

WAYNE STATE UNIVERSITY

Professional Record

Date Prepared: December 22, 1989

Date Revised: February 18, 2011

NAME: Robert G. Reynolds

SOCIAL SECURITY NO.:

OFFICE ADDRESS: 424 State Hall

OFFICE TELEPHONE NO.: (313) 577-0726

HOME ADDRESS: 1064 Beechmont, Dearborn, MI 48124

HOME TELEPHONE NO.: (313) 562-9047

DEPARTMENT/COLLEGE: Computer Science/College of Science

PRESENT RANK & DATE OF RANK:

Tenure Awarded, September 1989.

Associate Professor, September 1986.

Full Professor Awarded, September 2000.

WSU APPOINTMENT HISTORY:

Sabbatical Leave Awarded: Fall 2001.

Sabbatical Leave Awarded: Fall 1994 - August 1995

Interim Chair: Computer Science Sept. 1990 - August 1992

Year Appointed/Rank: 1983 Assistant Professor

DATE & PLACE OF BIRTH: 4/28/47, Detroit, MI

CITIZEN OF: U.S.A.

EDUCATION:

Baccalaureate: University of Michigan, Ann Arbor , MI, B. S., 1970.

High School: Pioneer High, Ann Arbor, Michigan, Diploma, June 1966.

Graduate:

University of Michigan, Ann Arbor, MI, Ph.D., Computer Science, 1979.

University of Michigan, Ann Arbor, MI, M.S., Computer Science, 1978.

University of Michigan, Ann Arbor, MI, M.A., Geography, 1972.

FACULTY APPOINTMENTS AT OTHER INSTITUTIONS:

Adjunct Associate Research Scientist, 1994-present, Museum of Anthropology, University of Michigan, Ann Arbor.

Associate Complex Systems Faculty, 1999-present, Center for the Study of Complex Systems, University of Michigan, Ann Arbor.

Visiting Associate Professor, 1981, University of Michigan, Department of Anthropology.

Assistant Professor, 1979 to 1983, Department of Computer Science, Michigan State University.

Teaching Assistant, 1978 to 1979, Department of Computer Science, University of Michigan.

PROFESSIONAL SOCIETY MEMBERSHIP(S):

American Association for the Advancement of Science
American Association of Anthropologists
American Archaeology Association
American Association of Artificial Intelligence
Association for Computing Machinery
Evolutionary Programming Society
International Society for Genetic and Evolutionary Computation
IEEE (Computer Science Section)
SIGART (ACM Special Interest Group on Artificial Intelligence)
SMART (Southeastern Metropolitan Chapter of ACM SIGART).
Society for Design and Process Science

HONORS/AWARDS:

Best Paper of 2010 International Journal of complexity and Cybernetics, Reynolds, R.G., Che, Sean, and Ali, M., “Weaving the Social Fabric: Problem Solving with Cultural Algorithms”, International Journal of Complexity and Cybernetics, Vol. 3, No. 4, pp: 561-592, 2010.

2nd Place AAAI AIIDE 2010 Tournament 3, Tech limited Starcraft Game Tournament, Paul McCarthy, Robert G. Reynolds, see: <http://eis.ucsc.edu/Tournament3Results>.

1st Place IEEE International SuperMario Competition, with Leonard Kiinaird-Heether, IEEE World Congress on Computational Intelligence, Barcelona Spain, July 18-23, 2010.

2nd Place Iterative Prisoners Dilemma Competition, with Khalid Kattan, IEEE World Congress on Computational Intelligence, Barcelona Spain, July 18-23, 2010.

Xiangdong Che, Ali M., Reynolds R. G., “Robust Evolutionary Optimization at the Edge of Chaos: Commercialization of Cultural Algorithms”, Best Student Paper , IEEE World Congress on Computational Intelligence, Barcelona, Spain, July 18 - 23, 2010.

“The Alpena-Amberley Land Bridge Project” for which Professor Reynolds is the Co-PI was selected as one of the top 100 discoveries of 2009 by Discover Magazine.

“Embedding a Social Fabric Component into Cultural Algorithms Toolkit for an Enhanced Knowledge-Driven Engineering Optimization” by R. G. Reynolds and Mostafa Ali was selected as the 2008 Best Paper of the year for the *International Journal of Intelligent Computing and Cybernetics*.

2nd Place IEEE World Congress 2008 Virtual Car Racing Competition. \$500 conference support.

Selected as one of the ten best papers, 2005 Complex Systems Conference, extended version published in *International Journal of Complex Systems*, 2007.

“The Emergence of Complex Hierarchical Hub Social Networks in the Mesa Verde Village Simulation Using Cultural Learning” was selected as one of the best papers, AAAI FLAIRS 2005 conference. Extended version published in the *International Journal of Artificial Intelligence Tools*, December, 2006.

Selected as one of the best papers for NAACDOS 2003. The extended version appears in the *Journal of Computational Mathematics and Organizational Theory* (CMOT).

Third Place, Robocup Micro-robot Soccer Competition, Paris, France, 2001.

Selected as one of the best papers, IEEE ICTAI-99 Conference. Extended version was published in ICTAI Journal.

Best Paper Award, Second Place, AAAI FLAIRS-99 Conference.

Evolutionary Programming Society, Award for acting as Treasurer of the 1999 International Congress on Evolutionary Computation on Evolutionary Programming, (March 1999).

Wayne State University, College of Science, Excellence in Teaching Award, 1997

Evolutionary Programming Society, Award for acting as Technical Co-chair of the Fourth Annual Conference on Evolutionary Programming, (March 1995).

Ford Motor Company/Wayne State University, Award for Excellence in Teaching & Outstanding Achievement in Electronics and Computer Control Systems Masters Program, (Fall, 1989)

Member of Scientific Research Honor Society, University of Michigan, (Sigma XI) (1978)

Bachelor of Science with Distinction, University of Michigan (1970)

Angell Scholar, University of Michigan, (1969-1970)

BIOGRAPHICAL CITATIONS:

Marquis Who's Who in Science and Technology (2000-2009)

American Men and Women of Science (1998-2004)

Marquis Who's Who International Scientist of the Year (2003)

I. TEACHING:

A. Years at Wayne State:

Department of Computer Science, September, 1983 to present.

B. Years at Other Colleges/Universities:

University of Michigan, Department of Anthropology , 1981-1982.
(Lecturer)

Michigan State University, Department of Computer Science, 1979-1983.
(Assistant Professor, Computer Science, College of Engineering)

University of Michigan, Department of Computer Science, 1978-1979.
(Teaching Assistant)

Principal Investigator/Program Director:
(Last, first, middle)

University of Michigan, Department of Geography, 1973-1975.
(Teaching Assistant)

C. Courses Taught at Wayne State:

Undergraduate:

CSC 1000 - Introduction to Computer Science

CSC 1010 - Introduction to Computing

CSC 3200 - Programming Languages

CSC 4110 - Introduction to Software Engineering

CSC 4995 - Practical Training in Computer Science

CSC 4996 - Frontiers of Computing

CSC 5430 - Computer Game Design and Programming

CSC 5431 – Computer Game Design and Programming Lab

CSC 5800 - Data Mining and Expert Systems

CSC 5991 - Special Topics: Introduction to game Programming

Graduate:

CSC 6260 - Compiler Design

CSC 6430 – Advanced Computer Game Design and Programming

CSC 6431 – Advanced Computer Game Design and Programming (Lab)

CSC 6500 - Theory of Automata and Languages

CSC 6580 - Analysis of Algorithms

CSC 6800 - Artificial Intelligence I

CSC 6991 – Special Topics: Introduction to Computer Game Design

Principal Investigator/Program Director:
(Last, first, middle)

CSC 7800 - Artificial Intelligence II: AI and Game Programming

CSC 8800 - Seminar on Intelligent Systems

D. Essays/Theses/Dissertations Directed:

Ph.D. Theses Directed:

Gerald Larsen, at Wayne State University, "The Land Bridge Virtual World", passed proficiency exam, Fall 2010.

Leonard Kinnaird-Heather, at Wayne State, "Cultural Algorithms in Games", passed qualifying exam, Winter 2009.

Thaer Jayyousi, at Wayne State University, Doctoral Candidate, Winter 2011.

Yousef Gawasmeth, at Wayne State University, "Evolving Multi-Agent Systems for Problem Solving", passed qualifying exam, Winter 2009.

Dapeng Liu, at Wayne State University, "Multi-Objective Optimization Using Cultural Algorithms", Doctoral candidate, degree expected, Spring/Summer 2011.

Sean Xiangdong Che, "Weaving the Social Fabric: Optimization Problem Solving in Cultural Algorithms Using the Cultural Engine", at Wayne State University, Fall, 2009.

Mostafa Ali, "Cultural Algorithms and Incentive based Design", Winter, 2009

Bin Peng, "Knowledge Swarms in Cultural Algorithms for Dynamic Environments", at Wayne State University, Fall, 2005.

Ziad Kobti, "Learning in Dynamic Hierarchical Network Structures in Complex Systems", at Wayne State University, Fall, 2004.

Alina Lazar, "The Impact of Heuristic Knowledge Discovery Techniques on the Multi-Agent Simulation of Cultural Evolution", at Wayne State University, Winter 2002.

David Ostrowski, "Using Cultural Algorithms to Evolve Strategies in Agent Based Models", at Wayne State University, Winter 2002.

Principal Investigator/Program Director:
(Last, first, middle)

Nestor Rychtyckyj, "Using Cultural Algorithms to Re-Engineer Semantic Networks", at Wayne State University, Winter, 2001.

Saleh Saleem, Knowledge-Based Solutions to Dynamic Problems Using Cultural Algorithms", at Wayne State University, Winter, 2001.

Xidong Jin, "Solving Constrained Optimization Problems Using Cultural Algorithms and Regional Schemata", at Wayne State University, Winter 2001.

George Cowan, "An Evolutionary Computational Approach to the Software Engineering of Evolving Programs", at Wayne State University, Fall , 1999.

Shinin Zhu, "Fuzzy Algorithms with Evolutionary Programming for Real-Valued Function Optimization", at Wayne State University, Fall, 1998.

Hassan Al-Shehri, "Evolution-Based Decision-Tree Optimization Using Cultural Algorithms", at Wayne State University, Spring, 1997.

Chan Jin Chung, "Knowledge-Based Approaches to Self-Adaptation in Cultural Algorithms", at Wayne State University, Winter 1997.

Ayman Nazzal, "Learning Site-Settlement Patterns From Large Spatio-Temporal Databases With Cultural Algorithms", at Wayne State University, Winter, 1997.

Elena Zannoni, "Cultural Algorithms with Genetic Programming: Learning to Control the Program Evolution Process", at Wayne State University, Fall, 1996.

Michael Cavaretta, "Cultural Algorithms and Real-Valued Function Optimization", at Wayne State University, Fall, 1995 .

Jonathan Maletic, "The Software Service Bay: A Methodology for Knowledge-Based Software Maintenance", at Wayne State University, Fall, 1995.

Ph.D Committee Member:

Leon Wilson, Computer Science, WayneState University

Adam Birkholtz, Chemistry, Wayne State University

Jiaxi Hu, in progress, at Wayne State University.

Principal Investigator/Program Director:
(Last, first, middle)

Zhengqiang Liang, in progress, at Wayne State University.

Richard Krakowski, Dept. of Industrial Engineering, in progress.

Thomas Carroll, in progress, at Wayne State University.

Stephanie R. Wawrykowicz, “The Impact of Alternative High fidelity Simulation Methods on Learner Achievement, Attitude, and Development Cost”, School of Education, Winter, 2009

Katy Snyder, “Students’ Emergent Understanding of the Command-Driven Computer Algebra System MAPLE in a Semester Calculus Course”, School of Education, Fall 2006.

Robert J. Calin-Jageman, Dept. of Psychology, “Neural Basis of Environmental Regulation of the Aplysia Siphon-Withdrawal Reflex, at Wayne State University, Summer, 2004.

Jeffrey Pfaffman, “Microtubule Learning Models”, at Wayne State University, 2003.

Jon Brewster, Area: Biological Information Processing, Wayne State, 2002.

George Schliess, Area: Learning in Artificial Neural Networks, Wayne State University, 2002.

Jose Juarez-Seqovia, Area: Biological Information Processing, Wayne State University, 2001.

Nicholas Gessler, “Artificial Cultures”, University of California, Los Angeles, 2000.

Ahmet Ugur, Area: Artificial Neural Network Learning, Wayne State University, 1998.

Pierre Wijkman, Area: Evolutionary Computation, University of Stockholm, Sweden, 1997.

Master's Thesis Directed:

James Fogarty, at Wayne State University, degree expected, Fall 2010.

Principal Investigator/Program Director:
(Last, first, middle)

Kevin Vitale, at Wayne State, “Cultural Algorithms and Group Learning in Games”, Fall, 2009.

Christopher Best, “Multi-Objective Cultural Algorithms (MOCA)”, at Wayne State, Winter 2009.

Thaer Jayyous, “Extracting Knowledge about Archaic Urban Centers”, at Wayne State University, Winter Term, 2008.

Patrick Franzel, “Agent-Based Modeling of Emergent Urban Centers”, at Wayne State University, Spring Term, 2007.

Dawit Yifter, “Agent-Based Modeling of Pre-Hominid Decision-Making”, at Wayne State University, Fall Term, 2005.

Nooshi Zadegan, “Agent-Based Modeling of Early Cultural Evolution”, at Wayne State University, Fall Term, 2005.

Howard Scheer, “Agent-Based Modeling of Pre-Hominid Decision-Making”, at Wayne State University, Summer Term, 2004.

Ndella Dioum, “Agent-Based Models of Cultural Evolution”, at Wayne State University Winter Term, 2004.

Soonwon Kim, “Data Mining of Agent Rules for a Large-Scale Multi-Agent System”, at Wayne State University, Fall Term, 2002.

Jeff Stefan, “Optimal Path Search Using Cultural Algorithms”, at Wayne State University, Fall Term, 2002.

Radu Iacoban, “The Synergy of the Knowledge factors of the Cultural Algorithm When Applied to Static and Dynamic Environments”, at Wayne State University, Fall Term, 2002.

Steve Goodhall, “Multi-Agent Simulation of Hunter-Gatherer Behavior”, at Wayne State University, Fall Term, 2002.

Ronald Isles, “Reasoning About Genetic Programs Function and Structure Using Cultural Algorithms”, at Wayne State University, Fall Term, 2000.

Eva Kala, " Representation Shifts and Hierarchical Search in the Royal Road

Principal Investigator/Program Director:
(Last, first, middle)

Problem Using Cultural Algorithms", at Wayne State University, Fall Term, 1999.

Michael Sternberg, "Using Cultural Algorithms to Support the Re-Engineering of Rule-Based Expert Systems in Dynamic Performance Environments: A Fraud Detection Example", Winter Term, 1997.

William Mosely, "Learning Concepts and Solving the Royal Road Problem Using Cultural Algorithms", at Wayne State University, Winter Term, 1995.

Master's of Science (No thesis option)

Patrick Smith 2009

Master's Thesis Committee Member:

Suhartha Chowdhury, "Concept Location Using Ontology Fragments and Information Retrieval Based Search Queries", Spring/Summer 2010.

Joseph Buchta, "Software Evolution", Winter Term, 2007.

Master's of Arts Essays Directed:

Il-Ryun Pak, "Evolutionary Computation Paradigms: A Survey", at Wayne State University, Winter Term, 1995.

Master's of Science Directed:

Patrick Smith, at Wayne State, Fall Term, 2008.

Master's of Arts Directed:

Benjamin Carnes, at Wayne State, Winter Term, 2006.

Anuradha Subramanian, Artificial Intelligence at Wayne State, Fall Term, 2004.

Vijaya Goli, Artificial Intelligence, at Wayne State University, Fall Term, 2000.

Christine Pearce, Artificial Intelligence, at Wayne State University, Winter Term, 1997.

Jim Ganas, Artificial Intelligence, at Wayne State University, Fall Term, 1996.

Principal Investigator/Program Director:
(Last, first, middle)

Melvin K. Sanny, Artificial Intelligence, at Wayne State University, Fall Term, 1996.

Tony Saketos, Artificial Intelligence, at Wayne State University, Fall Term, 1996.

II. RESEARCH:

A. Research in Progress, Not Yet Funded:

2011 “Augmented Reality Games Using Haptic Devices to Support Physical Assessment and Clinical Research in Nursing Education, submitted to Wayne State University Faculty Competition for Graduate Research Assistantships, January 2011.

2010 Microsoft NLCP pre-proposal.

2010 National Science Foundation, SoCS.

2010 SHARP, Center for Distributed Patient Continuous Care, PI H. V. Jagadish (University of Michigan-Ann Arbor), subcontract Wayne State University, Models for the Diffusion and Adoption of medical Innovations, PI, James Janisse (Wayne State University), Co-PI, 3 years, \$510,400, submitted January 19, 2010, not funded.

2009 National Science Foundation, Robust Intelligence, RI:Small:The Emergence of Ancient Urban centers as a Paradigm for Robust Intelligence, PI, \$338,707, submitted December 16, 2009, not funded.

2009 National Science Foundation, Coupled Natural and Human Systems (CNH), CNH: Assessing the Environmental Impact of Human Occupation on the Alpena-Amberley Ridge Beneath Modern Lake Huron, PI, J. O’Shea University of Michigan-Ann Arbor, Co-PI, Guy Meadows (University of Michigan-Ann Arbor, Co-PI, 3 years, \$902,286, 3 years, submitted November 17, 2009, not funded.

2009 National Science Foundation, INTEROP: Exploiting Hierarchical Knowledge Representation Towards a Community Base Identity Mapping Database for Life Sciences (Co-PI), H. Jamil PI (WSU), F. Fotouhi Co_PI (WSU), 3 years, \$1,241,640, submitted July 23, 2009, not funded.

2009, National Science Foundation, CPS: Medium:Collaborative Research: A Cyber-Physical System to Collect Evidence for Human Occupation

Principal Investigator/Program Director:
(Last, first, middle)

on the Alpena-Amberly Landbridge Beneath Modern Lake Huron”, PI (Wayne State University), John O’Shea PI (University of Michigan-Ann Arbor), Guy Meadows, CO-PI University of Michigan-Ann Arbor, Ryan Eustice Co-PI, University of Michigan-Ann Arbor, 3 Years, \$1,240,573, submitted February 24, 2009. Not funded.

2008, National Science Foundation, RI: Small: Weaving the Social Fabric: A General Problem Solver Based Upon Principles of Cultural Evolution, PI, 3 years, \$250,027, submitted December 15, 2008. Not funded.

2008, National Institute of Health, Agent-Based Modeling of Health Care Innovation in Complex Adaptive Systems, (CO-PI, James Janisse (PI), Kendra Schwartz, Allen Goodman, Judith Floyd, and Daniel Barth-Jones), 3 years, \$414,877, submitted September 24, 2008.

2008, National Science Foundation, Intelligent Systems Engineering, Human Social Dynamics, “Agent-Based Models for the Visualization of Urban State Formation in Prehistory”, PI, 3 years, \$249,940, submitted February 19, 2008. Not funded.

2008 WSU Presidents’ Research Enhancement, “Models for the Diffusion and Adoption of Medical Innovations”, (CO-PI, James Janisse (PI), Joel Ager, Daniel Barth-Jones, Lynette Essenmacher, and Kendra Schwartz, Co-Pis, 2 years, \$212,131, Not funded.

2006, National Science Foundation, Intelligent Systems Advanced Learning Technologies: Evolution of Social Intelligence for Optimization in Dynamic Environments”, (PI, WSU lead institution, collaboration with UM-Ann Arbor), 3 years, \$235,548.00, Not funded.

2006, Microsoft Gaming Grant Program, “The Urbarium: Weaving a Social Fabric Through Microsoft Gaming Technology”, (PI, co-PIs, Farshad Fotouhi and Monica Brockmeyer), 2 years, \$67,000, Not funded.

2006, National Science Foundation, “HSD Collaborative Research: AOC: The Evolution and Collapse of Centralized Complex Society in the Valley of Oaxaca, Mexico”, (PI, WSU lead institution, Collaborative with UM-Ann Arbor), 3 years, \$288,755, Not funded.

2006, National Science Foundation, “IGERT: Integration Informatics in Life Sciences, Homeland Security and Social Sciences”, (affiliated non-senior personnel, Hasan Jamil, PI), 5 years, no official budget, pre-proposal submitted.

Principal Investigator/Program Director:
(Last, first, middle)

Not funded.

2006, National Science Foundation, “IGERT: Science of Collaboration”, (affiliated non-senior personnel, Allen Batteau, PI), 5 years, no official budget, prep-proposal submitted. Not funded.

2006, National Science Foundation, “HSD Collaborative Research: AOC: The Evolution and Collapse of Centralized Complex Society in the Valley of Oaxaca, Mexico”, (PI, WSU lead institution, Collaborative with UM-Ann Arbor), 3 years, \$288,755, Not funded.

2005, National Science Foundation, “Evolving Problem Solving Cultures”, (PI), 3 years, \$295,938, submitted May 3, 2005. Not funded.

2005, National Science Foundation, “AOC: Early Cultural Evolution”, (PI, co-PI’s Robert Whallon, and David B. Fogel), 3 years, \$711,198, submitted February 23, 2005. Not funded.

2005, Wayne State University, “Building Partnership Between Wayne State’s Artificial Intelligence Laboratory and the University of Windsor High Speed Computing Institute, (PI, co-PI Ziad Kobti), 1 year, \$5,000, submitted February 25, 2005. Not funded.

2004, National Science Foundation, “The Effect of Environmental Diversity on the Emergence of Social Complexity in the Valley of Oaxaca, Mexico”, (PI, co-PI’s K. Flannery, and J. Marcus), 5 years, \$1,557,865, Not funded.

2004, National Science Foundation, “A Novel Graduate Training and Education Program in Language Engineering”, F. Fotouhi PI, WSU, co-PI with A. Aristar, H. Jamil, and S. Lu, \$2,945,221, 5 years, Not funded.

2004, National Science Foundation, “Coordinating Multi-Jurisdictional Disaster response Using Cultural Algorithms: Exploiting Knowledge Swarms to Improve System Resiliency”, (PI, co-PI with S. White, J. Tan, D. Brandenburg, and A. Batteau), \$726,291, 3 years, Not funded

2004, National Science Foundation, “ITR: Collaborative Research: The Language Information Grid” (F. Fotouhi, PI, Wayne State University, co-PI with: S. Lu, A. Aristar, H. Jamil, D. Grosu, M. Brockmeyer; Univ. of Michigan Dearborn W. Grosky, N. Patel, Y. Song; Eastern Michigan Univ. H. Aristar; Univ. of Arizona; T. Languardan, S. Farrar; Univ. of California-Fresno, W. Lewis), \$3,445,037,. Not funded.

Principal Investigator/Program Director:
(Last, first, middle)

2003, National Science Foundation, “The Effect of Decision-Making on Language Evolution” (co-PI, PI R. Whallon, University of Michigan), 3 years, \$416,908. Not funded.

2003, NASA, “Computational Approaches to Modeling Culture and Aerospace Safety”, (co-PI, PI Allen Batteau), Not funded.

2003, National Science Foundation, ITR, “Multiple Agency Jurisdiction Organizational response (MAJOR) Disaster Management”, PI, (co-PI S. White, J. Tan, D. Brandenburg, and A. Batteau) five years, \$1,027,800, Not funded.

2000, National Science Foundation, “Biocomplexity: An Integrated Approach to Biological and Cultural Adaptation”, (D. Read, PI, UCLA, co-PI with M. Fischer, and J. Johnson, five years, \$2,604,920, not funded.

2000, National Science Foundation, “Biocomplexity Approaches to the Location, Formation, and Dissolution of Neolithic Villages in the Prehispanic U.S. Southwest”, two years, (co-PI, T. Kohler, PI, Washington State University, K. Kolm, and M. Varien co-PI’s), two years, \$404,101, not funded.

2000, National Science Foundation, “Intregrated Model for Human Ecodynamics in a Small-scale Agricultural Society “, (co-PI, T. Kohler, PI, Washington State University, K. Kolm, and M. Varien co-PI’s), two years, \$130,400. Not funded.

2000, National Science Foundation, “Modeling Pueblo II/III Aggregation and Settlement Changes in Southwest Colorado Incorporating Paleo-hydrology and Changing Agricultural and Economic Strategies”, (co-PI, T. Kohler, PI, Washington State University, K. Kolm, and M. Varien co-PI’s), two years, \$126,706. Not funded.

B. Funded Research Last Five Years:

2010 National Oceanographic and Atmospheric Association, “Unlocking 10,000 Years of Great Lakes History: The Search for Prehistoric Archaeological Sites Along Lake Huron’s Alpena-Amberley Ridge”, Co-PI, J. O’Shea PI (University of Michigan-Ann Arbor), Russ Green Co-PI (TBNMS), 1 year, \$98,300 Total, \$20,000, PI, WSU subcontract.

2010 Wayne State University, Graduate Research, “Modeling the Alpena-Amberley Land Bridge”.

Principal Investigator/Program Director:
(Last, first, middle)

2010 Wayne State University, Graduate Research, "Simulating the Emergence of Archaic Urban Centers.

2008-2009, National Science Foundation, BCS, "Ancient Hunters and the Lake Stanley Causeway: A Pilot Project, (Co-PI), John O'Shea PI, Guy Meadows Co-PI, Ryan Eustice Co-PI, University of Michigan-Ann Arbor), 1 year, \$25,000, 5/1/08 through 4/30/09.

2007-2012, National Science Foundation IGERT, "Incentive-Centered Design for Information and Communication Systems", University of Michigan-Ann Arbor/Wayne State University, Senior Personnel Wayne State University, J. Mackie-Mason P.I., T. Borgers Co-PI, Y. Chen Co-PI, M. Wellman Co-PI, and D. Grosu (P.I. Wayne State University), \$3,000,000.

2007-2008, Wayne State Educational Grant Program, "A Game Programming Approach to CS 1 and CS 2 Lab Development", (PI), \$5,000.

2007, Wayne State Summer Undergraduate Research Program, "Undergraduate research in Computer Game Programming- Kevin Vitale", \$3,050 total, \$2,300 (student), \$750 (Faculty mentor support).

2003-2005, Wayne State University Research Enhancement Program, "Advanced Technologies for Language Engineering: A Digital Library for Endangered Languages", (F. Fotouhi, PI, co-PI with S. Lu, and A. Aristar), two years, \$185,000.

2002-2005, National Science Foundation, Biocomplexity, "Coupled Human/Social Systems Over Long Periods: Mesa Verde Region Prehispanic Dynamics", (Co-PI with T. Kohler, M.Varien, and K. Kolm), three years, \$920,821.

1999-2004, National Science Foundation, Computer and Intelligent Systems Engineering Division, "Computational Models of State Formation" (PI, co-PI K. Flannery), \$ 294, 441.

1996-1997, National Science Foundation, "Coalition for New Manufacturing Education: AI Based Learning Tools", Total Cost, \$32,432.

1994 - 1995, Ford Motor Company, "The Development of an Adaptive Knowledge Based Float Glass Scheduler Using Cultural Algorithms", Total Cost, \$25,000.

1994 -1995, National Aeronautics and Space Administration, "The Use of Problem Solving Paradigms in the Stepwise Refinement of Object Oriented Languages

Principal Investigator/Program Director:
(Last, first, middle)

(renewal)", Total Cost, \$22,000.

C. Donations and Gifts

2005, "Data Mining and Expert System Tools", \$25,000, Mindbox LLC.

III. PUBLICATIONS:

A. Scholarly Books Published:

1. Authored:

An Adaptive Computer Model of the Evolution of Agriculture in the Valley of Oaxaca, Mexico, Ph.D. Thesis, University of Michigan, 1979, University Microfilms

This thesis used a specific machine learning technique, genetic algorithms, to model the decision-making adaptations made by prehistoric hunter-gatherers during the process of developing incipient agriculture. The genetic algorithm selectively operated on decision-making procedures expressed as production rules in a knowledge base in order to adapt to the simulated environment in which the system was embedded. The results were compared with the archaeological data from the region and proved sufficient to explain a number of patterns in that data.

2. Co-Authored:

Prehistory and Human Ecology of the Valley of Oaxaca :Excavations at San Jose Magote I: The Household Archaeology (Kent V. Flannery, Joyce Marcus, and Robert G. Reynolds, Memoirs of the Museum of Anthropology, University of Michigan, Number 40, 2005.

The Automatic Acquisition of Software Engineering Knowledge: Evolution-Based Approaches to Knowledge Acquisition in Automatic Programming Systems (with George Cowan) World Scientific Press, 2003.

This text focuses on the acquisition of knowledge about software engineering activities within a Genetic Programming Environment Using Cultural Algorithms. The book describes an automated programming environment based around Genetic Programming (GP) that supports the development of large-scale software systems. An example subsystem describing the learning of metrics to describe the quality of software produced by a GP agent is presented.

The Flocks of the Wamani, Academic Press, 1989 (with Kent V. Flannery and Joyce Marcus).

This text focuses on the development of both computer simulations and analytical models that describe how cooperative mechanisms can be learned and spread within a distributed problem solving system. The specific example used here are the gift giving ceremonies of Peruvian Llama herders.

3. Book proposals in preparation

Cultural Algorithms in Theory and Practice, co-authors Robert G. Reynolds, Mostafa Ali.

This book focuses on the design of Cultural Algorithm solutions to real world problems. It begins with the introduction of a simple CA in part I, and then proceeds to add on additional Cultural Knowledge through progressively more complex examples in part II. Part III examines real world applications of the technique.

B. Chapters Published:

1. Authored:

Reynolds, R. G., " Chapter 1: A General Statistical Analysis of Occupational Remains in Cueva Blanca", in Cueva Blanca: The Site Report, Kent V. Flannery, Editor, Memoirs of the Museum of Anthropology at the University of Michigan, to appear.

Reynolds, R. G., " Chapter 2: Identifying Spatially Associated Groups of Artifacts Using Cluster Analysis", in Cueva Blanca: The Site Report, Kent V. Flannery, Editor, Memoirs of the Museum of Anthropology at the University of Michigan, to appear.

Reynolds, R. G., " Chapter 3: Extracting Drop Area Aggregates Using Techniques from Artificial Intelligence", in Cueva Blanca: The Site Report, Kent V. Flannery, Editor, Memoirs of the Museum of Anthropology at the University of Michigan, to appear.

Reynolds, R. G., " Chapter 4: Using the Extracted Drop Area Aggregates to Identify Regions of Activity in Zone E", in Cueva Blanca: The Site Report, Kent V. Flannery, Editor, Memoirs of the Museum of Anthropology at the University of Michigan, to appear.

Principal Investigator/Program Director:
(Last, first, middle)

Michigan, to appear.

Reynolds, R. G., " Chapter 5: Using the Extracted Drop Area Aggregates to Identify Regions of Activity in Zone D", in Cueva Blanca: The Site Report, Kent V. Flannery, Editor, Memoirs of the Museum of Anthropology at the University of Michigan, to appear.

Reynolds, R. G., " Chapter 6: Using the Extracted Drop Area Aggregates to Identify Regions of Activity in Zone C", in Cueva Blanca: The Site Report, Kent V. Flannery, Editor, Memoirs of the Museum of Anthropology at the University of Michigan, to appear.

Reynolds, R.G., "Chapter 25: Multi-Dimensional Scaling of San Jose Magote Data", in San Jose Magote: The Site Report, Kent V. Flannery and Joyce Marcus, Editors, Memoirs of the Museum of Anthropology at the University of Michigan, 2005, pp: 446-455.

Reynolds, R.G., "Software Design Metrics", Encyclopedia of Software Engineering: Second Edition, Ed. J. Marciniak, John Wiley and Sons Press, 2002.

Reynolds, R.G., "The Impact of Raiding on Settlement Patterns in the Northern Valley of Oaxaca: An Approach Using Decision Trees, Dynamics in Human and Primate Societies: Agent-Based Modelling of Social and Spatial Processes, T. Kohler and G. Gummerman, Editors, Oxford University Press, 1999, pp: 251-274.

Reynolds, R.G., "An Overview of Cultural Algorithms", New Ideas in Optimization, D. Corne, F. Glover, and M. Dorigo Ed., McGraw Hill Press, 1999, pp: 367-378.

Reynolds, R. G., "Why Does Cultural Evolution Proceed at a Faster Rate Than Biological Evolution?", in Time, Process, and Structured Transformation in Archaeology, Sander van der Leeuw and James McGlade Editors, Routledge Press, New York, NY, 1997, pp. 269-282.

Reynolds, R. G., "Introduction to Cultural Algorithms", in Proceedings of the Third Annual Conference on Evolutionary Programming, Anthony V. Sebald and Lawrence J. Fogel, Editors, World Scientific Press, Singapore, 1994, pp.131-139.

Reynolds, R. G., "Learning to Cooperate Using Cultural Algorithms", in Simulating Societies, Nigel Gilbert and J. Doran, Editors, University College of London Press, 1994, pp. 223-244.

Principal Investigator/Program Director:
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1. Talks given Dr. Reynolds for invited and/or Refereed Papers Internationally or Nationally (abstract published):

Reynolds, R.G., "Organizational Modeling with Cultural Algorithms", Panel Session on Preparing Academics for a Business World, Congress on Evolutionary Computation, Singapore, September 25-29, 2007.

Reynolds, R.G., "Cultural Algorithms", invited keynote talk, 2007 IEEE Congress on Evolutionary Computation, Singapore, September 25-29, 2007.

Reynolds, R.G., "Cultural Algorithms System (CAT): A Testbed", IEEE Spring Symposium, Honolulu, Hawaii, April 1-5, 2007.

Reynolds, R.G., "The Role of Culture in the Emergence of Decision-Making Roles: An Example Using Cultural Algorithms, 2005 Complexity Conference, University of Illinois, Champaign-Urbana, May 16-19, 2005.

Reynolds, R. G., "Cultural Algorithms", invited tutorial, 2008, Swarm Intelligence Conference, Saint Louis Mo., September 29, 2008.

Reynolds, R.G., Peng, B., and Whallon, R., "Emergent Social Structures in Cultural Algorithms", NAACSOS 2005, Notre Dame University, Indiana, June 26-28, 2005.

Reynolds, R.G., Kobti, Z., and Kohler, T., "Learning in Dynamic Multi-layered Social Networks: A Mesa Verde Example", 8th International Conference on Geocomputation 2005, July 31-August 3, Ann Arbor Michigan, 2005.

Principal Investigator/Program Director:
(Last, first, middle)

Reynolds, R.G., Scheer, H., and Whallon, R., “Agent-Based Modeling of Early Hominid Decision-Making”, 2005 Society of American Archaeology Annual Meeting, Salt Lake City, Utah, March 30-April 3.

Reynolds, R.G., “The Village Project: Modeling the Ancient Anazazi Using Cultural Algorithms”, Workshop on the Village Project, Anazazi Heritage Center, Cortez, CO, October 22, 2004.

Reynolds, R.G., Kobti Z., and Kohler, T., “Modeling the Emergence of Social Complexity in Mesa Verde Using Cultural Algorithms”, Santa Fe Institute Workshop on the Emergence of Social Complexity, Santa Fe, NM, October 24-27, 2004.

Reynolds, R. G., Kobti, Z., and Kohler, T., “Agent-Based Modeling of Cultural Change in Swarm Using Cultural Algorithms”, in Proceedings of SWARMFEST 2004, University of Michigan, Ann Arbor, May 9-11, 2004.

Kobti, Z., and Reynolds, R.G., Learning in Dynamic Multi-Layered Social Networks” in Proceedings of 2004 Annual Meeting of the Society for American Archaeology, Montreal, Canada, March 31- April 4, 2004.

Reynolds, R.G., and Scheer, H., and Whallon, R., “Agent-based Modeling of Economic Sharing in Pre- or Proto-Cultural Foraging Groups “in Proceedings of 2004 Annual Meeting of the Society for American Archaeology, Montreal, Canada, March 31- April 4, 2004.

Ostrowski, D., and Reynolds, R.G., “Using Cultural Algorithms to Evolve Strategies for Recessionary Markets”, Society for Industrial and Applied Mathematics Conference on Agent based Modeling and Simulation, November 3-6, 2003, Minneapolis, Minnesota.

Reynolds, R.G., and Stefan, J., “Evolution-Based Approaches to the Preservation Endangered Natural Languages”, Workshop on Digital Libraries for Cultural Preservation, Wayne State University, Detroit, Michigan, October 27, 2003.

Reynolds, R. G., Peng, Bin, and Brewster, Jon, “The Impact of Culture on Social Interaction and Problem Solving: Cultural Swarms”, NAACSOS 2003, June 20-22, 2003, Pittsburgh, Pennsylvania.

Reynolds, R.G., Kobti Z., and Kohler, T., “Agent-Based Approaches to Modeling the Ancient Anazazi Using Cultural Algorithms”, NAACSOS 2003, June 20-22,

Principal Investigator/Program Director:
(Last, first, middle)

2003, Pittsburgh, Pennsylvania.

Lazar, A., and Reynolds, R. G., “A Computational Framework for Modeling the Dynamic Evolution of Large-Scale Multi-Agent Organizations”, Proceedings SPIE Conference on Enabling Technologies for Simulation Science, April 1-5, 2002.

Lazar, A., and Reynolds, R. G., “Evolution-Based Learning of Ontological Knowledge for a Large-Scale Multi-Agent Simulation”, Proceedings of 4th International Workshop on Frontiers in Evolutionary Computation, Duke University, March 11-13, 2002.

Reynolds, R.G., “Knowledge Swarms and Cultural Evolution”, Proceedings of American Anthropological Association Annual Meeting, November 28-31, 2001, Washington, D.C.

Saleem, S., and Reynolds, R.G., “Cultural and Social Evolution in Dynamic Environments”, CASOS 2001, Carnegie-Mellon University, July 5-7, 2001.

Saleem, S., and Reynolds, R.G., “Knowledge-Based Function Optimization in Dynamic Environments Using Cultural Algorithms”, 2001 International Conference on Artificial Intelligence, Las Vegas, Nevada, June 25-28, 2001.

Saleem, S., and Reynolds, R.G., Workshop on Emergence, Transformation, and Decay in Socio-Natural Systems, Abisko, Sweden, May 19-23, 2001.

Reynolds, R.G., “Learning in Large-Scale Multi-Agent Systems”, Santa Fe Institute Workshop on Modeling Human Environmental Interaction, Santa Fe, New Mexico, December 7-9, 2000.

Reynolds, R.G., “Approaches to Modeling Large-Scale Multi-Agent Systems using Cultural Algorithms”, Workshop on Intelligent Multi-Agent Systems, University of Sienna, Sienna, Italy, September 4-6, 2000.

Reynolds, R. G., “On the Evolution of Schemata for Function Optimization”, Holland Fest 1999: New Directions in Evolutionary Computation Inspired by the Work of John Holland, Ann Arbor, Michigan, May 8-11, 1999

Reynolds, R.G., and Chung, Chan-Jin, “A Knowledge-Based Approach to Self-Adaptation in Evolutionary Search Using Cultural Algorithms”, 12th International FLAIRS Conference, Orlando, Florida, May 3-6, 1999.

Reynolds, R. G., “The Impact of Raiding on Settlement Patterns in the Northern

Principal Investigator/Program Director:
(Last, first, middle)

Valley of Oaxaca: An Approach Using Decision Trees", Santa Fe Institute Conference on Modeling the Dynamics of Agent Interaction in Small-Scale Societies, Sante Fe, New Mexico, September 14-17, 1998.

Reynolds, R. G., "Intelligent Agent Modeling with Cultural Algorithms", presented at Sante Fe Institute Workshop on Intelligent Agent Modeling and the Simulation of Social Evolution, December 4-7, 1997.

Reynolds, R.G., "Using Cultural Algorithms to Simulate Cultural Change in the Valley of Oaxaca, Mexico", Special Session on Computational Models of Social Systems, American Association of Anthropology Annual Meeting, Washington, D. C., 1997.

Reynolds, R. G., "Cultural Algorithms", invited talk, UCLA Workshop on Computational Models of Social Systems: A Symposium in honor of Marvin Minsky, UCLA, February 29-March 2, 1997.

Reynolds, R.G., and Zannoni, E., "Evolving Software Design Methodologies in Automatic Programming Systems Using Cultural Algorithms", Second World Congress on Integrated Design and Process Technology", Austin Texas, December 1-4, 1996.

Reynolds, R. G., and Chung, Chan-Jin, "Function Optimization Using Evolutionary Programming with Self-Adaptive Cultural Algorithms, First Asian-Pacific Conference on Simulated Evolution and Learning, Taejon, Korea, November 8 -12, 1996.

Reynolds, R.G. and Chung Chan-Jin, "The Use of Cultural Algorithms to Evolve Multiagent Cooperation", 1996 World Cup Soccer Tournament, Taejon, Korea, November 8 -12, 1996 .

Reynolds, R. G., and Chung, Chan Jin, "The Use of Cultural Algorithms to Support Self-Adaptation in Evolutionary Programming", 1996 Adaptive Distributive Parallel Computing Symposium, Dayton, Ohio, August 8-9, 1996, pp. 260-271.

Reynolds, R.G., "Modeling the Evolution of Social Complexity in the Valley of Oaxaca Using Cultural Algorithms", Simulating Societies 1995, Boca Raton, Florida, Sept. 15-17, 1995.

Reynolds, R. G., Rolnick, S. R., "Learning the Parameters to a Gradient-Based Approach to Image Segmentation Using Cultural Algorithms", International

Principal Investigator/Program Director:
(Last, first, middle)

Symposium on Intelligence in Neural and Biological Systems, May 29-31, 1995, Herndon, Virginia, pp. 240-247.

Reynolds, R.G., "Solving Design Problems Using Cultural Algorithms", Eighth Florida Artificial Intelligence Research Symposium, April 27-29, 1995, Melbourne, Florida, pp. 279-283.

Reynolds, R. G., and Maletic, J. I., "An Adaptive Approach to Manufacturing Optimization Using Cultural Algorithms: A Float Glass Example", Workshop on Artificial Intelligence in Automation, New Orleans, Louisiana, November 6, 1994.

Reynolds, R. G., and Sverdlik, W., "Learning the Behavior of Boolean Circuits From Examples Using Cultural Algorithms", Second Adaptive and Learning Systems Conference, SPIE International Symposium on Aerospace and Remote Sensing, Orlando, Florida, April 12-16, 1993.

Reynolds, R. G., and Ghezavat, H., "The Inductive Learning of Software Metrics From Examples, Fifth Annual Oregon Workshop on Software Metrics, Silver Falls, Oregon, March 21-23, 1993.

Reynolds, R. G., Maletic J. I., and Zannoni, E., "The Acquisition and Management of Reusable Software in the PM System", First International Conference on Information and Knowledge Management, Baltimore, Maryland, November 8-10, 1992.

Reynolds, R. G., Maletic, J. I., Zannoni, E., "Operationalizing Software Reuse as a Problem in Machine Learning", 5th International Conference on Industrial and Engineering Applications of Artificial Intelligence and Expert Systems, June 9-12, 1992, Paderborn, Germany.

Reynolds, R. G., and Zannoni, E., "Why Cultural Evolution Can Proceed Faster than Biological Evolution", International Symposium on Simulating Societies, Surrey, England, April 2-3, 1992.

Reynolds, R. G., and Maletic, J. I., "The PM System: An Approach to Operationalizing Software Reuse as a Problem in Machine Learning",

AAAI Workshop on Automating Software Design, Anaheim, California, July 15, 1991.

Reynolds, R. G., Maletic, J. I., and Porvin, S. "Decoding the Stepwise Refinement Process: Stepwise Refinement as a Problem Solving Activity". Third International Conference on Software Engineering and Knowledge

Principal Investigator/Program Director:
(Last, first, middle)

Engineering, Skokie, Illinois, June 22-24, 1991.

Reynolds, R. G., and Maletic, J. I., "Software Reuse as a Problem in Machine Learning". Fourth Florida Artificial Intelligence Research Symposium, Cocoa Beach, Florida, April 2-5, 1991.

Porvin S., and Reynolds, R. G., "Divide and Conquer as a Paradigm for Program Implementation: An Empirical Assessment", ACM National Conference, San Antonio, March 5-7, 1991.

Reynolds, R. G., "Search Hypothesis Spaces Using Genetic Algorithms", 5th International Symposium on Methodologies for Intelligent Systems, Knoxville, Tennessee, October 24-27, 1990.

Reynolds, R. G., and Esteva, J. C., "Learning to Recognize Reusable Software by Induction in the PM System", 8th Annual SPIE Conference on the Applications of Artificial Intelligence, Orlando, Florida, April 17-19, 1990.

Reynolds, R. G. and Maletic, J. I., "The Use of Refinement Metrics to Assess Programming Language Support for the Stepwise Refinement Process", ACM 18th Annual Computer Science Conference, Washington, D.C., Feb. 21-23, 1990.

Reynolds, R. G., Maletic, J. I., and Porvin, S., "PM: A Metrics Driven Plan Compiler for ADA", Fifth Annual Conference on Artificial Intelligence and ADA, Nov. 16-17, 1989. Washington, D. C.

Reynolds, R. G., Maletic, J. I., and Porvin, S., "PM: A Metrics-Driven Plan Compiler", First IEEE International Conference on Tools for Artificial Intelligence, October 23-25, 1989. Fairfax, Virginia.

Reynolds, R. G., Maletic, J. I., and Porvin, S. "PM: A Metrics-Driven Approach to the Automatic Acquisition of Software Engineering Knowledge", Workshop on Automating Software Design, IJCAI-89, Detroit, Michigan, August 21, 1989, pp. 223-232.

Reynolds, R. G., Maletic, J. I., and Porvin, S., "PM: A Metrics-Based Plan Compiler", AAI Workshop on AI and Software Engineering, University of Exeter, U.K., April 12-14, 1989.

Reynolds, R. G., "A Metrics-Driven Approach to the Automatic Acquisition of

Principal Investigator/Program Director:
(Last, first, middle)

Software Engineering Knowledge", AAAI Workshop on Automated Software Design, St. Paul, Minnesota, August 26, 1988.

Reynolds, R. G., "Automated Program Development using Metric Information", IEEE Software Design Metrics Workshop, Melbourne, FL., March 14-16, 1988.

Reynolds, R. G., "Metrics-driven Acquisition of Software Engineering Knowledge", 6th Symposium on Empirical Foundations of Information and Software Science., Atlanta, Georgia, Oct. 19-21, 1988.

Reynolds, R. G., "The Application of Classifier Systems to the Acquisition of Software Engineering Knowledge", 1st International Conference on Industrial and Engineering Applications of Artificial Intelligence and Expert Systems, University of Tennessee Space Institute, Tullahoma, Tennessee. June 1-3, 1988.

Reynolds, R. G., "Metrics-Based Reasoning about Pseudo-code Design in the Partial Metrics System", ESD/SMI Conference on Expert Systems, Dearborn, MI June 7-11, 1987.

Reynolds, R. G., "A Heuristic Basis for the Origins of Agriculture", IFAC Workshop on the Modeling of Decision-Making Systems, Beijing, China, August, 1986.

Reynolds, R. G., "A Metrics-Based System to Monitor the Stepwise Refinement of Program Modules", Fourth Conference on Intelligent Systems and Machines, Oakland University, April 29-30, 1986.

Reynolds, R. G. and Azar, G., "An Adaptive Interface for Intelligent Information Retrieval", Fourth Conferences on Intelligent Systems and Machines. Oakland University, Rochester, Michigan, April 29-30, 1986.

Esteva, J. C., and Reynolds, R. G., "A Real-Time Knowledge-Based Expert System for Diagnostic Problem Solving", Third SPIE Conference on Applications of Artificial Intelligence, Orlando, Florida, April 1-3.

Reynolds, R. G. and Roberts, D., "PARTIAL: A Tool to Support the Metrics Driven Design of Ada Programs", ACM 14th Annual Computer Science Conference, Cincinnati, Ohio, February 4-6, 1986.

Reynolds, R. G., "The Design of an Adaptive Expert Database Interface",

Principal Investigator/Program Director:
(Last, first, middle)

NATO Workshop on the Design of Relational Database Machine Architectures, Les Arcs , France, July 15-26, 1985.

Reynolds, R. G., "The Use of Expert Systems in Archaeology", International Union of Pre- and Proto-Historical Sciences, Denver, Colorado, April 29 - May 1, 1985, pp. 55-66.

Reynolds, R. G. and Cichanowski, G. "Distributed Algorithms for On-Line Bin Packing", Conference on Intelligent Systems and Machines, Oakland University, Rochester, Michigan, April 24, 1984.

Reynolds, R. G. and Cichanowski G., "A Parallel Algorithm for On-Line Bin Packing", SIAM 1983 Fall Meeting, Norfolk, Virginia, November 3 - 7, 1983.

Reynolds, R. G., "Metrics to Assess the Structural Complexity of Parallel Programs", Symposium on Empirical Foundations of Software Science, Atlanta, Georgia, November 3-5, 1982, pp.188-200.

Reynolds, R. G. and Chang, T. L., "The PAL System: A Parallel Algorithm Design System for VLSI Based Architectures", Proceedings 10th International IMACS Conference, Montreal, Canada, August 8-13, 1982, pp. 314-319.

M. Invited Seminars or Lectures Presented:

“Hunting Caribou Hunters Beneath Modern Lake Huron 2: Using Virtual World Modeling to Guide the Exploration of the Alpena-Amberley Land Bridge”, Museum of Anthropology Seminar, University of Michigan-Ann Arbor, February 17, 2011.

Micro to Macro

CSC

“STIET”

“The Land Bridge Reality Game: Incentive-Based Design of an Intelligent Agent System”, University of Michigan-Ann Arbor, STIET Summer REU Brown Bag Seminar Series, August 22, 2010.

“Tutorial: Cultural Algorithms: Harnessing the Power of Social Intelligence”, IEEE World Congress on Computational Intelligence, Barcelona, Spain, July 16, 2010.

Principal Investigator/Program Director:
(Last, first, middle)

“The Land Bridge Reality Game”, Department of Computer Science Faculty seminar, November 12, 2009.

“Land Bridge: Visualizing Complex Virtual Worlds”, AAAI-Workshop on Complex Systems and the Threshold Effect: Views from the Natural and Social Science, November 5-7, 2009.

“Design of Reality Games”, Wayne State University College of Nursing Faculty Seminar, February 18, 2009.

“Survival of the Fastest: Networks Do Matter”, Wayne State University Department of Computer Science Faculty Seminar, January 27, 2009.

“Survival of the Fastest”, STIET Seminar, University of Michigan-Ann Arbor/Wayne State University, November 6th, 2008..

“Cultural Algorithms: Socially Motivated Approaches to Optimization”, Complex Systems Seminar, University of Michigan-Ann Arbor, November 8, 2007.

“The Role of Culture in the Emergence of Decision-Making Roles: An Example Using Cultural Algorithms”, STIET Seminar, University of Michigan-Ann Arbor/Wayne State University, October 4th, 2007.

“Cultural Algorithms: A Tutorial”, IEEE World Congress on Computational Intelligence, June 1-6. 2008.

“Cultural Algorithms: A Tutorial”, IEEE Spring Symposium, Honolulu, Hawaii, April 1-5, 2007.

“Cultural Algorithms: A Tutorial”, IEEE Swarm Intelligence Symposium, Indianapolis, Indiana, May 15, 2006.

“Cultural Algorithms System (CAT): A Testbed”, to be presented at IEEE Swarm Intelligence Symposium, Honolulu, Hawaii, April 1-5, 2007.

“An Agent-Based Model of the Emergence of Archaic Urban Centers”, Museum of Anthropology, University of Michigan-Ann Arbor, January 11, 2007.

“Cultural Algorithms: A Tutorial”, IEEE Swarm Intelligence Symposium, Indianapolis, Indiana, May 15, 2006.

Principal Investigator/Program Director:
(Last, first, middle)

“Knowledge Swarms: Generating Emergent Social Structure in Dynamic Environments”, University of Michigan, Museum of Anthropology Brown Bag seminar Series, December 8, 2005.

“Knowledge Swarms”, Wayne State University Computer Science Department Seminar Series, November 8, 2005.

“Cultural Algorithms”, University of Windsor, Computer Science Department Seminar Series, September 29, 2005.

“Tutorial On Cultural Algorithms”, at IEEE Symposium of Swarm Intelligence, Palo Alto, CA, June 8-10, 2005.

“Agent-based Modeling of the Emergence of Social Complexity in the Mesa Verde region Using Cultural Algorithms”, University of Michigan, Museum of Anthropology Brown Bag seminar Series, February 17, 2005.

“Simulating the Impact of Cultural Adaptation on the Resilience of Social Systems to Environmental Change: The Anazazi Example”, Department of Computer Science Seminar, Wayne State University, September 30, 2003.

“Modeling the Emergence of the Archaic State in the Valley of Oaxaca Using Cultural Algorithms”, Museum of Anthropology, University of Michigan, Ann Arbor, Michigan, September 25, 2003.

“A Multi-Agent Simulation Using Cultural Algorithms: The Effects of Culture on the Resilience of Social Systems”, Complex Systems Research Group, University of Michigan, Ann Arbor, June 18, 2003.

“Cultural Algorithms: A Tutorial”, IEEE Swarm Intelligence Symposium, Indianapolis Indiana, April 24, 2003.

“Modeling Intelligent Multi-Agent Systems”, invited talks at (SCP 7400, and CSC 5830), Wayne State University, Feb. 25 and 27, 2003.

“Computational Models of State Formation”, Dept. Of Anthropology Colloquium Series, Washington State University, Washington, December 6, 2002.

“Multi-Agent Simulation of Hunter-Gatherer Behavior”, Museum of Anthropology, Quantitative Methods Seminar, University of Michigan, Ann Arbor, October, 2002.

Principal Investigator/Program Director:
(Last, first, middle)

“Problem Solving with Cultural Algorithms”, Ford Motor Company, E-Tech Seminar series, June 12, 2002.

“Cultural Algorithms: A Tutorial”, Reynolds, R.G., World Congress on Evolutionary Computation, Honolulu Hawaii, May 12, 2002.

“Assessing the Impact of Resource Access on Learning by Emulation in Hunter-Gatherer Foraging Systems: A Multi-Agent Model”, Dept. of Computer Science Colloquium Series, Wayne State University, April 9, 2002.

“Cultural Algorithms and Modeling Evolution in Multi-Agent Systems, Ford Motor Company, Scientific Research Laboratory, March 13, 2002.

“Using Decision Trees to Extract Warfare Rules in the Valley of Oaxaca, Mexico”, Museum of Anthropology, University of Michigan, Ann Arbor, October 28, 2001.

“Real-Valued Function Optimization Using Cultural Algorithms”, invited talk ACM Special Interest Group on Artificial Intelligence, May 12, 1999.

“The Impact of Raiding on Settlement Patterns in the Northern Valley of Oaxaca, Mexico, invited talk, Museum of Anthropology, University of Michigan, Ann Arbor, Michigan, March 11, 1999.

“Learning to Learn: Using Cultural Algorithms to Guide Decision Tree Learning in a Large Scale Archaeological Data Base”, Department of Computer Science Seminar, Wayne State University, October 21, 1998.

“Using Decision Trees to Recognize the Occurrence of Raiding in the Valley of Oaxaca”, Seminar on the Modeling of Long Term Social Processes, Sante Fe Institute, September 15-17, 1998.

“Automatic Diagnosis Using Cultural Algorithms”, SAE Control Society Spring Conference, Session of Diagnostic Problem Solving, invited talk May 11, 1998.

"A Comparison Between the Fisher Model and Cultural Algorithms", Royal University of Stockholm, Department of Computer Science, June 4, 1997.

"Using Artificial Intelligence to Analyze Occupation Floor Remains in the Valley of Oaxaca, Mexico, University of Michigan, Museum of Anthropology Seminar, January 23, 1997.

" Solving Real-Valued Optimization Problems Using Cultural Algorithms",

Principal Investigator/Program Director:
(Last, first, middle)

Artificial Intelligence Group, Ford Motor Company, May 1, 1996.

"A Test bed for Solving Optimization Problems using Cultural Algorithms", Department of Computer Science Professional Seminar Series, Wayne State University, February 14, 1996.

"Culturing Genetic Algorithms", invited talk, Southeast Michigan ACM SIGART Chapter, October 19, 1995.

"Cultural Algorithms and Their Applications", invited talk, Department of Computer Science, Wayne State University, October 11, 1995.

"Computer Modeling of Cultural Adaptations, invited talk, Museum of Anthropology, January 19, 1995.

"The Use of Artificial Intelligence Techniques to Analyze Occupation Floors in Cueva Blanca, Mexico", invited talk, Museum of Anthropology, University of Michigan, November 10, 1994.

"Future Trends in Software Quality", Professional Development Seminar, invited talk, Department of Computer Science, Wayne State University, September 15, 1993.

"The Integration of AI, Database, and Software Engineering: Research Issues and Practical problems, panel chair, 5th International Conference on Tools for Artificial Intelligence, Cambridge, Massachusetts, November 8-11, 1993.

"Using Cultural Algorithms to Infer the Behavior of Boolean Circuits", invited talk, IEEE Computer Society, Southeastern Michigan Region, Spring Meeting, April 20, 1993.

"Future of Software Reuse", panel member, 4th International Conference on Computers and Information, Toronto, Canada, May 25-27, 1992.

"Knowledge-Based Re Engineering of CVSP Software at Ford", invited talk, Ford Engineering Computer Center, November 3, 1992.

"Software Reusability: Issues in Real Time Control Systems", invited talk, Software Technology Forum, Ford Motor Company, October 23, 1992.

"Automating Software Reuse", invited talk, University of Western Ontario, Department of Computer Science, October 15, 1992.

Principal Investigator/Program Director:
(Last, first, middle)

"Cultural Algorithms", invited talk, Metropolitan Detroit Chapter of ACM Special Interest Group on Artificial Intelligence, October 1, 1992.

"Extracting Procedural Knowledge from Software Systems Using Inductive Learning", invited talk, Dept. of Computer Science, Artificial Intelligence Seminar, Carnegie-Mellon University, April 28, 1992.

"Operationalizing Software Reuse as a Problem in Machine Learning", invited talk, Department Computer Science of Michigan State University, November 22, 1991.

"Modeling the Evolution of Cooperation", invited talk to Michigan Archaeological Society, April 10, 1991.

"Darwinian Models of Cultural Evolution", invited talk, Dept. of Evolution and Human Behavior, Univ. of Michigan, November 29, 1990.

"UNIX and AI" at Computer Solutions Exp., Third Midwest UNIX Exposition, Sept. 4-6, 1990, Dearborn, Michigan.

"Reasoning About Program Design in Computer Aided Software Engineering Environments", Metropolitan Detroit Chapter of SIGART (ACM Special Interest Group on Artificial Intelligence), September 28, 1988.

ACM Chapter Professional Development Seminar Speaker, 1986-1987.

"Application of Artificial Intelligence Techniques to Software Engineering", Metropolitan Detroit Chapter of the ACM (Sept. 22, 1986).

"Expert Systems and Artificial Intelligence", ACM Professional Development Seminar, May 1986.

N. Other Scholarly Work:

1. Professional Workshops Attended:

University of Michigan/Santa Fe Institute Workshop on "From Macro to Micro", October 7-8, 2010.

University of Michigan Complex System Workshop on Multi-Agent Systems,

Principal Investigator/Program Director:
(Last, first, middle)

October 16, 2009.

University of Michigan Workshop in Honor of John Holland, September 24 - 25, 2009.

University of Michigan Complex Systems Seminar on Genetic Programming Theory and Practice, May 14 – 16 , 2009

Foundations of Digital Games, April 26 - 28, 2009.

Language as a Complex Adaptive System Conference, University of Michigan-Ann Arbor, October, 2008.

Language as a Complex Adaptive System, University of Michigan-Ann Arbor, June 9 - 11, 2008

Microsoft Game Development Workshop, February 28 - March 3, 2008.

Microsoft Game Development Workshop, February 22 - 25, 2007.

Microsoft Game Development Workshop, January 19 - 22, 2007.

University of Michigan/Sante Fe Institute Workshop on Emergence and Engineering in Complex Systems, University of Michigan, Ann Arbor, November 12 - 14, 2003.

Workshop on Mobility in a Sustainable World: A Complex Systems Approach, University of Michigan, Ann Arbor, June 20 - 22, 2003.

Sante Fe Workshop on Human Environmental Interaction, May 17 - 19, 2003.

Abisko Scientific Research Station Workshop on “Emergence, Transformation, and Decay in Socio-Natural Systems, Sponsored by Swedish Research Council, Abisko, Sweden, May 19 - 23, 2001.

Santa Fe Institute Workshop on “Modeling Human-Environmental Interaction”, Santa Fe, New Mexico, December 7 - 9, 2000.

Santa Fe Institute Workshop on “Modeling the Emergence of Large-Scale Multi-Agent Systems, Charlotte, North Carolina, November 10 - 12, 1999.

Santa Fe Institute Workshop and Conference on “Modeling the Dynamics of

Principal Investigator/Program Director:
(Last, first, middle)

Agent Interactions in Small-Scale Social Systems”, September 14 - 17, 1998.

Sante Fe Institute Workshop on “Modeling Small-Scale Intelligent Agent Systems, Sante Fe, New Mexico, December 3 - 6, 1997

Cooperstown I Workshop on "Creating a National Vision and Force in Software Through Software Measurement", Cooperstown, New York, August 29 - September 1, 1993.

Workshop on Modeling Prehistoric Human Behavior, Cambridge Univ., England, December 10 - 14, 1990.

Santa Fe Institute Workshop on Modeling the Evolution of Prehistoric Southwestern Societies, Santa Fe, New Mexico, Sept. 30 - Oct. 5, 1990.

2. Reviewer:

2010

International Journal on Swarm Intelligent Systems (1 paper).

Journal of the American Board of Family Medicine, (1 paper).

IEEE Transactions on Systems, Man and Cybernetics: Part C (1 paper).

IEEE Transactions on Computational Intelligence and AI in Games (5 papers).

IEEE International Conference on Fuzzy Systems (1 paper).

IEEE International Conference on Computational Intelligence (1paper).

International Journal of Anthropological Archaeology (2 papers).

2009

Bioinspired Technology and Biometrics (1 paper).

Ecology and Society (1 paper)

GECCO-AMS 2009 (3 papers).

IEEE Transactions on Computational Intelligence in Games (3 papers).

Principal Investigator/Program Director:
(Last, first, middle)

IEEE Transaction on Evolutionary Computation (1 paper).

IJICC (2 papers).

International Journal of Software Engineering and Knowledge Engineering (1 paper).

NABIC 2009.

SocPar 2009 (6 papers)

2008

Autonomous Agents and Multi-Agent Systems (6 papers)

Conference on Canadian Artificial Intelligence

IEEE Congress on Evolutionary Computation.

Parallel Processing in Nature

IEEE Conference on Tools for Artificial Intelligence

IEEE Conference on IRI

IEEE Conference on Software Engineering and Knowledge Engineering

IEEE Conference on Swarm Intelligence

IEEE Transactions on Evolutionary Computation(10 papers)

IEEE TRAM

IEEE World Congress on Computational Intelligence

2007

AMAAS (6 papers).

Canadian AI Conference 2007, (papers).

Principal Investigator/Program Director:
(Last, first, middle)

Bio-Systems, (1 paper).

IEEE TRAM Workshop (1 paper).

IEEE Conference on Management Engineering and Informatics (1 paper).

IEEE Information Systems and Intelligent Engineering 2007, (3 papers).

IEEE Transactions on Computational Biology and Bioinformatics (1 paper).

IEEE Transaction on Evolutionary Computation (4 papers)

2006

Canadian A I Conference (6 papers).

IEEE Congress on Evolutionary Computation (6 papers).

IEEE International Conference on Artificial Intelligence Tools.

IEEE International Conference on Information Reuse and Integration (6 papers).

IEEE International Conference on Neural Networks (7 papers).

IEEE International Conference on Artificial Intelligence Tools (6 papers).

IEEE International Multimedia Symposium (6 papers)

IEEE International Swarm Intelligence Symposia (6 papers).

IEEE Spectrum (1 paper).

IEEE Transactions on Evolutionary Computation (1 paper).

IEEE Transactions on Systems, Man and Cybernetics (2 paper).

Journal of Anthropological Archaeology (2 papers).

PPSN IX (6 papers).

2005

Principal Investigator/Program Director:
(Last, first, middle)

Canadian AI Conference (6 papers).

Journal of Agent-Based Simulation and Software (JASS) (1 paper).

Journal of Anthropological Archaeology (1 paper).

Journal of Complexity (1 paper).

FLAIRS 2005 (Machine Learning Special Track).

FIRA 2005.

IEEE Congress on Evolutionary Computation (6 papers).

IEEE Journal of Systems, Man, and Cybernetics (2 papers).

IEEE Transactions on Evolutionary Computation (4 papers).

IEEE Information Management and Reuse (6 papers).

Structure and Dynamics: Journal of Anthropological and Related
Sciences (1 paper).

2004

FLAIRS 2004 (8 papers).

FLAIRS 2004 Machine Learning Special Track (4 papers).

AI 2004 Conference, (5 papers).

Journal of Computational Mathematical and Organization Theory (3 papers).

ICTAI 2004 (8 papers).

IEEE Conference on Evolutionary Computation (12 papers).

IEEE Transactions on Evolutionary Computation (10 papers).

IEEE Transactions on Knowledge Engineering and Software Engineering (1
paper).

Principal Investigator/Program Director:
(Last, first, middle)

IEEE Transactions on Systems, Man, and Cybernetics (1 paper).

International Journal of Artificial Intelligence Tools (2 papers).

National Science Foundation Panelist (3 proposals).

Journal of Anthropological Archaeology (3 papers).

Journal of Archaeological Science (1 paper).

Parallel Processing in Nature (PPSN) (6 papers).

2003

ACM Journal on Multimedia Systems: Special Issue on Multimedia Software Engineering (5 papers).

Foundations of Evolutionary Algorithms 2003 (1 paper).

Florida AI Research Conference 2003 (7 papers).

GECCO 2003 (4 papers).

IEEE Transactions on Evolutionary Computation (8 papers).

IEEE Transactions on Software Engineering (2 papers).

IEEE Transactions on Evolutionary Computation (Special Issue on Particle Swarm Optimization) (9 papers).

International Conference on Artificial Intelligence Tools, 2003 (8 papers).

Journal of Anthropological Archaeology (2 papers).

Journal of Soft Computing (3 papers).

NASA Panelist on Control Systems and Systems Integration, Modeling and Analysis (6 proposals).

National Science Foundation Proposal Review (2 proposals).

Principal Investigator/Program Director:
(Last, first, middle)

NSF New Investigators Award Panel Review (1 application).

2002

Foundations of Evolutionary Algorithms 2002 (3 papers).

Genetic and Evolutionary Computation Conference, GECCO 2002 (5 papers).

IEEE Transactions on Evolutionary Computation 2002 (11 papers).

Journal of Anthropological Archaeology 2002 (3 papers).

Parallel Processing in Nature (4 papers) 2002.

World International Congress on Computational Intelligence, 2002 (10 papers).

International Conference on Artificial Intelligence Tools, 2002, (4 papers).

Multimedia Software Engineering, 2002, (3 papers).

2001

2001 Congress on Evolutionary Computation (10 papers).

Foundation of Evolutionary Algorithms (4 papers).

GECCO 2001 (10 papers).

IEEE Transactions on Evolutionary Computation (4 papers).

IEEE Transactions on Knowledge Engineering and Data Engineering (30 papers).

IEEE Transactions on Systems, Man, and Cybernetics, Part B:.

Information Sciences: An International Journal (1 paper).

Parallel Processing in Nature (4 papers).

2000

2000 Congress on Evolutionary Computation.

Principal Investigator/Program Director:
(Last, first, middle)

GECCO 2000.

IEEE Transactions on Evolutionary Computation.

IEEE Transactions on Knowledge Engineering and Data Engineering.

1999

Journal of Anthropological Archaeology

IEEE Computer

IEEE Software

IEEE Transactions on Evolutionary Computation

IEEE Transactions on Pattern Recognition and Machine Intelligence

IEEE International Congress on Evolutionary Computation

GECCO, Genetic and Evolutionary Computation Conference

International Journal of Artificial Intelligence Tools

1998

Journal of Anthropological Archaeology

Genetic Programming Conference

IEEE Computer

IEEE Software

IEEE Transactions on Evolutionary Computation

IEEE Transactions on Pattern Recognition and Machine Intelligence

IEEE International Conference on Artificial Intelligence Tools

International Conference on Computers and Information Systems

Principal Investigator/Program Director:
(Last, first, middle)

International Conference on Parallel Processing in Nature

International Conference on Evolutionary Computation

International Journal of Anthropological Archaeology

International Journal of Artificial Intelligence Tools

1997

Biosystems

IEEE Computer

IEEE Software

IEEE Transactions on Evolutionary Computation

IEEE Transactions on Knowledge Engineering and Data Engineering

IEEE Sixth Evolutionary Programming Conference

International Conference on Genetic Algorithms

International Journal of Software Engineering and Knowledge Engineering

1996

Bio-systems

COMPSAC 1996

Fourth Golden West Conference on Intelligent Systems

ICCI (International Conference on Computers and Information)

IEEE Fifth Evolutionary Programming Conference

IEEE Transactions on Knowledge and Data Engineering

IEEE Software

Principal Investigator/Program Director:
(Last, first, middle)

Information Sciences Journal

International Conference on Software Engineering and Knowledge Engineering

International Journal of Artificial Intelligence Tools

Michigan Academician

1995

ACM Annual Computer Science Conference

Bio-systems

Computational Intelligence

ICCI (International Conference on Computers and Information)

IEEE Fourth Conference on Evolutionary Computing

IEEE Software

IEEE Transactions on Knowledge and Data Engineering

IEEE Second International Conference on Evolutionary Computation

International Conference on Evolutionary Programming

International Conference on Software Engineering and Knowledge Engineering

International Journal of Artificial Intelligence Tools

1994

ACM Annual Computer Science Conference, 1995

Bio-systems

International Journal of Mathematics and Statistics

International Journal of Modeling and Simulation

Principal Investigator/Program Director:
(Last, first, middle)

IEEE Expert

IEEE Software

IEEE 6th International Conference on Tools for AI

Evolutionary Programming Conference

International Conference on Intelligent Systems and Methodologies

6th International Conference on Software Engineering and Knowledge Engineering

IEEE Transactions on Neural Networks

Canadian National Software Engineering Research Council Proposals

International Journal of Tools for Artificial Intelligence

International Journal of Software Engineering and Knowledge Engineering

1993

ACM Annual Computer Science Conference, 1994

IEEE Expert

IEEE Software

IEEE Computer

IEEE 5th International Conference on Tools for AI

Evolutionary Programming 94

5th International Conference on Software Engineering and Knowledge Engineering

IEEE Transactions on Software Engineering

IEEE On-Line Encyclopedia

Principal Investigator/Program Director:
(Last, first, middle)

International Journal of Tools for Artificial Intelligence

International Journal of Software Engineering and Knowledge Engineering

International Journal of Software Engineering

Bio-systems

Journal of Anthropological Archaeology

1992

ACM Annual Computer Science Conference

IEEE Expert

IEEE Software

IEEE 4th International Conference on Tools for AI

Evolutionary Programming 94

4th International Conference on Software Engineering and Knowledge Engineering

IEEE Transactions on Software Engineering

International Journal of Tools for Artificial Intelligence

International Journal of Software Engineering and Knowledge Engineering

1991

ACM Annual Computer Science Conference

IEEE Expert

IEEE Software

IEEE Computer

IEEE 3rd International Conference on Tools for AI

Principal Investigator/Program Director:
(Last, first, middle)

3rd International Conference on Software Engineering and Knowledge Engineering

IEEE Transactions on Software Engineering

International Journal of Tools for Artificial Intelligence

International Journal of Software Engineering and Knowledge Engineering

International Journal of Anthropological Archaeology

1990

ACM Annual Computer Science Conference

IEEE Expert

IEEE Software

IEEE 2nd International Conference on Tools for AI

2nd International Conference on Software Engineering and Knowledge Engineering.

International Journal of Systems and Software

1989

ACM Annual Computer Science Conference

IEEE Expert

IEEE Software

IEEE 1st International Conference on Tools for AI

1st International Conference on Software Engineering and Knowledge Engineering

International Journal of Systems and Software

IV. SERVICE

Principal Investigator/Program Director:
(Last, first, middle)

A. Administrative Appointments at Wayne State in the last seven years:

Interim Chair Department of Computer Science, 1990-1992.

C. Committee Assignments:

2. University Committees:

Wayne State University Task Force for On-Line Instruction (2010)

Associate Vice President for On-Line Services Search Committee (2009).

Faculty Senate Education and Instruction Committee, 2009 - 2010.

Wayne State University Director of Online Services Search Committee, 2009 - 2010.

Faculty Senate, 1994, 2009 - 2011.

CLAS Dean Evaluation Committee, 2006-2007.

Mott Center Reproductive Systems Sub-Committee, 2006.

Student Center Advisory Committee, 1997-2002

Faculty Senate Standing Committee on Faculty Affairs, 1994

Scholarships and Fellowships Review Panel, 1992 – 1993.

Faculty Senate Committee on Student Employment, 1992 – 1993.

Computing Resources Task Force, 1991.

Selection Committee University Wide Equipment Grant, 1987.

University Telecommunications Committee, 1987.

3. College/Department Committees Chaired

College of Liberal Arts and Science Secretary/President, 2004-2011.

Principal Investigator/Program Director:
(Last, first, middle)

College of Liberal Arts and Science Election Committee, 2004-2010.

College of Science Faculty Council Secretary, 2003-2004.

College of Science Elections Committee, 2003-2004.

CSC Undergraduate Committee, 1997-2003.

CSC Faculty Search Committee, 1989.

CSC Ph.D. Qualifying Exam Committee, 1986-1987.

4. College/Departmental Committee Membership:

College of Liberal Arts and Sciences Budget Committee, 2008 – 2010.

College of Liberal Arts and Science, Personnel and Salary Committee, 2007 - 2010.

College of Liberal Arts and Science, Promotion and Tenure Committee, 2004 - 2009.

College of Liberal Arts and Science Election Committee, 2004 - 2011.

College of Science Faculty Council, 2001 - 2011.

College of Science Undergraduate Committee, 2000 - 2003.

CSC Sabbatical Leaves Committee, 2010-2011.

CSC Departmental Bylaws Committee, 2004 - 2005.

CSC Graduate Committee, 1983-1988, 1995-1996, 2004 - present.

CSC Undergraduate Committee, 1996 - 2004,

CSC Personnel and Salary Committee, 1993 - 1998, 2000, 2003 - 2004, 2005 - 2006, 2008 – 2009, 2011..

CSC Recruitment and Retention Committee, 1993 - 1994.

Principal Investigator/Program Director:
(Last, first, middle)

CSC Promotion and Tenure Committee, 1989 - present.

CSC Chair Search Committee, 1990.

CSC Ford/ WSU-EE/CS Interdisciplinary Masters Curriculum Committee, 1988.

CSC Ford/WSU-EE/CS Interdisciplinary Masters Planning Committee 1988 - 1989.

CSC Personnel and Salary Committee, 1988 (Fall).

CSC Equipment Committee, 1988.

CSC Departmental Chair Search Committee, 1985.

D. Positions Held in Professional Associations in Past Five Years:

IEEE Technical Committee: IEEE Computational Intelligence, Artificial Intelligence in Games, 2009-present.

IEEE Technical Committee: IEEE Computational Intelligence Society, 2009-present.

IEEE Technical Committee Member, IEEE Systems, Man, and Cybernetics: Soft Computing, 2006 - present.

President Evolutionary Programming Society, 2006-present.

Treasurer, National Autonomous Agents and Computational Analysis of Social and Organizational Systems (NAACSOS), 2005-present.

Member, IEEE Neural Network Council Publications Board, 1999-present.

Vice President, Evolutionary Programming Society, 2001-2005.

Voted Member-At-Large, Evolutionary Programming Society, 1994-2001.

Vice-President, Southeastern Metropolitan Chapter of the ACM Special Interest Group on Artificial Intelligence, 1992-1993.

President, Southeastern Michigan Metropolitan Chapter of the ACM Special Interest Group on Artificial Intelligence, 1989, 1998.

E. Professional Consultation:

1. Public Presentation as an Expert in Discipline:

Interview in American Anthropology on “Simulation and Games in Arcaheology”.

Interview on Expert Systems, Crane's Detroit Business, February 6, 1989.

4. Consulting in Private Enterprises:

Academic Press

Addison-Wesley Publishing Company

IGI-Global Publishing

Holt, Rinehart and Winston Publishing Company

McMillan Publishing West

MIT Press

Prentice Hall

Kluwer Academic Press

Plenum Press

World Scientific Press

G. Journal/Editorial Activity:

1. Editorships:

Associate Editor, Journal of Information Processing Systems: Part C:
Communication Systems and Security, 2009 - present.

Associate Editor, International Journal of Swarm Intelligence, 2009 – present.

Associate Editor, IEEE Transaction on Evolutionary Computation and Artificial
Intelligence in Games, 2008 - present.

Principal Investigator/Program Director:
(Last, first, middle)

Associate Editor, IEEE Computational Intelligence Magazine, 2007 - present.

Associate Editor, Computational and Mathematical Organization Theory
(Computational Sociology and Social Computation), 2004 - present.

Associate Editor, IEEE Transactions on Knowledge Engineering and Data
Engineering, 1999 - 2001.

Associate Editor, IEEE Transactions on Evolutionary Computation, 1996 - present.

Associate Editor, International Journal on Artificial Intelligence Tools, 1991-
present.

Associate Editor, International Journal of Semantic Computing, 2005 - present.

2. Journal Editorial Board Memberships:

International Journal of Swarm Intelligence, 2009 – present.

IEEE Computational Intelligence in Games, 2008 – present.

International Journal of Semantic Computing, 2006 - present.

Journal of Knowledge Engineering and Software Engineering, 1991 - present

International Journal of Science & Technology, 1989 - 1996

3. Technical Committees:

IEEE Technical Committee on Evolutionary Computation, 2009 - present.

IEEE Technical Committee on Computational Intelligence in Games,
2009 - present.

IEEE Technical Committee Member, IEEE Systems, Man, and Cybernetics: Soft
Computing, 2006 - present.

H. Other Professionally Related Activities:

Principal Investigator/Program Director:
(Last, first, middle)

1. Conference Chair Positions:

Track Chair, Computer Science and Engineering, 2011

Conference Co-Chair, IEEE Swarm Intelligence Symposium, St. Louis Missouri, 2008.

Technical Program Co-Chair, World Congress on Computational Intelligence, Hong Kong, China, 2008.

Advisory Board, International Swarm Intelligence Symposium, 2007.

Advisory Board, IEEE 2007 Symposium Series on Computational Intelligence (SSCI-2007).

Program Co-Chair, IEEE Symposium on Multimedia Systems, 2006.

Vice Chair of Multimedia Software Engineering Technology, 2006

Tutorials Chair, 2006, Swarm Intelligence Symposium, Indianapolis Indiana, May, 2006.

Plenary Speakers Chair, 2004 IEEE Conference on Evolutionary Computation, Portland, Oregon, June 19-24, 2004.

Technical Program Chair, 2003 IEEE International Conference on Evolutionary Computation, December 10-13, Canberra, Australia, 2003.

Publicity Chair, 2001 World Congress on Evolutionary Computation, Seoul, Korea, May 27-29, 2001.

Financial Chair, First World Congress on Evolutionary Computation, 1999, Washington, D. C., July 6-10.

Co-Chair of the Technical Program, 1997 IEEE International Conference on Tools for Artificial Intelligence, November 1997, Newport Beach, California.

Co-Chair of the Technical Program, Sixth International Conference on Evolutionary Programming, 1997, Indianapolis Indiana.

Workshop Chair, 7th IEEE International Conference on Knowledge Engineering, 1995.

Principal Investigator/Program Director:
(Last, first, middle)

Co-Chair of the Technical Program, International Conference on Evolutionary Programming, 1995.

Program Vice Chair, 5th International IEEE Conference on Tools for AI, 1993 (Knowledge-Based Systems and Architectures).

Publicity Chair, 3rd International Conference on Tools for AI, 1991 (Co-Chair).

2. Conference Program Committees Served On:

2011 International Conference on Natural Computing.

2011 IEEE International Conference on Awareness Science and Technology (iCAST 2011).

2011 Canadian Artificial Intelligence Conference.

2011 Computer Science and Engineering, (CSE 2011).

2011 Information Reuse and Integration (IRI 2011).

2011 International Conference on Cognitive Science (COGSCI 2011).

2011 Ubiquitous and MultiMedia Applications (UCMA 2011).

2010 IEEE Systems Man and Cybernetics.

2010 American Association of Artificial Intelligence Fall Symposium on Complex Adaptive Systems (AAAI-FS10-CAS).

2010 Conference on Soft Computing and Pattern Recognition (SoCpaR 2010).

2010 Canadian Artificial Intelligence Conference (CanAI 10).

2010 Parallel Processing in Nature (PPSN 10).

2010 Ubiquitous Computing and Multimedia Applications Conference (UCMA 2010).

2010 Information Reuse and Integration (IRI 2010).

Principal Investigator/Program Director:
(Last, first, middle)

2010 IEEE International Conference on Evolutionary Computation (CEC)
2010 AAI Florida AI Research Conference (FLAIRS-23).
2010 AAI Evolutionary Computation in Multi-Agent Systems (ECOMASS).
2010 Biosystem Simulation (BIOSYSCOM).
2010 Software Engineering and Knowledge Engineering (SEKE).
2010 Ubiquitous Computing in Multi-Media Applications (UMMA).
2010 Autonomous Agents and Multi-Agent Systems (AAMAS).
2010 IWACI.
2009 AAI Complex adaptive Systems, Fall Symposium.
2009 International Conference on the Foundation of Digital Games (ICFDG 09).
2009 Computational Intelligence in Games (CIG 09).
2009 American Association of Artificial Intelligence Fall Symposium on Complex Adaptive Systems (AAAI-FS09-CAS).
2009 Congress on Evolutionary Computation (CEC 09).
2009 Evolutionary Computation in Multi-Agent Systems (ECOMASS 09).
2009 IEEE Information Reuse and Integration (IRI 09).
2009 Conference on Soft Computing and Pattern Recognition (SoCpaR 2009).
2009 Parallel Processing in Nature (PPSN 09).
2009 IEEE Congress on Evolutionary Computation (CEC 09).
2009 EVOCOP
2009 Canadian AI Conference (CanAI 09).

Principal Investigator/Program Director:
(Last, first, middle)

- 2008 World Congress on Social Simulation (WCSS 09).
- 2008 World Congress on Social Simulation (WCSS 09 Post Proceedings).
- 2008 IEEE Computational Intelligence in Games (CIG 08).
- 2008 World Congress on Computational Intelligence.
- 2008 World Congress on Multi-Agent Systems.
- 2008 World Congress on Social Simulation
- 2008 Parallel Processing in Nature (PPSN 08).
- 2008 Software Engineering and Knowledge Engineering (SEKE 08).
- 2008 International Conference on Artificial Intelligence Tools (ICTAI 08).
- 2008 IEEE Information Reuse and Integration (IRI 08).
- 2008 Canadian AI Conference (CanAI 08).
- 2008 Autonomous Agents and Multi-Agent Systems (AAMAS 08).
- 2008 IEEE Information Reuse and Integration (IRI 08).
- 2008 Multimedia Ubiquitous Engineering (MUE 08).
- 2008 Workshop in Trust and Reputation management in Massively Distributed Computational Systems (TRAM 08).
- 2007 The 2007 Symposium Series on Computational Intelligence (SSCI-2007).
- 2007 IEEE Information Reuse and Integration (IRI 07).
- 2007 IEEE International Conference on Tools in Artificial Intelligence (ICTAI 07).
- 2007 IEEE International Conference on Knowledge Engineering and Software Engineering.
- 2007 The 2007 Symposium Series on Computational Intelligence (SSCI-2007).

Principal Investigator/Program Director:
(Last, first, middle)

2007 Canadian AI Conference (CanAI 2007).
2007 Joint Conference on Information Systems (Natural Computing Track)
2006 Parallel Processing in Nature IX (PPSN-9).
2006 Canadian AI Conference (CanAI 06).
2006 First World Congress on Social Simulation.
2006 IEEE World Congress on Computational Intelligence
2006 IEEE Swarm Intelligence Conference
2006 IEEE International Joint Conference on Neural Networks
2006 IEEE Information Reuse and Integration
2005 AAAI Florida Artificial Intelligence Conference (FLAIRS)
2005 Canadian AI National Conference.
2004 IEEE International Conference on Tools in Artificial Intelligence
2004 Parallel Processing in Nature
2004 AAAI Florida Artificial Intelligence Conference FLAIRS Conference
2004 AAAI FLAIRS Special Track on Machine Learning
2004 IEEE Congress on Evolutionary Computation
2004 GECCO Conference
2004 IEA/AIE 2004
2003 IEEE Congress on Evolutionary Computation
2003 IEEE Tools for Artificial Intelligence
2003 IEEE Symposium on Swarm Intelligence

Principal Investigator/Program Director:
(Last, first, middle)

2003 AAAI FLAIRS Conference
2003 Genetic and Evolutionary Computation Conference (GECCO)
2003 Foundations of Evolutionary Algorithms
2002 International Conference on Tools for Artificial Intelligence
2002 Multimedia Software Engineering
2002 Genetic and Evolutionary Computation Conference (GECCO)
2002 IEEE World Conference on Computational Intelligence (WCCI)
2002 Conference on Parallel Processing in Nature
2002 Foundations of Evolutionary Algorithms
2001 Genetic and Evolutionary Computation Conference GECCO
2001 Congress on Evolutionary Computation
2000 Congress on Evolutionary Computation
2000 Genetic and Evolutionary Computation Conference GECCO
2000 IEEE Tools for Artificial Intelligence
2000 Foundation of Evolutionary Algorithms (FEA 2000)
2000 Integrated Design and Process Technology
1999 IEEE Tools for Artificial Intelligence
1999 Evolutionary Computational Systems
1999 IEEE International Congress on Evolutionary Computation
1999 Genetic and Evolutionary Computation Conference (GECCO)
1998 Second International Conference on Evolutionary Algorithms and Artificial

Principal Investigator/Program Director:
(Last, first, middle)

Life (SEAL)

1998 Parallel Processing in Nature (PPSN)

1998 5th International Conference on Parallel Processing in Nature

1998 7th International Conference on Evolutionary Programming

1998 IEEE International Conference on Evolutionary Computation

1998 International Conference on Computers and Information Processing (ICCI)

1997 International Conference on Genetic Algorithms

1996 COMPSAC

1996 8th International Conference on Software Engineering and Knowledge Engineering.

1995 4th International Golden West Conference on Intelligent Systems.

1995 International Conference on Tools with Artificial Intelligence.

1995 7th International Conference on Software Engineering and Knowledge Engineering.

1995 IEEE Conference on Evolutionary Computing.

1995 1st IEEE International Symposium on Intelligence in Neural and Biological Systems.

1995 7th International Conference on Computing and Information.

1994 6th IEEE International Conference on Software Engineering and Knowledge Engineering.

1994 6th International Conference on Tools for Artificial Intelligence.

1993 4th Annual Conference on Artificial Intelligence, Simulation, and Planning in High Autonomy Systems: Integrating Virtual Reality and Model-Based Environments.

Principal Investigator/Program Director:
(Last, first, middle)

1993 5th IEEE International Conference on Software Engineering and Knowledge Engineering.

1992 4th IEEE International Conference on Computers and Information.

1991 3rd International Conference on Tools for AI.

1990 2nd International Conference on Software Engineering and Knowledge Engineering.

2nd International Conference on Tools for AI, 1990.

3. Other Conference Committee Served On

Computer Science Conference in Honor of C. V. Ramamoorthy, 2006.

4. Session Chair:

Agent Systems Modelling and Methodologies III, IEEE/WIC/ACM International Conferences on Web Intelligence and Intelligent Agent Technology.

Autonomy Oriented Computing III, IEEE/WIC/ACM International Conferences on Web Intelligence and Intelligent Agent Technology.

Distributed Problem Solving I, IEEE/WIC/ACM International Conferences on Web Intelligence and Intelligent Agent Technology.

Cultural Algorithms, IEEE World Congress, 2008.

Swarm Intelligence, IEEE Spring Symposium, 2007.

Cultural Algorithms and Systems, Congress on Evolutionary Computation, 2006, Vancouver, Canada (Special Session Organizer).

IEEE Swarm Intelligence Symposia, Special Session Chair for Cultural Algorithms.

“Model Sensitivity”, Chair, International Conference on Geo-Computation 2005.

“Machine Learning II”, Chair, IEEE ICTAI 2004, Boca Raton, FL, November 15-17, 2004.

Principal Investigator/Program Director:
(Last, first, middle)

“Applications of Cultural Algorithms in Industry and Engineering”, Chair, IEEE Congress on Evolutionary Computation, Portland, OR, June 19-23, 2004.

“Cultural Algorithms”, Chair, IEEE Congress on Evolutionary Computation, Canberra, Australia, 2003.

“New Models”, Co-Chair with Tomohiro Yoshikawa, IEEE Systems, Man, and Cybernetics Conference, Washington, D.C., 2003.

“Sustainable Mobility Perspective III”, Workshop on Mobility in a Sustainable World: A Complex Systems Approach, University of Michigan, Ann Arbor, Michigan, June 20-22, 2003.

“Real World Applications of Evolutionary Computation II”, World Congress on Computational Intelligence, Honolulu, Hawaii, 2002.

“Evolution-Based Approaches to Multi-Agent Systems I (co-chair with N. Rychtycky), World Congress on Computational Intelligence, Honolulu, Hawaii, 2002.

“Evolution-Based Approaches to Multi-Agent Systems II (co-chair with N. Rychtycky), World Congress on Computational Intelligence, Honolulu, Hawaii, 2002.

“Artificial Life, Adaptive Behavior, and Agents”, GECCO 2001, San Francisco, CA.

“Real-World Applications”, Genetic and Evolutionary Computation Conference (GECCO) 2001, San Francisco, CA.

“Multi-Agent Systems and Cultural Algorithms”, 2000 Congress on Evolutionary Computation.

“Agent-Based Learning”, IEEE Tools with Artificial Intelligence, 1999.

“Cultural Algorithms I”, IEEE International Congress on Evolutionary Computation, 1999.

“Cultural Algorithms II”, IEEE International Congress on Evolutionary Computation, 1999.

“Evolution-Based Approaches to Engineering Design”, Evolutionary

Principal Investigator/Program Director:
(Last, first, middle)

Programming Conference, 1998, organizer.

"Selection Strategies I", International Conference on Genetic Algorithms, 1997

"Evolutionary Learning in Hierarchical Systems", co-chair with Michael Conrad,
Evolutionary Programming Conference, 1996, co-organizer.

"Artificial Life", 2nd IEEE Conference on Evolutionary Computation, 1995.

"Machine Learning", 2nd IEEE Conference on Evolutionary Computation, 1995

"Evolution Based Approaches to Software Engineering", Panel Session,
International Conference on Software Engineering and Knowledge Engineering,
1995.

"Neural Networks", 7th International Conference on Tools for Artificial
Intelligence 1994.

"Cultural Algorithms", 3rd Annual Conference On Evolutionary Programming,
1994.

"Evolutionary Problem Solving in Hierarchical Systems" at Second
International Conference on Evolutionary Programming, 1993.

"AI Knowledge Based Architectures", 5th International Conference on Tools for
Artificial Intelligence, 1993.

"Software Reuse", 5th International Conference on Software Engineering and
Knowledge Engineering, 1993.

"Interactive Systems", 2nd International Conference on Tools for Artificial
Intelligence, 1990.

"Machine Learning", 2nd International Conference on Tools for Artificial
Intelligence, 1990.

"Query Languages", 1st International Conference on Knowledge Engineering and
Software Engineering, 1989.

4. Seminar Organization:

Principal Investigator/Program Director:
(Last, first, middle)

Faculty mentor for two Imagine Cup Game Projects.

Faculty Advisor for WSU Gaming Club 2008-2010.

Faculty Advisor for the Wayne State University student chapter of the ACM,
1985-1988.

Contributor to the ACM Professional Development Seminar Handbook, 1986; An
Outline for a course on Expert Systems.

Principal Investigator/Program Director:
(Last, first, middle)