PerMIS 2002 Conference Schedule

Tuesday, August 13, 2002

Registration starts at 7.30 A. M.

Green Auditorium

8:15-8:20 **Welcome by Workshop Chairs**
8:20-8:45 **Dale Hall, MEL Director: *Introduction***
8:45-9:15 **Research Problems of Performance Measuring**
A. Meystel, Drexel University and National Institute of Standards & Technology

9:15 – 9:30 – Coffee Break

9:30 – 12:00 – Morning Sessions 1M

Session 1M1 – Performance Metrics – Lecture Room A

Chairs: S. Agrawal, H. Yanco

1. ***Performance Metrics for Intelligent Systems: An Engineering Perspective***
   R. Gao, Purdue University
   L. Tsoukalas, Purdue University
2. ***RCS Based Hardware-in-the-loop Intelligent System Design & Performance Measurement***
   S. Ananthakrishnan, Pathway Technologies
   S. Agrawal, University of Delaware
   R. Venugopal, Pathway Technologies, Inc.
   M. Demeri, Ford Research Lab
3. ***Evaluating the Performance of Assistive Robotic Systems***
   H. Yanco, University of Massachusetts
4. ***Measuring Classifier Intelligence***
   J. DeLeo, National Institutes of Health
5. ***Problems of Performance Measurement in Locally-Organized Systems***
   V. Stefanuk, Russian Academy of Science

Session 1M2 – Performance of Multiple Agents - Lecture Room B

Chairs: E. Grant, M. Fields

1. ***A Control Scheme for Measure of Performance and Efficiency of Tactical Cooperative Robots***
   A. Shirkohodaei, Tennessee State University
2. ***Competitive Relative Performance Evaluation of Neural Controllers for Competitive Game Playing with Teams of Real Mobile Robots***
   A. Nelson, North Carolina State University
   E. Grant, North Carolina State University
   T. Henderson, University of Utah
3. ***Representing Ground Robotic Systems in Battlefield Simulations***
   M. Fields, Army Research Laboratory
4. ***NICCI: A Multiagent Cognitive Formation***
   E. Davidowicz, US Army, CECOM

12:00 – 1:00 – Lunch (and **Meeting of Advisory Board**)

1:00 – 2:00 – Plenary Lecture I-1 – Green Auditorium

James Albus, National Institute of Standards & Technology
Metrics and Performance Measures for Intelligent Unmanned Ground Vehicles

2:00 – 2:15 – Coffee Break

2:15 – 4:45 – Afternoon Sessions 1P

Session 1P1 – Performance of Mobility Systems – Lecture Room A

Chairs: E. Messina, Y. Zhang

1. ***A Simulation Framework for Evaluating Mobile Robots***
   S. Balakirsky, National Institute of Standards & Technology
   E. Messina, National Institute of Standards & Technology
2. ***Evaluating the Performance of a Vehicle Pose Measurement System***
   H. Scott, National Institute of Standards & Technology
   S. Szabo, National Institute of Standards & Technology
3. ***Performance Evaluation of Road Detection and Tracking Algorithms***
   D. Dufourd, DGA, Centre Technique d'Arcueil
   A. Digalarrondo, DGA, Gentre Technique d'Arcueil
4. ***A Platform for Studying Locomotion Systems: Modular Reconfigurable Robots***
   Y. Zhang, Palo Alto Research Center
   C. Eldershaw, Palo Alto Research Center
   M. Yim, Palo Alto Research Center
   K. Roufas, Palo Alto Research Center
   D. Duff, Palo Alto Research Center

Session 1P2 – Performance of Planning Systems – Lecture Room B

Chairs: A. Meystel, W. Van Wezel

1. ***Performance of Planning Systems***
   A. Meystel, Drexel University, and *National Institute of Standards & Technology*
2. ***Lower Bounds for Evaluating Schedule Performance in Flexible Job Shops***
   I. Kacem, Laboratoire d'Automatique et Informatique de Lille
   S. Hammadi, Laboratoire d'Automatique et Informatique de Lille
   P. Borne, Laboratoire d'Automatique et Informatique de Lille
3. ***Performance Characteristics of Planning Actors***
   W. Van Wezel, University of Groningen
   R. Jorna, University of Groningen
4. ***Global Optimization via SPSA***
   J. Maryak, John Hopkins University
   D. Chin, John Hopkins University

4:45 – 5:00 – Coffee Break

5:00 – 6:00 – General Discussion Panel 1 – Green Auditorium

What is the role of Ontology in Performance Evaluation?

Chairs: L. Pouchard, Oak Ridge National Laboratory
C. Schlenoff, National Institute of Standards & Technology

Participants: L. Pouchard, Oak Ridge National Laboratory
C. Schlenoff, National Institute of Standards & Technology
E. Dawidowicz, US Army, CECOM
M. Gruninger, National Institute of Standards and Technology
L. Welsch, National Institute of Standards and Technology
A. Meystel, Drexel University and National Institute of Standards & Technology

7:00 – 10:30 – **Reception** (At the Hotel)

Special presentation *Humanoids as a Testbed for Measuring Performance* with videoclips from RoboCup2002, Professor Minoru Asada, Osaka University, Japan

Wednesday, August 14, 2002

8:00 – 9:00 – Plenary Lecture II-1 – Green Auditorium

David B. Fogel, Natural Selection, Inc.
Evolving Solutions that are Competitive with Humans

9:00 – 9:30 – Coffee Break

9:30 – 12:00 – Morning Sessions 2M

Session 2M1 – Uncertainty of Representation I – Lecture Room A

Chairs: C. Landauer, J. Gunderson

1. ***Evaluation Methods for Human-System Performance of Intelligent Systems***
   J. Scholtz, National Institute of Standards and Technology
2. ***Lifelike Robotic Collaboration Requires Lifelike Information Integration***
   R. Cottam, The Evolutionary Processing Group
   W. Ranson, The Evolutionary Processing Group
   R. Vouncyx, The Evolutionary Processing Group
3. ***Integrating Effective Planning Horizons into an Intelligent Systems Architecture***
   J. Gunderson, Gunderson & Gunderson, Inc.
   L. Gunderson, Gunderson & Gunderson, Inc.
4. ***Mobile Robot Pose Tracking for Performance Analysis***
   A. Lytle, National Institute of Standards and Technology
   K. Saidi, National Institute of Standards and Technology
   W. Stone, National Institute of Standards and Technology
   M. Shneier, National Institute of Standards and Technology
5. ***An Uncertainty Propagation Architecture for the Localization Problem***
   A. Clerentin, Centre de Robotique, d'Electrotechnique et d'Automatique
   L. Delahoche, Centre de Robotique, d'Electrotechnique et d'Automatique
   E. Brassart, Centre de Robotique, d'Electrotechnique et d'Automatique
   C. Cauchois, Centre de Robotique, d'Electrotechnique et d'Automatique

Session 2M2 – Performance of Robots in Hazardous Domains – Lecture Room B

Chairs: A. Jacoff, C. Norman

1. ***Lessons Learned: Experiences from the Rescue Robot Competition at RoboCup 2002***
   A. Jacoff, National Institute of Standards & Technology
   B. Weiss, National Institute of Standards & Technology
2. ***Derived Performance Metrics and Measurements Compared to Field Experience for the Packbot***
   T. Frost, iRobot
   C. Norman, iRobot
   S. Pratt, iRobot
   B. Yamauchi, iRobot
   B. McBride, South West Research Institute
   G. Peri, South West Research Institute
3. ***Intelligent Robots for Use in Hazardous DOE Environments***
   D. Bruemmer, INEEL
   J. Marble, INEEL
   D. Dudenhoeffer, INEEL
   M. Anderson, INEEL
   M. McKay, INEEL

12:00 – 1:00 – Lunch

1:00 – 2:00 Plenary II-2 – Green Auditorium

Walter Freeman, University of California, Berkeley
On Communicating with Semantic Machines

2:00 – 2:15 – Coffee Break

2:15 – 4:45 – Afternoon Sessions 2P

Session 2P1 – Modeling Intelligence – Lecture Room A

Chairs: L. Arata, S. Wallace

1. ***Modeling Interactive Intelligences***
   L. Arata, Quinnipiac University
2. ***Structured Approach to the Intelligent System Design***
   L. Polyakov, Globe Institute of Technology
3. ***Semiotic Fundamentals of Information Processing in Human Brain***
   L. Perlovsky, Air Force Research Laboratory
4. ***Intelligence and Behavioral Boundaries***
   S. Wallace, University of Michigan
   J. Laird, University of Michigan

Session 2P2 – Modeling of Mind – Lecture Room B

Chairs: S. Adams, R. Cottam

1. ***Beyond the Turing Test: Performance Metrics for Evaluating a Computer Simulation of the Human Mind***
   N. Alvarado, IBM Corporation
   S. Adams, IBM Corporation
   S. Burbeck, IBM Corporation
   C. Latta, IBM Corporation
2. ***Experimental Evaluation of Subject Matter Expert-Oriented Knowledge Base Authoring Tools***
   R. Schrag, SRI International
   M. Pool, IET, Inc
   V. Chaudhri, SRI International
   R. Kahlert, Cycorp, Inc.
   J. Powers, IET, Inc
   P. Cohen, University of Massachussetts
   J. Fitzgerald, IET, Inc
   S. Mishra SRI International
3. ***A Task Domain for Combining and Evaluating Robotics and Cognitive Modeling Techniques***
   N. Cassimatis, Naval Research Laboratory
   G. Trafton, Naval Research Laboratory
   A. Schultz, Naval Research Laboratory
   M. Bugajska, Naval Research Laboratory
   W. Adams, Naval Research Laboratory
4. ***Modeling of Self and Consciousness: Further Perspectives of AI Research***
   R. Sanz, Universidad Politecnicia de Madrid, Spain
   A. Meystel, Drexel University

4:45 – 5:00 – Coffee Break

5:00 – 6:00 – General Discussion Panel 2 – Green Auditorium

Information Access Technology: Does it Concern Mechanisms of Mind and Intelligence?

Chairs: M. Herman, National Institute of Standards & Technology
Participants: A. Meystel, Drexel University, National Institute of Standards & Technology
J. Cugini, National Institute of Standards & Technology
J. Garofolo, National Institute of Standards & Technology
J. Phillips, National Institute of Standards & Technology and DARPA

6:00 – 7:30 – Break

7:30 – 10:30 Banquet (At the Hotel)

Banquet Speech

Lofti Zadeh, University of California, Berkeley

In Quest of Performance Metrics for Intelligent Systems – A Challenge that Cannot be Met with Existing Methods

Thursday, August 15, 2002

8:00 – 9:00 – Plenary Lecture III-1 – Green Auditorium

John Blitch, Center for Robot-Assisted Search and Rescue

Robot Intelligence for Tunneling and Confined Space Search and Rescue

9:00 – 9:30 – Coffee Break

9:30 – 12:00 – Morning Sessions 3M

Session 3M1 – Measuring Intelligence – Lecture Room A

Chairs: J. Horst, C. Schlenoff

1. ***Metrics, Schmetrics! How the Heck do you Determine a UAV's Autonomy Anyway?***
   B. Clough, Air Force Research Laboratory, Wright-Patterson AFB
2. ***Towards Measuring the Performance of Architectural Components of Autonomous Vehicular Systems***
   C. Schlenoff, National Institute of Standards & Technology
   L. Welsch, National Institute of Standards & Technology
   R. Madhavan, National Institute of Standards & Technology
   N. Zimmerman, National Institute of Standards & Technology
3. ***A Native Intelligence Metric for Artificial Systems***
   J. Horst, National Institute of Standards & Technology
4. ***Dimensions of Intelligent Systems***
   G. Berg-Cross, SLAG, Inc.

Session 3M2 – Grouping: A Core Procedure of Intelligence – Lecture Room B

Chairs: S. Ramaswamy, R. Bialczak

1. ***A New Classification of Information: A Step on the Road to Interpretability***
   L. Reeker, National Institute of Standards & Technology
   A. Jones, National Institute of Standards & Technology
2. ***Refactored characteristics in Intelligent Computing Systems***
   C. Landauer, The Aerospace Corporation
   K. Bellman, The Aerospace Corporation
3. ***Software Design and Testing using Petri Nets: A Case Study Using a Distributed Simulation Software System***
   S. Ramaswamy, Tennessee Technological University
   R. Neelakanta, Tennessee Technological University
4. ***Comparison Methodology for Robotic Operator Control Units***
   R. Bialczak, TSI, Inc.
   J. Nida, TSI, Inc.
   B. Pettitt, TSI, Inc.
   M. Kalphat, STRICOM

12:00 – 1:00 – Lunch

1:00 – 2:00 – Plenary Lecture III-2 – Green Auditorium

Bernie Zeigler, University of Arizona
Scalability Considerations in Measuring Intelligence: Insights from Modeling and Simulation

2:00 – 2:15 – Coffee Break

2:15 – 4:45 Afternoon Sessions 3P

Session 3P1 – Uncertainty in Representation II – Lecture Room A

Chairs: D. Chin, R. Maarfi

1. ***Multiple Neural Network Model Interpolation***
   D. Chin, Johns Hopkins University, Applied Physics Laboratory
   A. Biondo, Johns Hopkins University, Applied Physics Laboratory
2. ***A Three-Tier Communication and Control Structure for the Distributed Simulation of an Automated Highway System***
   R. Maarfi, Tennessee Technological University
   E.L. Brown, Tennessee Technological University
   S. Ramaswamy, Tennessee Technological University
3. ***Tessellating and Searching in Uncertain State Spaces***
   A. Meystel, Drexel University
   A. Bathija, Drexel University
4. ***Autonomy and Socialization***
   K. Bellman, The Aerospace Corporation
   C. Landauer, The Aerospace Corporation

Session 3P2 – Towards Universal Planning/Control Systems – Lecture Room B

Chairs: A. Meystel, P. Davis

1. ***A Sketch of Multi-resolutional Decision Support Systems Theory***
   A. Meystel, Drexel University and National Institute of Standards & Technology
2. ***Motivated Metamodels***
   P. K. Davis, RAND
   J. H. Bigelow, RAND
3. ***On the Role of Quality Attributes in Specifying Software/System Architecture for Intelligent Systems***
   H. Sarjoughian, University of Arizona
4. ***Uncertain Predictions of Flow and Transport in Random Porous Media: The Implications for Process Planning and Control***
   S. Orr, MRDS, Inc.

4:45 – 5:00 – Coffee Break

5:00 – 6:00 – General Discussion Panel 3 – Green Auditorium

Government Support of Research in Performance Evaluations

Chair: E. Messina, National Institute of Standards & Technology

Participants: D. Gage, DARPA
J. Albus, National Institute of Standards & Technology
C. Shoemaker, US Army, ARL
E. Dawidowicz, US Army, CECOM
B. Clough, WPAFB
F. Darema, National Science Foundation
J. Overholt, TACOM