BRIEF CONTENTS

VOLUME 1

Ordering Information ......................................................... iv
Foreword ................................................................. v
IJCAI-01 Conference Organization ................................ vi
Local Arrangements Committee ...................................... vi
Program Committee ....................................................... vii
Corporate Sponsorship ................................................... vii
IJCAII Organization ........................................................ viii
AAAI Organization ............................................................ ix
IJCAI-01 Awards ............................................................... x
Invited Speakers ............................................................... x
Panels ...................................................................... x
IJCAI-01 Reviewers ............................................................ xi
Contents ...................................................................... xv
  Knowledge Representation and Reasoning .............................. 1
  Search, Satisfiability, and Constraint Satisfaction Problems .......... 231
  Cognitive Modeling ......................................................... 367
  Planning ................................................................... 413
  Games ...................................................................... 521
  Diagnosis ................................................................ 541
  Logic Programming and Theorem Proving ............................ 587
  Uncertainty and Probabilistic Reasoning ............................. 663

VOLUME 2

Ordering Information ......................................................... iv
IJCAI-01 Conference Organization ................................ v
Local Arrangements Committee ...................................... v
Program Committee ....................................................... vi
IJCAII Organization ............................................................ vii
Contents ...................................................................... ix
  Neural Networks and Genetic Algorithms .......................... 761
  Machine Learning and Data Mining ................................. 815
  Case-based Reasoning .................................................. 985
  Multi-Agent Systems ...................................................... 1017
  Natural Language Processing and Information Retrieval .......... 1225
  Robotics and Perception ................................................ 1327
  Web Applications .......................................................... 1433
  Invited Papers .............................................................. 1465
  Author Index ............................................................... 1494
CONTENTS

VOLUME 2

NEURAL NETWORKS AND GENETIC ALGORITHMS

NEURAL NETWORKS
Knowledge Extraction from Local Function Networks
Kenneth McGarry, Stefan Wermter, and John Maclntyre 765

Violation-Guided Learning for Constrained Formulations in Neural-Network Time-Series Predictions
Benjamin W. Wah and Minglun Qian 771

Mobile Robot Learning of Delayed Response Tasks through Event Extraction: A Solution to the Road Sign Problem and Beyond
Fredrik Linaker and Henrik Jacobsson 777

NORN Finance Forecaster — A Neural Oscillatory-based Recurrent Network for Finance Prediction
Raymond S. T. Lee and James N. K. Liu 783

NEURAL NETWORKS AND GENETIC ALGORITHMS
Genetic Algorithm based Selective Neural Network Ensemble
Zhi-Hua Zhou, Jian-Xin Wu, Yuan Jiang, and Shi-Fu Chen 797

A General Updating Rule for Discrete Hopfield-Type Neural Network with Delay
Shenhan Qiu, Eric C. C. Tsang, Daniel S. Yeung, and Xizhao Wang 799

MACHINE LEARNING AND DATA MINING

REINFORCEMENT LEARNING/ROBOTICS
Multi-Agent Systems by Incremental Gradient Reinforcement Learning
Alain Dutech, Olivier Buffet, and François Charpillet 833

Robot Weightlifting By Direct Policy Search
Michael T. Rosenstein and Andrew G. Barto 839

INDUCTIVE LOGIC PROGRAMMING
OI-implication: Soundness and Refutation Completeness
Floriana Esposito, Nicola Fanizzi, Stefano Ferilli, and Giovanni Semeraro 847

The Levelwise Version Space Algorithm and its Application to Molecular Fragment Finding
Luc De Raedt and Stefan Kramer 853

PROBABILISTIC LEARNING
Active Learning for Structure in Bayesian Networks
Simon Tong and Daphne Koller 863

Probabilistic Classification and Clustering in Relational Data
Ben Taskar, Eran Segal, and Daphne Koller 870

MACHINE LEARNING AND DATA MINING

Adaptive Web Navigation for Wireless Devices
Corin R. Anderson, Pedro Domingos, and Daniel S. Weld 879

Using Text Classifiers for Numerical Classification
Sofia A. Macskassy, Haym Hirsh, Aruna Baenjee, and Aynur A. Dayanik 885

Faster Association Rules for Multiple Relations
Siegfried Nijssen and Joost Kok 891

A Simple Feature Selection Method for Text Classification
Pascal Soucy and Guy W. Mineau 897

Link Analysis, Eigenvectors and Stability
Andrew Y. Ng, Alice X. Zheng, and Michael I. Jordan 903

Active Learning for Class Probability Estimation and Ranking
Maytal Saar-Tsechansky and Foster Provost 911

MACHINE LEARNING

Learning on the Phase Transition Edge
Alessandro Serra, Atilio Giordana, and Lorenza Saissa 921
KNOWLEDGE ACQUISITION
Knowledge Analysis on Process Models
Jihie Kim and Yolanda Gil ............................ 935
Integrating Expectations from Different Sources to Help End Users Acquire Procedural Knowledge
Jim Blythe ............................................. 943

REINFORCEMENT LEARNING
R-MAX — A General Polynomial Time Algorithm for Near-Optimal Reinforcement Learning
Ronen I. Brafman and Moshe Tennenholtz .................. 953
From Q(λ) to Average Q-learning: Efficient Implementation of an Asymptotic Approximation
Frédéric Garcia and Florent Serre ....................... 959
Exploiting Multiple Secondary Reinforcers in Policy Gradient Reinforcement Learning
Greg Grudic and Lyle Ungar ........................... 965

MACHINE LEARNING AND DATA MINING
The Foundations of Cost-Sensitive Learning
Charles Elkan .......................................... 973
Mining Soft-Matching Rules from Textual Data
Un Yong Nahm and Raymond J. Mooney .................. 979

CASE-BASED REASONING
Bridging the Lesson Distribution Gap
Minimizing Dialog Length in Interactive Case-Based Reasoning
David McSherry .................................. 993
SiN: Integrating Case-based Reasoning with Task Decomposition
Héctor Muñoz-Avila, David W. Aha, Dana S. Nau, Rosina Weber, Len Breslow, and Fusun Yamal ....... 999
A Distributed Case-Based Query Rewriting
Maurizio Panti, Luca Spalazzi, and Lori Penserini .......... 1005
Using Case-Base Data to Learn Adaptation Knowledge for Design
Jacek Jarmulak, Susan Craw, and Ray Rowe ............... 1011

MULTI-AGENT SYSTEMS

MULTI-AGENT GAMES
Rational and Convergent Learning in Stochastic Games
Michael Bowling and Manuela Veloso .................... 1021
Multi-Agent Influence Diagrams for Representing and Solving Games
Daphne Koller and Brian Milch .......................... 1027

MULTI-AGENT SYSTEMS
Multiagent Coordination by Stochastic Cellular Automata
T. D. Barfoot and G. M. T. D'Eveluerato ............... 1037
Identifying the Scope of Modeling for Time-Critical Multiagent Decision-Making
Sanguk Noh and Piotr J. Gmytrasiewicz ................. 1043

LIFELIKE CHARACTERS
A Layered Brain Architecture for Synthetic Creatures
Damian Isla, Robert Burke, Marc Downie, and Bruce Blumberg .................. 1051
Behavior Planning for a Reflexive Agent
Berardina De Carolis, Catherine Pelachaud, Isabella Poggi, and Fiorella de Rosis ............... 1059

COOPERATIVE BEHAVIOR
Rational Competitive Analysis
Moshe Tennenholtz ................................ 1067
Learning Procedural Knowledge to Better Coordinate Andrew Garland and Richard Alterman ......... 1073

MULTI-AGENT SYSTEMS
Fair Imposition
Yoav Shoham and Moshe Tennenholtz ..................... 1083
Robust Multi-unit Auction Protocol against False-name Bids
Makoto Yokoo, Yoko Sakurai, and Shigeo Matsubara ...... 1089
Bundle Design in Robust Combinatorial Auction Protocol against False-name Bids
Makoto Yokoo, Yoko Sakurai, and Shigeo Matsubara .... 1095
CABOB: A Fast Optimal Algorithm for Combinatorial Auctions
Tuomas Sandholm, Subhash Suri, Andrew Gilpin, and David Levine .................................. 1102
A Software architecture for dynamically generated adaptive Web stores
Liliana Ardissono, Anna Goy, Giovanna Petrone, and Marino Segnan .................................. 1109
Modularity and Design in Reactive Intelligence
Joanna J. Bryson and Lynn Andrea Stein ................ 1115
Reflective Negotiating Agents for Real-Time Multisensor Target Tracking
Leen-Kiat Soh and Costas Tsiatsoulis .................... 1121
Stable Strategies for Sharing Information among Agents
Rina Azoulay-Schwartz and Sarit Kraus ................ 1128
CAST: Collaborative Agents for Simulating Teamwork
John Yen, Jianwen Yin, Thomas R. Joerger, Michael S. Miller, Diansiang Xu, and Richard A. Voze .... 1135
Heterogeneity in the Coevolved Behaviors of Mobile Robots: The Emergence of Specialists
Mitchell A. Potter, Lisa A. Meeden, and Alan C. Schultz ........................................ 1337
Agent-Based Control for Object Manipulation with Modular Self-reconfigurable Robots
Jeremy Kubica, Arancha Casal, and Tad Hogg .................................................. 1344

VISION
Learning Iterative Image Reconstruction
Sven Behnke ........................................ 1353
A Hierarchy of Boundary-based Shape Descriptors
Richard Meathrel and Antony Galton. .......................... 1359
Resolving Ambiguities to Create a Natural Computer-Based Sketching Environment
Christine Alvarado and Randall Davis ................. 1365

VISION I
VAMBAM: View and Motion-based Aspect Models for Distributed Omnidirectional Vision Systems
Hiroshi Ishiguro and Takuichi Nishimura ................. 1375
Efficient Interpretation Policies
Ramana Isukapalli and Russell Greiner .................. 1381

VISION II
Perceptual Texture Space Improves Perceptual Consistency of Computational Features
Huizhong Long and Wee Kheng Leow ..................... 1391
Fuzzy Conceptual Graphs for Matching Images of Natural Scenes
Philippe Mulhem, Wee Kheng Leow, and Yoong Keok Lee ............. 1397

PERCEPTION
Discriminating Animate from Inanimate Visual Stimuli
Brian Scassellati ..................................... 1405
An Hybrid Approach to Solve the Global Localization Problem For Indoor Mobile Robots Considering Sensor's Perceptual Limitations
Leonardo Romero, Eduardo Morales, and Enrique Sucar ........... 1411
Multimodal Integration — A Biological View
Michael H. Coen .................................... 1417
Real-Time Auditory and Visual Multiple-Object Tracking for Humanoids
Kazuhiro Nakadai, Ken-ichi Hidai, Hiroshi Mizoguchi, Hiroshi G. Okuno, and Hiroaki Kitano ......................... 1425

WEB APPLICATIONS
WEB APPLICATIONS
A Web-based Intelligent System for the Daya Bay Contingency Plan in Hong Kong
James Liu, Raymond Lee, and Jane You ................. 1437
ExpertClerk: Navigating Shoppers' Buying Process with the Combination of Asking and Proposing
Hideo Shimazu ........................................ 1443

WEB SEARCH
Preference-Based Configuration of Web Page Content
Carmel Domshlak, Ronen I. Brafman, and Solomon E. Shimony .... 1451
Keyword Spices: A New Method for Building Domain-Specific Web Search Engines
Satoshi Oyama, Takashi Kokubo, Toru Ishida, Teruhiro Yamada, Yasuhiro Kitamura ............... 1457

INVITED PAPERS
Multimodal Interaction: A new focal area for AI
Philip R. Cohen .................................... 1467
Plausibility Measures: A General Approach For Representing Uncertainty
Joseph Y. Halpern .................................. 1474
Robust Translation of Spontaneous Speech: A Multi-Engine Approach
Wolfgang Wahlster .................................. 1484

Author Index ........................................ 1494