BUSINESS EXPERIENCE

- **Software Consultant:** ABB Environmental, Portland, Maine, Summer 1994.
  Design, maintenance, and project management of leading air quality industrial emissions tracking system. FoxPro, Windows 3.1
- **Computer Consultant:** Binghamton, New York, 1987-1994.
  Small business information systems design and development.
- **Computer Manager:** Pryme-Line Distributors, Binghamton, New York, 1987-1991.
- **Software Engineer:** Computer Consoles Inc., Reston, Virginia, 1986-1987.
- **Systems Analyst:** Contractors Managment Systems, Reston, Virginia, 1985-1986.

SKILLS

- **Languages:** C++ 2.0, ANSI C; Prolog, LISP, SCHEME; XML; Perl 5, awk, UNIX shells; SQL, Oracle, XBase dialects; HTML, SGML; BASIC; assemblers.
- **Database and Knowledge Representation Environments:** Protégé; OWL-DL; Proclarity Analysis Services; ProC/PL-SQL, Developer 2000 (Oracle Browser); FoxPro.
- **Mathematical Programming:** Mathematica; RiskCalc; Matlab 5.0; S+; MathCad; Macsyma.
- **Development Environments:** X-Windows, MacX; Rogue Wave, Booch Components.
- **Operating Systems:** Linux 2.4.2; Solaris 2.6, Digital UNIX 4.0, Sun OS 4.1.4, Irix 6.2; Windows NT, 98, 95, 3.1; Mac-OS 8.5; DOS 6.0; VM/CMS.
- **Other Software:** TEX, LATEX2e; VISIO (diagramming); MKS Toolkit; CVS, SCCS, RCS; numerous X-Windows, Microsoft Windows, and Macintosh application programs.

AFFILIATIONS

- North American Fuzzy Information Processing Society (NAFIPS)
- Society for Industrial and Applied Mathematics (SIAM)
- Association for Computing Machinery (ACM)
- Society for Computer Simulation (SCS)
- International Society for the Systems Sciences (ISSS)
- Washington Evolutionary Systems Society (WESS)
- Control Systems Group (CSG)
- American Society for Cybernetics (ASC)

SOFTWARE SYSTEMS

- **POSet Ontology Categorizer (POSOC):** Categorization algorithm for large taxonomic databases like the Gene Ontology (GO), `http://www.c3.lanl.gov/posoc`

PUBLICATIONS

Long Publications

- (With F Heylighen and V Turchin, editors) *The Quantum of Evolution: Towards a Theory of Meta-System Transitions*, Gordon and Breach, New York, 1995. (Special issue of *World Futures: The Journal of General Evolution*, v. **45**:1)
- *Possibilistic Processes for Complex Systems Modeling*, Binghamton University (SUNY), PhD Thesis, UMI Dissertation Services Publication # 9434056, 1994. Abstract: *Dissertation Abstract Index*, v. 55-08B.

Journal Papers

- (With KM Verspoor, J Cohn, SM Mniszewski) "A Categorization Approach to Automated Ontological Protein Function Annotation", *Protein Science*, v. **15**, pp. 1544-1549, 2006
- (With V Kreinovich) "Convergence Properties of an Interval Probabilistic Approach to System Reliabilility Estimation", *Int. J. General Systems*, v. **34**:4, pp. 465-482, 2005
- (With KM Verspoor, J Cohn, SM Mniszewski, A Rechtsteiner, LM Rocha, and T Simas) "Protein Annotation as Term Categorization in the Gene Ontology using Word Proximity Networks", *BMC Bioinformatics* , v. **6**:s1, 2005
- (With SM Mniszewski, AG Fulmer, and GH Heaton) "The Gene Ontology Categorizer", *Bioinformatics*, v. **20**:s1, pp. 169-177, 2004
- (With WL Oberkampf, JC Helton, SF Wojtkiewicz, and Scott Ferson) "Uncertainty in System Response Given Uncertain Parameters", *Reliability Engineering and Safety Systems*, v. **85**:1-3, pp. 11-20, 2004
- (With S Ferson, JC Helton, WL Oberkampf, and K Sentz) "Summary of the Epistemic Uncertainty Workshop: Consensus Amid Diversity", *Reliability Engineering and Systems Safety*, v. **85**:1-3, pp. 355-370, 2004
- "The Semiotics of Control and Modeling Relations in Complex Systems", *Biosystems*, v. **60**:1-3, pp. 131-48, 2001
- "Levels of Control and Closure in Complex Semiotic Systems", *Annals of the New York Academy of Sciences*, special issue on "Closure", ed. J. Chandler, G. van de Vijver, v. **901**, pp. 67-74, 2000.
- (With LM Rocha) "Towards a Formal Taxonomy of Hybrid Uncertainty Representations", *Information Sciences*, v. **110**:3-4, pp. 255-277, 1998.
- "Possibilistic Normalization of Inconsistent Random Intervals", *Advances in Systems Science and Applications*, special issue, ed. Wansheng Tang, pp. 44-51, 1997.
- "Measurement of Possibilistic Histograms from Interval Data", *International Journal of General Systems*, v. **26**:1-2, pp. 9-33, 1997.
- "Aggregation and Completion of Random Sets with Distributional Fuzzy Measures", *International Journal of Uncertainty, Fuzziness, and Knowledge-Based Systems*, v. **4**:4, pp. 307-329, 1996.
- (With F Heylighen) "Towards a Theory of Meta-System Transitions", *World Futures*, v. **45**, pp. 1-4, 1995.
- "Semantic Control Systems", *World Futures*, v. **45**, pp. 87-123, 1995.
- "A Possibilistic Approach to Qualitative Model-Based Diagnosis", *Telematics and Informatics*, v. **11**:4, pp. 365-384, 1994.
- (With F Heylighen) "Electronic Networking for Philosophical Development in the Principia Cybernetica Project", *Informatica*, v. **17**:3, pp. 285-293, 1993.

- (With F Heylighen and V Turchin) "A Short Introduction to the Principia Cybernetica Project", *Journal of Ideas*, v. **2**:1, pp. 26-29, 1991.
- "On the Semantics of Entropy Measures of Emergent Phenomena", *Cybernetics and Systems,* v. **22**:6, pp. 631-640, 1991.
- (With V Turchin) "The Cybernetic Manifesto", *Kybernetes,* **19**:2, pp. 63-64, 1990.

Book Chapters

- (With WJ Bruno) "Weighted Pseudo-Distances for Categorization in Semantic Hierarchies", in: *Conceptual Structures: Common Semantics for Sharing Knowledge, Lecture Notes in AI*, v. **3596**, ed. F Dau, M-L Mugnier, and G Stumme, pp. 381-395
- (With JM Booker) "'Generalized Information Theory for Engineering Modeling and Simulation", in: *Engineering Design Reliability Handbook*, ed. E. Nikolaidis *et al.*, CRC Press, pp. 9:1-40, 2005.
- "Poset Ontologies and Concept Lattices as Semantic Hierarchies", in: *Conceptual Structures at Work, Lecture Notes in Artificial Intelligence*, v. **3127**, ed. Wolff, Pfeiffer and Delugach, pp. 287-302, Springer-Verlag, Berlin, 2004.
- (With F Heylighen) "Cybernetics and Second Order Cybernetics", *Encyclopedia of Physical Science and Technology*, ed. AJ Meyer, Academic Press, New York, v. 4, pp. 155-170, 2001.
- (With F Heylighen) "Cybernetics", in: *Encyclopedia of Computer Science*, ed. J. Hemmendinger, A. Ralston, MacMillan Reference, pp. 372-375, 1999.
- "Are Life and Meaning Coextensive?", in: *Evolutionary Systems*, ed. G. van de Vijvers, pp. 413-422, Kluwer, 1998.
- "Distributional Representations of Random Interval Measurements", in: *Uncertainty Analysis in Engineering and the Sciences*, ed. B. Ayyub and M. Gupta, Kluwer, pp. 37-52, 1997.
- "An Object-Oriented Architecture for Possibilistic Models", in: *Computer-Aided Systems Technology*, ed. T. Ören and G. Klir, pp. 80-94, *Lecture Notes in Computer Science # 1105*, Springer-Verlag, Berlin, 1996.
- (With S Henderson) "CAST Extensions to DASME to Support Generalized Information Theory", in: *Computer-Aided Systems Theory—EUROCAST '95*, ed. F. Pichler, pp. 237-252, *Lecture Notes in Computer Science # 1030*, Springer-Verlag, Berlin, 1996.
- (With F Heylighen) "Systems Theory and Systems Analysis", in: *Cambridge Dictionary of Philosophy*, ed. R. Audi, pp. 784-785, Cambridge University Press, Cambridge MA, 1995.
- "In Support of an Independent Possibility Theory", in: *Foundations and Applications of Possibility Theory*, eds. G. de Cooman, D. Ruan, E.E. Kerre, pp. 152-164, World Scientific, Singapore, 1995.
- "On Possibilistic Automata", in: *Computer-Aided Systems Theory*, ed. F. Pichler and R. Moreno-Diáz, pp. 231-242, *Lecture Notes in Computer Science # 763*, Springer-Verlag, Berlin, 1994.
- "Empirical Possibility and Minimal Information Distortion", in: *Fuzzy Logic: State of the Art*, edited by R. Lowen and M. Roubens, Kluwer Academic Publishers, pp. 143-152, 1993.

Peer-Reviewed Conference Proceedings

- (With DDG Gessler, SE Schmidt, and KM Verspoor) "Distributed Representations of Bio-Ontologies for Semantic Web Services", in: *Joint BioLINK and 9th Bio-Ontologies Meeting (JBB 06)*, 2006
- (With SM Mniszewski, SA Smith, and PM Weber) "SpindleViz: A Three Dimensional, Order Theoretical Visualization Environment for the Gene Ontology", in: *Joint BioLINK and 9th Bio-Ontologies Meeting (JBB 06)*, 2006
- (With KM Verspoor, J Cohn, and SM Mniszewski) "Nearest Neighbor Categorization for Function Prediction", in: *Proc. 5th Community Wide Experiment on the Critical Assessment of Techniques for Protein Structure Prediction (CASP 05)*
- (With KM Verspoor, JD Cohn, and SM Mniszewski) "POSOLE: Automated Ontological Annotation for Function Prediction", in: *Proc. Automated Function Prediction SIG, ISMB 05*

- "Reports On Two Recent Bio-Ontology Workshops", in: *Proc. 7th Annual Bio-Ontologies Meeting, ISMB 04*, 2004.
- (With S Ferson) "Approximate Representations of Random Intervals for Hybrid Uncertainty Quantification", in: *Sensitivity Analysis of Model Output (SAMO04)*, ed. KM Hanson and FM Hemez, pp. 453-469, LANL, Los Alamos, 2004,
  `http://library.lanl.gov/cgi-bin/getdoc?event=SAMO2004&document=samo04-83.pdf`
- "Multi-Interval Elicitation of Random Intervals for Engineering Reliability Analysis", in: *2003 Int. Symp. on Uncertainty Modeling and Analysis (ISUMA 03)*, 2003.
- (With KM Verspoor and G Papcun) "Gene Ontology as a Source of Lexical Semantic Knowledge for a Biological Natural Language Processing Application", in: *Proc. Workshop on Text Analysis and Search for Bioinformatics (SIGIR 03)*, 2003
- "Network Worlds: From Link Analysis to Virtual Places", in: *Proc. 2002 Conf. on Virtual Worlds and Simulation*, 2002.
- (With JC Helton) "Bounds on Plausibility and Belief of Functionally Propagated Random Sets", in: *Proc. Conf. North American Fuzzy Information Processing Society 2002*, pp. 412-417, 2002.
- (With T Ross and V Kreinovich) "Assessing the Predictive Accuracy of Complex Simulation Models", Proc. *2001 Joint Conf. of the North American Fuzzy Information Processing Society and the International Fuzzy Systems Association*, Vancouver, July, 2001, pp. 2008-2012, 2001.
- "Measures of Distortion in Possibilistic Approximations of Consistent Random Sets and Intervals", Proc. *2001 Joint Conf. of the North American Fuzzy Information Processing Society and the International Fuzzy Systems Association*, Vancouver, July, 2001, pp. 1735-1740.
- "Towards Measures of Intelligence Based on Semiotic Control", *2000 Workshop on Performance Metrics in Intelligent Systems*, ed. A. Meystel, NIST, 2000.
- "Virtual Environments as Constraints on Decision-Making in Agent Models of Socio-Technical Organizations", in: *2000 Workshop on Virtual Worlds in Simulation*, ed. K. Bellman and C. Landauer, 2000.
- (With LM Rocha) "Towards Semiotic Agent-Based Models of Socio-Technical Organizations", *Proc. AI, Simulation and Planning in High Autonomy Systems*, ed. HS Sarjoughian *et al.*, pp. 70-79, 2000.
- "Possibilistic Systems Theory Within a General Information Theory", *Proc. 1999 Workshop on Imprecise Probabilities and Their Applications*, ed. G. de Cooman *et al.*, pp. 206-215, 1999.
- "Formal Designed and Informal Emergent Ontologies in Webs and Multi-User Virtual Environments (MUVEs)", in: *1998 Workshop on Emergent Semantic and Computational Processes in Distribtued Information Systems*, ed. C. Joslyn *et al.*, 1998.
- (With NL Johnson, S Rasmussen, LM Rocha, S Smith, and M Kantor) "Symbiotic Intelligence: Self-Organizing Knowledge on Distributed Networks Driven by Human Interaction", *Proc. 6th Conference on Artificial Life*, ed. C. Adami *et al.*, MIT Press, 1998.
- "Models, Controls, and Levels of Semiotic Autonomy", in: *Proc. 1998 Conference on Intelligent Systems*, ed. J. Albus and A. Meystel, pp. 747-752, IEEE, Gaithersburg MD, 1998.
- (With LM Rocha) "Simulations of Evolving Embodied Semiosis: Emergent Semantics in Virtual Environments", in: *Proc. Conf. on Virtual Worlds for Simulation*, pp. 233-238, Society for Computer Simulation, San Diego, 1998.
- "Towards General Information Theoretical Representations of Databases", in: *Proc. 1997 Conf. of the IEEE Society for Systems, Man and Cybernetics*, Orlanda, v. 2, pp. 1662-1667, 1997.
- "Hybrid Methods to Represent Incomplete and Uncertain Information", in: *Proc. 1996 Interdisciplinary Conf. on Intelligent Systems: A Semiotic Perspective*, ed. J. Albus, A. Meystel *et al.*, pp. 133-140, NIST, Gaithersburg MD, 1996.
- "Semantic Webs: A Cyberspatial Representational Form for Cybernetics", in: *Proc. 1996 European Conf. on Cybernetics and Systems Research*, ed. R. Trappl, Vienna, v. **2**, pp. 905-910.

- "The Process Theoretical Approach to Qualitative DEVS", Proc. 1996 Conf. on AI, Simulation, and Planning in High Autonomy Systems, pp. 235-242, San Diego CA.
- "Strong Probabilistic Compatibility of Possibilistic Histograms", in: *Proc. 1995 Joint International Symposium on Uncertainty Modeling and Analysis and Conf. of the North American Fuzzy Information Processing Society*, ed. Bilal Ayyub, pp. 383, A17-A22, IEEE Computer Society Press, Los Alamitos, CA, 1995.
- "Aggregation and Completion in Probability and Possibility", in: *Proceedings of the 1994 Joint Conference on Information Systems*, ed. PP Wang, pp. 333-336, Pinehurst NC, 1994.
- "Qualitative Model-Based Diagnosis Using Possibility Theory", in: *Proceedings of the 1994 Goddard Conference on Space Applications of Artificial Intelligence*, pp. 269-283, 1994.
- (With F Heylighen and V Turchin) "Synopsis of the Principia Cybernetica Project", in: *Proceedings of the 13th International Congress on Cybernetics*, ed. J. Ramaekers, pp. 509-513, International Association of Cybernetics, Namur, Belgium, 1993.
- "Some New Results on Possibilistic Measurement", in: *Proc. 1993 Conf. North American Fuzzy Information Processing Society (NAFIPS 93)*, Allentown Pennsylvania, pp. 227-231, 1993.
- "Possibilistic Semantics and Measurement Methods in Complex Systems", in: *Proceedings of the Second International Symposium on Uncertainty Modeling and Analysis*, University of Maryland, ed. Bilal Ayyub, pp. 208-215, IEEE Computer Society, 1993.
- "Possibilistic Measurement and Set Statistics", in: *Proceedings of the 1992 Conference of the North American Fuzzy Information Processing Society*, v. **2**, pp. 458-467, 1992.
- (With GJ Klir) "Minimal Information Loss Possibilistic Approximations of Random Sets", in: *Proc. 1992 IEEE Int. Conf. on Fuzzy Systems*, San Diego, IEEE, pp. 1081-1088, 1992.
- "Hierarchy, Strict Hierarchy, and Generalized Information Theory", *Proceedings of the 1991 Conference of the International Society for the Systems Sciences,* Östersund, Sweden, v. 1, pp. 123-132, 1991. (Winner, Vickers Memorial Award for Best Student Paper)
- "Software Support for Principia Cybernetica Development", in *Workbook of the First Principia Cybernetica Workshop*, ed. Francis Heylighen, Free U. of Brussels, Belgium, pp. 49, 1991.
- "Control Theory and Meta-Systems Theory", in *Workbook of the First Principia Cybernetica Workshop*, ed. Francis Heylighen, Free University of Brussels, Belgium, p. 24-32, 1991.
- "Towards an Empirical Semantics of Possibility Through Maximum Uncertainty", *Proceedings of the 4th World Congress of the International Fuzzy Systems Association: Artificial Intelligence*, Free University of Brussels, Belgium, pp. 86-89, 1991.
- "Notes on the Semantics of Entropy", *Proceedings of the 1989 Conference of the American Society for Cybernetics*, 1989. (Winner, ASC Travel Scholarship Award)

Peer-Reviewed Posters and Presentations

- (With KM Verspoor, J Cohn, SM Mniszewski) "Mathematical Techniques for Predicting and Analyzing Ontological Protein Function Annotations", *3rd Annual Rocky Mountain Regional Bioinformatics Conf. (Rocky 05)*, 2005
- (With JD Cohen, KM Verspoor, and SM Mniszewski) "Automating Ontological Function Annotation: Towards a Common Methodological Framework", *Bio-Ontologies SIG, ISMB 05*, 2005
- (With SM Mniszewski, KM Verspoor, and JD Cohn) "Improved Order Theoretical Techniques for GO Functional Annotation", *Intelligent Systems for Molecular Biology (ISMB 05)*, 2005
- (With KM Verspoor, JD Cohn, and SM Mniszewski) "Nearest Neighbor Categorization for CASP Function Prediction", *Intelligent Systems for Molecular Biology (ISMB 05)*, 2005
- (With J Cohn, KM Verspoor, and SM Mniszewski) "Predicting Protein Function Using Nearest Neighbor Categorization", *2nd Annual Rocky Mountain Regional Bioinformatics Conf. (Rocky 04)*, 2004.

- (With SM Mniszewski) "Combinatorial Approaches to Bio-Ontology Management with Large Partially Ordered Sets", in: *SIAM Workshop on Combinatorial Scientific Computing (CSC 04)*, 2004, `ftp://ftp.c3.lanl.gov/pub/joslyn/csc04f.pdf`.
- (With JM Booker, TM Ross, F Hemez, MC Anderson, and B Reardon) "Quantifying Total Uncertainty in a Validation Assessment Using Different Mathematical Theories", *Ninth ASCE Joint Specialty Conference on Probabilistic Mechanics and Structural Reliability*, 2004.
- "Multi-Poset-Based Approaches to Bio-Ontologies", *First ISCB Rocky Mountain Regional Bioinformatics Meeting*, 2003, `ftp://ftp.c3.lanl.gov/pub/users/joslyn/rockiesf.pdf`.
- (With JM Booker, TM Ross, F Hemez, MC Anderson, and B Reardon) "Quantifying Total Uncertainty and Performance Margin in Assessing the Reliability of Manufactured Systems", *Fifth Tri-Laboratory Engineering Conference*, 2003.
- (With KM Verspoor and G Papcun) "Lexical Management of Domains: Towards Integration of Computational Linguistic and Ontological Resources", poster at the *NAS Sackler Workshop on Mapping Knowledge Domains*, 2003, `ftp://ftp.c3.lanl.gov/pub/joslyn/nasf.pdf`.
- (With SM Mniszewski, AW Fulmer, and GG Heaton) "Structural Classification in the Gene Ontology", in: 6th Bio-Ontologies Workshop, Intelligent Systems for Molecular Biology (ISMB 03), Brisbane, June, 2003, `ftp://ftp.c3.lanl.gov/pub/joslyn/ismb03f.pdf`.
- (With KM Verspoor and G Papcun) "Interactions Between the Gene Ontology and a Domain Corpus for a Biological Natural Language Processing Application", in: in: 6th Bio-Ontologies Workshop, Intelligent Systems for Molecular Biology (ISMB 03), Brisbane, June, 2003, `ftp://ftp.c3.lanl.gov/pub/joslyn/ismb03f.pdf`.
- (With SM Mniszeiski, AW Fulmer, and GG Heaton) "Measures in Ontological Spaces of Biological Function", poster at the *Pacific Symposium on Biocompuating PSB 03*, 2003, `ftp://ftp.c3.lanl.gov/pub/users/joslyn/psb03f.pdf`.
- (With WL Oberkampf) "Uncertainty Quantification of Simulation Codes Using Probability Intervals", poster at the *Workshop on Quantification of Uncertainty in Physics Simulations*, Los Alamos National Laboratory, 2002, `ftp://ftp.c3.lanl.gov/pub/users/joslyn/quips02f.pdf`.
- "The Bio-Ontological Challenge: Representations of, and Measures in, Lattice-Valued Spaces", presented at the *2002 Workshop on Enabling Concepts for Systems Biological Modeling*, Santa Fe, 2002, `ftp://ftp.c3.lanl.gov/pub/users/joslyn/enablingf.pdf`.
- "Link Anlaysis of Social Meta-Networks", presented at the *2002 Conf. on Computational Analysis of Social and Organizational Systems (CASOS 02)*, 2002, `ftp://ftp.c3.lanl.gov/pub/users/joslyn/casos02_abs.pdf`.
- "A Semiotic Critique of the Limits of Formal Models", *2001 Workshop on Virtual Worlds and Simulation (VWSim01)*, 2001, `ftp://ftp.c3.lanl.gov/pub/users/joslyn/vwsim01f.pdf`.
- "Systems Concepts for the Simulation of Ultra-Large Networks", *NSF Workshop on Modeling and Simulation of Ultra-Large*, Tucson, 2001, `ftp://ftp.c3.lanl.gov/pub/users/joslyn/ultranet.pdf`.
- "What Could We Mean By 'Global Brain': How Distributed Knowledge Systems Facilitate Social Control in Semiotic Agent-Based Architectures", presented at the *Workshop on Intelligent Networks and Social Evolution*, Brussels, 2001, `ftp://ftp.c3.lanl.gov/pub/users/joslyn/gb0f.pdf`.
- "Network Dynamical Approach to Articial Life: Morowitz' Challenge", accepted for poster at *1995 European Conf. on Artificial Life*, 1995, `ftp://ftp.c3.lanl.gov/pub/users/joslyn/ecal95.pdf`.

Lecture Notes

- "A Formerly Breathless Introduction to Generalized Information Theory", LANL short course, `ftp://ftp.c3.lanl.gov/pub/joslyn/shortcourse.pdf`, 2004.
- "Ontologies for Knowledge-Based Science: Building a Computational Semiotics", presented at the *NASA Godrard Information Science and Technology Colloquium*, LAUR 03-8298, `ftp://ftp.c3.lanl.gov/pub/users/joslyn/gsfcfo.pdf`, 2003.

- "A Semiotic Approach to Knowledge Integration Technologies and Environments", LAUR 01-1577, 2001, `ftp://ftp.c3.lanl.gov/pub/users/joslyn/nsa_f.pdf`.
- "A Semiotic Systems Approach to Distributed Knowledge Systems", LAUR 00-3596, 2000, `ftp://ftp.c3.lanl.gov/pub/users/joslyn/sri.pdf`.

Technical Reports and Electronic Publications

- (With KM Verspoor, CA Joslyn, JA Ambrosiano, A Bäcker, O Bodenreider, L Hirschman, P Karp, H Kelly, S Loranger, M Musen. R Sriram, and C Wroe) "Knowledge Integration for Biothreat Response", LAUR 05-0907, 2005
- "GIT Analysis of the Crushable Foam Experiment and Simulations", LAUR 04-6207, 2004, `ftp://ftp.c3.lanl.gov/pub/users/joslyn/foam.pdf`
- (With W Buehring, PG Kaplan, and DR Powell) "Critical Infrastructure Protection Decision Support System (CIP/DSS): Addressing Uncertainty and Risk", LAUR 04-6720
- (With JS Oliverira and C Scherrer) "Order Theoretical Knowledge Discovery: A White Paper", LAUR 04-5812, 2004, `ftp://ftp.c3.lanl.gov/pub/users/joslyn/white.pdf`
- (With KM Verspoor and GJ Papcun): "A Lexical Semantic Network Induced from the Gene Ontology", LAUR 04-3934, 2004, `http://public.lanl.gov/verspoor/LAUR_04-3934.pdf`
- (With SM Mniszewski) "DEEP: Data Exploration through Extension and Projection", LAUR 02-1330, 2003, `ftp://ftp.c3.lanl.gov/pub/users/joslyn/deep.pdf`.
- (With S Voss) "Advanced Knowledge Integration in Assessing Terrorist Threats", LAUR 02-7867, 2002, `ftp://ftp.c3.lanl.gov/pub/users/joslyn/knowint.pdf`.
- (With SM Mniszewski) "Relational Analytical Tools: DataDelver and Formal Concept Analysis", LAUR 02-7697, 2002, `ftp://wwwc3.lanl.gov/pub/users/joslyn/HL1.pdf`
- "Hypergraph-Based Representations for Portable Knowledge Management Environments", LANL Technical Report LAUR 00-5660, 2000, `ftp://wwwc3.lanl.gov/pub/users/joslyn/kenv1.pdf`
- (With LM Rocha and A Marathe) "Development Environments and Systems Architectures for Hybrid Agent-Stochastic Event Models of Socio-Technical Organizations", LANL Technical Report LAUR 01-4693, 2000, `ftp://wwwc3.lanl.gov/pub/users/joslyn/finalp.pdf`
- "Semiotic Agent Models for Simulating Socio-Technical Organizations", LAUR 99-5474, 1999, `ftp://ftp.c3.lanl.gov/pub/users/joslyn/semagentp.pdf`.
- (With V Turchin and F Heylighen) "1992 Principia Cybernetica Nodes", `ftp://pespmc1.vub.ac.be/pub/projects/Principia_Cybernetica/Nodes(Aug.'92).la.tex`
- (With T Ames, N Ziyad, and K Mueller) "TRENDS: Intelligent Model-Based Trend Analysis of Spacecraft Systems", Technical Report # DSTL-96-014, NASA Goddard Space Flight Center, Greenbelt MD, 1996.
- (With M Kantrowitz and E Horstkotte) "The Fuzzy FAQ: Answers to Frequently Asked Questions about Fuzzy Logic and Fuzzy Expert Systems", `comp.ai.fuzzy`, `ftp://ftp.cs.cmu.edu/user/ai/pubs/faqs/fuzzy/fuzzy.faq`, 1993-1994.

Book Reviews

- "Review: Life Itself by Robert Rosen", *Int. J. of General Systems*, v. **21**, pp. 394-402, 1993.
- "Errata of *Life Itself* by Robert Rosen", `ftp://ftp.c3.lanl.gov/pub/users/joslyn/ros_err.pdf`, 1993.
- "Review: Self-Modifying Systems by George Kampis", *Int. J. of General Systems*, `ftp://ftp.c3.lanl.gov/pub/users/joslyn/kamp_rev.pdf`, 1992.
- "Review: Works of Valentin Turchin", *Int. J. of General Systems*, v. **13**:1, 1987.