

CURRICULUM VITAE

John R. Rose, Associate Professor
Department of Computer Science and Engineering
University of South Carolina, Columbia, SC 29208
(803) 777-2405
rose@cse.sc.edu

BIRTH

9 September 1958
Alamosa, Colorado, USA

EDUCATION

Ph.D. in Computer Science, SUNY Stony Brook, Stony Brook, N.Y., 1991
M.S. in Computer Science, SUNY Stony Brook, Stony Brook, N.Y., 1989
Bachelor of Music, Immaculate Heart College, Los Angeles, Ca., 1980

ACADEMIC PROFESSIONAL EXPERIENCE

Associate Professor with tenure, Department of Computer Science,
University of South Carolina, Columbia, S.C. 1999-present

Assistant Professor, Department of Computer Science,
University of South Carolina, Columbia, S.C. 1993-1999

Postdoctoral Fellow, Laboratory for Computational Chemistry,
Technical University of Munich, Garching, Federal Republic of Germany,
1991-1993

Research Assistant/Teaching Assistant, Department of Computer Science,
State University of New York at Stony Brook, Stony Brook, N.Y. 1986-1991

OTHER PROFESSIONAL EXPERIENCE

Editorial Review Board Member for the Journal of Microbiological Methods, 2008 –
present

Editorial Review Board Member for the Journal of Database Management, 2001-present

Reviewer, NSF ABI Panel, 2008

Reviewer, NSF CDI Panel, 2008

Reviewer, IICAI-07

Organized SC BRIN/INBRE Bioinformatics Research Symposium, January 18-19, 2007

Organized SC BRIN/INBRE Bioinformatics Mini-Symposium, August 18, 2006
Organized SC BRIN/INBRE Bioinformatics Mini-Symposium, March 19, 2005
Bioinformatics Core Director, South Carolina BRIN/INBRE, August 2004-present
Scientific Advisory Board Member for Molecular Networks GmbH, 2001-present
Chair, Research Opportunity Program, USC, 2006
Reviewer, NSF Panel, 2006
Session Co-Chair, BIOCAMP'06, 2006
Reviewer, Research Opportunity Program, USC, 2004-5
Reviewer, IEEE Transactions on Signal Processing, 2005-present
Reviewer, Journal of Microbiological Methods, 2004-present
Review Panel, SCEPSCOR SBIR (2003)
Reviewer, IEEE Internet Computing (2002)
Review Panel, IRMA International Conference (2002)
Review Panel, Engineering Societies in Agents World Conference (2002)
Consultant in the area of sonar and infrared data target classification for
Summus Ltd., 6/1/1999-12/1/2000.
Judge, SCAMP Science and Engineering Research Conference; (2000).
Program committee, IEA/AIE; (1997)
Session Chair, KARP-95 program committee; (1995)
Review panel, Conference on Information and Knowledge Management; (1994)
Senior Software Systems Programmer Biomedical Computing Unit,
Yale Medical School, New Haven, Ct. 1981-1986
Assistant Programmer Jules Stein Eye Institute/ UCLA, Los Angeles, Ca. 1980-1981

PROFESSIONAL SOCIETIES

Member of the IEEE Computer Society, since 1994

CURRENT RESEARCH SUPPORT

NSF, QuasiNovo: An Information Theoretic Approach to De Novo Peptide Sequencing
PI: J. Rose, Co-PIs: I. Dryden, K. Fox
Amount: \$643,747
Period: 04/15/10-04/14/13

NSF, CRI: CRD Acquisition of a high-performance shared-memory computer for biological and medical research in South Carolina, NSF
PI: Dr. Jijun Tang , Co-PIs: J. Rose, H. Valafar, S. Wang
Amount: \$416,355
Period: 06/01/07-05/31/10

USC, MGS: Exploration of Proteome Signatures. Magellan Scholarship.
PI: J. Rose, Co-PI: A. Bellotti
Amount: \$2500
Period: 01/01/10-12/31/10

USC, MGS: Predicting Prophage and Horizontally Transferred Genes in Bacterial Genomes. Magellan Scholarship.
PI: J. Rose, Co-PI: Y. Shalabi
Amount: \$2500
Period: 5/1/09-4/30/11

Sloan Foundation, Development of proteomic technology for detection of non-abundant proteins in airborne dust from occupied and unoccupied school rooms.
PI: A. Fox , Co-PIs: M. Vestal, K. Fox, G. Feigley, J. Rose
Amount: \$300,000
Period: 11/01/07-11/02/10

PREVIOUS RESEARCH SUPPORT

NIH, South Carolina IDeA Network for Biomedical Research Excellence
PI: John Baynes, Director of Bioinformatics Core: John Rose
Amount \$17,186,025.
Period: 7/01/05-4/30/10

NSF, Place-Based Decision Support for Spatial and Temporal Transference of Risk and Hazards
PI: Susan Cutter, Co-PIs: Madilyn Fletcher, Cary Mock, Walter Piegorsch, John Rose, John Shafer
Period: 10/01/04-9/30/07, Amount \$400,000

Department of Homeland Security Center of Excellence (in partnership with the University of Maryland), National Center for the Study of Terrorism and Responses to Terrorism
PI: Susan Cutter
Period: 5/01/05 – 4/30/08

NIH, Genome Duplication and Genome Evolution
PI: Austin Hughes, Co-PI: John Rose
Period: 8/15/02- 8/14/05, Amount: \$541,875

USDA, USDA's Pathogen Information System: Agent-Based Infrastructure and Bayesian Analysis

PI: Michael Huhns, Co-PI: John Rose and Larry Stephens

Period: 1/1/03-5/15/05, Amount: \$457,000

USC Medicine & Engineering Research Development Fund,

Gene Expression Profiles of HPV-Transformed Cells in Vitro and in Vivo,

PI: Lucia Parisi-Creek, Co-PI: John Rose and Duncan Buell

Period: 3/1/03 -2/29/04, Amount: \$35,000

USC Research Foundation,

SC Grid Computing Initiative,

PI: Kirk Cameron, Co-PI: John Rose

Period: 4/4/03-6/30/04 , Amount: \$45,000

NASA Institute for Advanced Concepts (NIAC)

Achieving Comprehensive Mission Robustness

PI: John Rose, Co-PI: Mike Huhns

Period: 6/1/01-11/30/01 Amount: \$74,464

USC Office of Research Support

Advances in Normative Decision Analysis for Multiagent Systems

PI: John Rose, Co-PIs M. Valtorta and J. Vargas

Period: 12/1/01 – 11/30/02, Amount: \$50,000

NSF, PeroBase: A Biological Database for Peromyscus

PI: John Rose, Co-PI: Wallace Dawson

Period: 10/1/98 - 9/30/01, Amount: \$373,105

South Carolina Commission on Higher Education,

On the Analysis and Interpretation of Biological Sequence Data

PI: Austin Hughes, Co-PI: John Rose, Laszlo Szekely and Walter Piegorsch

Period: 1/1/00-12/31/00, Amount: \$90,748

NSF, A Database for Peromyscus: Planning Phase

PI: John Rose, Co-PI: Wallace Dawson

Period: 9/1/97-8/30/98, Amount: \$48,286

DOD/ONR

Dynamic Decision Support for Command, Control, and Communication in the Context of Tactical Defense

PI: John Rose, Co-PI: Abhijit Sengupta and Marco Valtorta

Period: 6/1/97-6/29/00, Amount: \$410,399

DOD/ONR

Survivable and Reconfigurable Optical/Wireless Tactical Networks

PI: Abhijit Sengupta, Co-PI: John Rose and Marco Valtorta

Period: 6/1/97-6/29/00, Amount: \$409,000

HONORS/AWARDS

NASA Institute for Advanced Concepts (NIAC) Fellow (2001)

Alexander von Humboldt Research Fellowship (1992-93)

NSF-NATO Postdoctoral Fellowship (1993)

1990-91 Catacosinos Fellowship for Excellence in Computer Science
at SUNY Stony Brook

Research Assistantship funded by Eastman Kodak (1988-1990)

Woods Hole Marine Biological Laboratory Fellowship

(MBL Computational Neuroscience Workshop, August - September 1988)

Fluor Scholarship (1979)

Merle Norman Scholarship (1979)

Immaculate Heart College Scholarship (1977-80)

INVITED LECTURES

SC Bioinformatics Symposium, Columbia, SC, April 2009

BIOCOMP08, Las Vegas, July 2008.

Governor's School of Science and Math, January 2008

CSC 2008 - Computer Security Conference, Myrtle Beach, SC, April 2008.

SC INBRE Bioinformatics Research Symposium, Clemson, SC, Jan 18-19, 2007

SC INBRE Bioinformatics Meeting, Columbia, SC, Aug 18, 2006

Virginia Bioinformatics Institute, October 2006

BioComp06, Las Vegas, NV, June 26-29, 2006

Medical University of South Carolina, April 2006

Biostatistics, University of South Carolina, February 2005

Banbury Center, Cold Spring Harbor, NY, December 2004

South Carolina State University, April 2003

NASA Institute for Advanced Concepts, Atlanta GA, October 2001

SmithKline-Beecham, King of Prussia, Penn., May 2000

Dept. of Biological Sciences, University of South Carolina, April 2000

Skolnik Award Symposium of the American Chemical Society 214th

National Meeting, Las Vegas, NV, Sept. 7-11, 1997

Dept. of Computer Science, SUNY Stony Brook, April 1994

Dept. of Computer Science and Engineering, Auburn University, Feb. 1994

German National Research Center for Computer Science, Sankt Augustine,
Germany, June 1993

Dept. of Informatics, Technical University of Munich, Germany, May 1993

Dept. of Computer Science, University of South Carolina, April 1993

Institute for Parallel and Distributed Systems, Stuttgart University,

Germany, April 1993
Laboratory for Computational Chemistry, Technical University of Munich,
Germany, June 1992
Laboratory for Computational Chemistry, Technical University of Munich,
Germany, Oct. 1991
Montreux 1989 International Chemical Information Conference & Exhibition,
Montreux Switzerland, 1989

REFEREED PUBLICATIONS

J.T. Propst, S.A.Fann., J.L. Franchini., K.J. Hansen., J.R. Rose, R.L. Goodwin, and M.J. Yost, "Focused in vivo Genomic Analysis of Implanted Engineered Myofascial Constructs", *J Invest Surg.* 2009 Jan-Feb;22(1):35-45.

A.L. Hughes, V. Ekollu, R. Friedman, J.R. Rose, "Gene Family Content-Based Phylogeny of Prokaryotes: the Effect of Criteria for Inferring Homology", *Systematic Biology*, 54(2):268-276, 2005

W.H. Turkett, J.R. Rose, "Exploiting Belief Locality in Run-Time Decision-Theoretic Planners", *FLAIRS-2005* (May 15-17, 2005)

J.R. Rose, W.H. Turkett, I.C. Oroian, W.W. Laegreid, J. Keele, "Correlation of Amino Acid Preference and Mammalian Viral Genome Type", *Bioinformatics* 21: 1349-1357

R. Friedman, V. Ekollu, J.R. Rose, A.L. Hughes, "Dblox: a genome-wide test for ancient segmental duplication," *Bioinformatics*, 2004, bth275.

M. Vanninen, J. Rose, "Social Organization in a Software Agent Community with a Non-zero-Sum Game Interaction Model," in *Regulated Agent-Based Social Systems*, G. Lindemann, D. Moldt, M. Paolucci (Eds.) LNAI 2934, Springer-Verlag, Berlin Heidelberg, 2004, pp 176-188.

W. H. Turkett. Jr. and J. R. Rose, "Planning with Agents: An Efficient Approach Using Hierarchical Dynamic Decision Networks", *Fourth International Workshop: Engineering Societies in the Agents Worlds (ESAW'03)*, A. Omicini, P Petta, J. Pitts (Eds.), London, UK, 2003, pp195-202.

A. Hughes, R. Friedman, V. Ekollu, J. R. Rose, "Non-Random Association of Transposable Elements with Duplicated Genomic Blocks in *Arabidopsis thaliana*," *Molecular Phylogenetics and Evolution*, 29 pp 410-416, 2003.

X. Feng, D. Buell, J. Rose, and P. Waddell, *Parallel Algorithms for Bayesian Phylogenetic Inference*, *Journal of Parallel and Distributed Computing*, 63, pp 707-718, 2003.

W. H. Turkett, J. R. Rose, M. N. Huhns." Massive Deliberation." *IEEE Internet Computing*, Vol. 7, No. 1, pp. 72-75, 2003.

W. H. Turkett, Jr. and J. R. Rose, "Emergent Planning with Philosophical Agents," in Proceedings of the 3rd International Nasa Workshop on Planning and Scheduling for Space, Houston, Texas, Oct. 27-29, 2002.

J. R. Rose, M. N. Huhns, S. Sinha Roy, and W. H. Turkett, Jr., "An Agent Architecture for Long-Term Robustness," in Proceedings First International Joint Conference on Autonomous Agents and Multiagent Systems (AAMAS), Bologna, Italy, July 15-19, pp. 1149-1156, 2002.

M. A. Vanninen and J. R. Rose, "Social Organization in a Software Agent Community with a Non-Zero-Sum Game Interaction Model", in Proceedings of International Workshop on Regulated Agent-Based Social Systems: Theories and Applications (RASTA'02), Bologna, Italy, July 16, 2002.

J. R. Rose and M. N. Huhns, "An Agent Architecture for Comprehensive Mission Robustness," in Proceedings of the Goddard/JPL Workshop on Radical Agent Concepts, Tyson's Corner, VA, Section IV, pp. 1-2, January 2002.

J. R. Rose, M. N. Huhns. Philosophical Agents. IEEE Internet Computing, Vol. 5, No. 3, pp. 104-106, 2001.

N. Yoon, J.R. Rose. An Information Model for the Representation of Multiple Biological Classifications. In: Alexandrov VN, Dongarra JJ, Juliano BA, Renner RS, Tan CJK, editors. Computational Science - ICCS 2001: International Conference, San Francisco, CA, USA, Proceedings, Part 1. New York:Springer. pp 937-946, May 2001.

T. L. Huntsberger, J. R. Rose. BISMARC: A Biologically Inspired System for Map-Based Autonomous Rover Control. Neural Networks, Vol. 11, pp 1497-1510, 1998.

T. L. Huntsberger, J. R. Rose, S. Ramaka. Fuzzy-Face: A Hybrid Wavelet/Fuzzy Self-Organizing Feature Map System for Face Processing. Jour. of Biological Systems. Vol. 6, No. 3, pp 281-298, 1998.

J. R. Rose, C. M. Eastman. Hierarchical Classification as an Aid to Browsing. Informatica, Vol. 21, No. 1, pp 49-57, 1997.

R. Goyal, J. R. Rose. Characterization of a Reaction Database in Terms of a Lower Bounds on the Number of Reaction Classes. Foundation of Computing and Decision Sciences, Vol. 22, No. 2, pp 59-68, 1997.

C. M. Eastman, J. R. Rose. Hierarchical Support for Browsing, In Proceedings of the 17th National Online Meeting, pp 91-100, 1996.

L. Chen, J. Gasteiger, J. R. Rose. Automatic Extraction of Chemical Knowledge from Organic Reaction Data: Addition of Carbon-Hydrogen Bonds to Carbon-Carbon Bonds. Jour. Organic Chemistry, Vol. 60, pp 8002-8014, 1995.

L. Chen, J. Gasteiger, J. R. Rose. Extraction of Chemical Knowledge from Organic Reaction Data by Automatic Hierarchical Classification and Generalization. *Software Development in Chemistry*, Rainer Moll Ed., Vol. 9, Springer GmbH & Co., Berlin, pp 129-139, 1995.

J. Gasteiger, P. Röse, U. Hondelmann, W. Witzendichler, J. R. Rose. Learning from Reaction Databases. First European Conference on Computational Chemistry, Nancy, France, April, 1994 published by the American Institute of Physics, pp 667-685, 1995.

J. R. Rose, J. Gasteiger. HORACE: An Automatic System for the Hierarchical Classification of Chemical Reactions. *ACS Jour. Chemical Information and Computer Science*, Vol. 34, pp 74-90, 1994.

J. Gasteiger, J. R. Rose. Automatische Klassifizierung von Reaktionen: Wissen aus Reaktionendatenbanken. In *Software-Entwicklung in der Chemie 8*, Gesellschaft Deutscher Chemiker, Frankfurt/Main, 1994.

J. R. Rose, J. Gasteiger. Hierarchical Classification as an Aid to Database and Hit-List Browsing. In *Proceedings of the Third International Conference on Information and Knowledge Management*, ACM Press, pp 408-414, 1994.

J. Gasteiger, W.D. Ihlenfeldt, R. Fick, J.R. Rose. Similarity Concepts for the Planning of Organic Reactions and Syntheses. *ACS Jour. Chemical Information and Computer Science*, Vol. 32, pp 700-712, 1992.

H. Gelernter, J. R. Rose, C. Chen. Building and Refining a Knowledge Base for Synthetic Organic Chemistry via the Methodology of Inductive and Deductive Machine Learning. *ACS Jour. Chemical Information and Computer Science*, Vol. 30, pp 492-504, 1990.

J. R. Rose, H. Gelernter. ISOLDE: A System for Learning Organic Chemistry through Induction. In J.H. Boose, B.R. Gaines, and J.G. Ganascia (Eds.), *EKAW-89: Third European Workshop on Knowledge Acquisition for Knowledge-Based Systems*, pp 297-310, 1989.

P.L. Miller, C. Shaw, J. R. Rose, H.A. Swett. Critiquing the process of radiological differential diagnosis. *Computer Methods and Programs in Biomedicine*, Vol. 22, pp 21-25, 1986.

BOOK CHAPTERS

M. Vanninen, J. Rose, "Social Organization in a Software Agent Community with a Non-zero-Sum Game Interaction Model," in *Regulated Agent-Based Social Systems*, G. Lindemann, D. Moldt, M. Paolucci (Eds.) LNAI 2934, Springer-Verlag, Berlin Heidelberg, 2004, pp 176-188.

J. Rose, W. Turkett, M. Huhns, S. Roy, "An Evaluation of Philosophical Agent Architectures for Mission Robustness," in *Innovative Concepts for Agent-Based Systems*, W. Truszkowski, C. Rouff, M. Hinchey (Eds.) LNAI 2564, Springer-Verlag, Berlin Heidelberg, 2003, pp.201-214.

J. R. Rose, "Machine Learning in Chemistry," in Gasteiger, Engel (Eds.), *Cheminformatics – From Data to Knowledge*, Volume 3, pp1082-1097, Wiley-VCH, Weinheim, Germany, 2003.

T. L. Huntsberger, J. R. Rose, D. Girard. *Neural Systems for Motion Analysis: Single Neuron and Network Approaches*. S.K. Pal, A.Gosh, and M.K. Kundu (Eds.), *Soft Computing for Image Processing*, Physica-Verlag, pp 525-551,2000.

J. R. Rose. *Machine Learning Techniques in Chemistry*. In *Encyclopedia of Computational Chemistry*. Paul von Rague Schleyer (Ed.), John Wiley & Sons, Ltd., 1998.

T. L. Huntsberger, J. R. Rose. *Computer Simulations of Bimodal Neurons and Networks: Integrating Infrared and Visual Stimuli*. In *Computer modeling and simulations of complex biological systems*. Sitharama Iyengar (Ed.), CRC Press, pp 163-186, 1997.

P.L. Miller, S. Blumenfrucht, J. R. Rose, M. Rothschild, H.A. Swett, G. Weltin, N. Marrs. *HYDRA: A Knowledge Acquisition Tool for Expert Systems that Critique Medical Work-up*. In *Selected Topics in Medical Artificial Intelligence*, Perry Miller (Ed.) Springer-Verlag, pp 181-201, 1988.

REVIEWED PUBLICATIONS

R. Mukhopadhyay, J.R. Rose, "Does Nucleotide Compositional Bias Explain Amino Acid Usage in Viral Genomes?", *BIOCOMP08*, 2008.

J.R.Rose, A. El Allali, "Mutual Information Measure for Distinguishing Coding and Non-Coding DNA Sequences," *BIOCOMP08*, 2008.

J.R. Rose, R. Mukhopadhyay, "Evidence for Protein Fragment Homology in Viral Genome Types", *Proceedings of BIOCOMP06*, 2006, pp 82-85

Wayne A. Smith and John R. Rose, "Integrating Organizational Knowledge for Dynamic Scalable Multiagent Systems", *IEEE KIMAS: Integration of Knowledge Intensive Multi-Agent Systems*, Henry Hexmoor, editor, IEEE, 2003, p. 184-189.

J.R. Rose, M.N. Huhns, S.S. Roy, and W. Turkett. An Agent Architecture for Comprehensive Mission Robustness. To appear in: Walt Truskowski, editor. First GSFC/JPL Workshop on Radical Agents Concepts, Greenbelt, MD, USA, Proceedings, New York:Springer, 2002.

J. R. Rose , D. Girard. A Biologically-Motivated Approach to Direction Sensitive Velocity-Tuned Motion Detectors. *Proceedings of SCI2000/ISAS2000*, Orlando, Florida, pp. 173-178, 2000.

T. L. Huntsberger, J. R. Rose, "Behavior-based Control for Autonomous Mobile Robots". *Proceedings of Robotics 2000 Conference* Albuquerque, New Mexico, pp. 299-305, 2000.

C. Presser, D. Girard, J. R. Rose, W. Smith. A Distributed Agent Environment System for Simulating a Naive Sensor/Emitter Model. Proceedings of the 1999 Summer Computer Simulation Conference (SCSC 31), pp 359-363, July 11-16, 1999.

T. L. Huntsberger, T. Kubota, J. R. Rose. Integrated Vision/Control System for Autonomous Planetary Rovers. IAPR Workshop on Machine Vision (MVA '98), pp 34-37, Nov. 17-19, 1998.

J. R. Rose, C. M. Eastman. Hierarchical Classification as an Aid to Browsing. Second International Symposium on Knowledge Acquisition, epresentation and Processing (KARP-95), Abstracts, pp 105-107, 195.

R. Goyal, J. R. Rose. Characterization of a Reaction Database in Terms of a Lower Bound on the Number of Reaction Classes. Second International Symposium on Knowledge Acquisition, Representation and Processing (KARP-95) Abstracts, pp 41-43, 1995.

J. R. Rose, C. M. Eastman. Hierarchical Classification as an Aid to Browsing Fifth ASIS SIG/CR Classification Research Workshop, Alexandria, Va., pp 34-37,237-239, 1994.

J. R. Rose, H. Gelernter. Knowledge Discovery in Reaction Databases. In Proceedings of the Second International Conference on Information and Knowledge Management, pp 714-716, 1993.

H. A. Swett, C. Shaw, J. R. Rose, P. L. Miller. Icon: an expert system for critiquing radiological differential diagnosis. In Proceedings of the American Assoc. for Med. Systems and Informatics, pp 202-206, 1985.

ABSTRACTS

J. R. Rose. Browsing in Reaction Databases: Creating Order out of Chaos. Book of Abstracts, 214th ACS National Meeting, American Chemical Society, Las Vegas, NV, Sept. 7-11, 1997, pp CINF040.

J. R. Rose, J. Gasteiger. Reaction Database Browsing via Navigation of Reaction Hierarchies. Book of Abstracts, 209th ACS National Meeting, American Chemical Society, Anaheim, CA, April 1995, CINF016.