ICML 2005

Program (updated July, 28)

*Note: all papers will be presented both orally and in the evening poster sessions. Talks are allocated 20 minutes for presentation and 5 minutes for questions.

Monday August, 8

Monday August 8, 2005

08:40 **Opening**

09:00 **Invited Talk :** Dirichlet Processes, Chinese Restaurant Processes, and all that
Michael Jordan, UC Berkeley

10:00 **ICML 2005 Best Paper:** [1] A Support Vector Method for Multivariate Performance Measures
Thorsten Joachims, Cornell University

10:30 *Coffee Break [Aula]*

11:00-12:40

Session 1	Session 2	Session 3	Session 4
Probabilistic Approaches 1	**Reinforcement Learning 1**	**Decision Tree Learning**	**Dimensionality Reduction**
ICML 2005 distinguished student paper: [2] Efficient discriminative learning of Bayesian network classifier via Boosted Augmented Naive Bayes *Yushi Jing, Vladimir Pavlovic, James M. Rehg*	[6] A Causal Approach to Hierarchical Decomposition of Factored MDPs *Anders Jonsson, Andrew Barto*	[10] Tempering for Bayesian C&T *Nicos Angelopoulos, James Cussens*	[14] Supervised dimensionality reduction using mixture models *Sajama, Alon Orlitsky*
[3] Discriminative versus Generative Parameter and Structure Learning of Bayesian Network Classifiers *Franz Pernkopf, Jeff Bilmes*	[7] Identifying Useful Subgoals in Reinforcement Learning by Local Graph Partitioning *Ozgur Simsek, Alicia Wolfe, Andrew Barto*	[11] Generalized Skewing for Functions with Continuous and Nominal Attributes *Soumya Ray, David Page*	[15] Statistical and Computational Analysis of Locality Preserving Projection *Xiaofei He, Deng Cai, Wanli Min*
[4] Learning Class-Discriminative Dynamic Bayesian Networks *John Burge, Terran Lane*	[8] Learning Predictive State Representations in Dynamical Systems Without Reset *Britton Wolfe, Michael R. James, Satinder Sing*	[12] Why Skewing Works: Learning Difficult Boolean Functions with Greedy Tree Learners *Bernard Rosell, Lisa Hellerstein, Soumya Ray, David Page*	[16] Large Margin Non-Linear Embedding *Alexander Zien, Joaquin Quinonero-Candela*
[5] Harmonic mixtures: combining mixture models and graph-based methods for inductive and scalable semi-supervised learning *Xiaojin Zhu, John Lafferty*	[9] Learning Predictive Representations from a History *Eric Wiewiora*	[13] Closed-form dual perturb and combine for tree-based models *Pierre Geurts, Louis Wehenkel*	[17] Independent Subspace Analysis Using Geodesic Spanning Trees *Barnabas Poczos, Andras Lorincz*

12:40-14:15 *Lunch*

Monday August 8, 2005

14:15-15:55

Session 5	Session 6	Session 7	Session 8
Probabilistic Approaches 2	**Reinforcement Learning 2**	**Learning and Bioinformatics**	**Gaussian Processes**
[18] Computational Aspects of Bayesian Partition Models *Mikko Koivisto, Kismat Sood*	[22] Exploration and Apprenticeship Learning in Reinforcement Learning *Pieter Abbeel, Andrew Y. Ng*	[26] New Kernels for Protein Structural Motif Discovery and Function Classification *Chang Wang, Stephen Scott*	[30] Learning Gaussian Processes from Multiple Tasks *Kai Yu, Volker Tresp, Anton Schwaighofer*
[19] Hierarchic Bayesian Models for Kernel Learning *Mark Girolami, Simon Rogers*	[23] Bayesian Sparse Sampling for On-line Reward Optimization *Tao Wang, Daniel Lizotte, Michael Bowling, Dale Schuurmans*	[27] Large Scale Genomic Sequence SVM Classifiers *Sören Sonnenburg, Gunnar Rätsch, Bernhard Schölkopf*	[31] Preference Learning with Gaussian Processes *Wei Chu, Zoubin Ghahramani*
[20] Expectation Maximization Algorithms for Conditional Likelihoods *Jarkko Salojärvi, Kai Puolamäki, Samuel Kaski*	[24] Bounded Real-Time Dynamic Programming: RTDP with monotone upper bounds and performance guarantees *H. Brendan McMahan, Maxim Likhachev, Geoffrey J. Gordon*	[28] Predicting Protein Folds with Structural Repeats Using a Chain Graph Model *Yan Liu, Eric Xing, Jaime Carbonell*	[32] Heteroscedastic Gaussian Process Regression *Quoc V. Le, Alex J. Smola, Stephane Canu*
[21] Compact approximations to Bayesian predictive distributions *Edward Snelson, Zoubin Ghahramani*	[25] Fite Time Bounds for Sampling Based Fitted Value Iteration *Csaba Szepesvari, Remi Munos*	[29] Multi-Class protein fold detection using adaptive codes *Eugene Ie, Jason Weston, William Stafford Noble, Christina Leslie*	

15:55-16:25 *Coffee Break [Aula]*

16:25-18:10

Session 9	Session 10	Session 11	Session 12
Graphed Based Data	**Ensemble Methods 1**	**Applications 1**	**Learning and Vision 1**
ICML 2005 distinguished student paper: [33] Semi-supervised Graph Clustering: A Kernel Approach *Brian Kulis, Sugato Basu, Inderjit Dhillon, Raymond Mooney*	[37] Ensembles of Biased Classifiers *Rinat Khoussainov, Andreas Hess, Nicholas Kushmerick*	[41] A Graphical Model for Chord Progressions Embedded in a Psychoacoustic Space *Jean-Francois Paiement, Douglas Eck, Samy Bengio, David Barber*	[45] Non-Negative Tensor Factorization with Applications to Statistics and Computer Vision *Amnon Shashua, Tamir Hazan*
[34] Learning from Labeled and Unlabeled Data on a Directed Graph *Dengyong Zhou, Jiayuan Huang, Bernhard Schölkopf*	[38] Experimental Comparison between Bagging and Monte Carlo Ensemble Classification *Roberto Esposito, Lorenza Saitta*	[42] Predicting Probability Distributions for Surf Height Using an Ensemble of Mixture Density Networks *Michael Carney, Padraig Cunningham, Jim Dowling, Ciaran Lee*	[46] Q-Learning of Sequential Attention for Visual Object Recognition from Informative Local Descriptors *Lucas Paletta, Gerald Fritz, Christin Seifert*
[35] Online Learning over Graphs *Mark Herbster, Massimiliano Pontil, Lisa Wainer*	[39] A Practical Generalization of Fourier-Based Learning *Adam Drake, Dan Ventura*	[43] A Brain Computer Interface with Online Feedback based on Magnetoencephalography *Thomas Navin Lal, Michael Schroeder, N. Jeremy Hill, Hubert Preissl, Thilo Hinterberger, Juergen Mellinger, Martin Bogdan, Wolfgang Rosenstiel, Niels Birbaumer, Bernhard Schoelkopf*	[47] Object Correspondence as a Machine Learning Problem *Bernhard Schölkopf, Florian Steinke, Volker Blanz*
[36] Optimal Assignment Kernels For Attributed Molecular Graphs *Holger Fröhlich, Jörg Wegner, Florian Sieker, Andreas Zell*	[40] Using Additive Expert Ensembles to Cope with Concept Drift *Jeremy Kolter, Marcus Maloof*	[44] Learning Strategies for Story Comprehension: A Reinforcement Learning Approach *Eugene Grois, David C. Wilkins*	[48] Interactive Learning of Mappings from Visual Percepts to Actions *Sébastien Jodogne, Justus H. Piater*

18:30 *City Hall Reception*

19:30 ***POSTER SESSION 1*** *[Aula]*

Tuesday August, 9

Tuesday August 9, 2005

09:00 **Invited Talk:** Privacy and background Knowledge
Johannes Gehrke, Cornell University

10:00 **ICML 2005 Best Paper Runner-Up:** [49] Near-Optimal Sensor Placements in Gaussian Processes
Carlos Guestrin, Andreas Krause, Ajit Paul Singh

10:30 *Coffee Break [Aula]*

11:00-12:40

Session 13	Session 14	Session 15	Session 16
Kernel Methods and SVMs (1)	**Graphical Models for Text, Language and Web**	**Reinforcement Learning 3**	**Feature Selection and Dimensionality Reduction**
[50] Explanation-Augmented SVM: an Approach to Incorporating Domain Knowledge into SVM Learning *Qiang Sun, Gerald DeJong*	[54] 2D Conditional Random Fields for Web Information Extraction *Jun Zhu, Zaiqing Nie, Ji-Rong Wen, Bo Zhang, Wei-Ying Ma*	[58] Reinforcement learning with Gaussian processes *Yaakov Engel, Shie Mannor, Ron Meir*	[62] Action Respecting Embedding *Michael Bowling Ali Ghodsi, Dana Wilkinson*
[51] New Approaches to Support Vector Ordinal Regression *Wei Chu, S. Sathiya Keerthi*	[55] Exploiting Syntactic, Semantic and Lexical Regularities in Language Modeling via Directed Markov Random Fields *Shaojun Wang, Shaomin Wang, Russell Greiner, Dale Schuurmans, Li Cheng*	[59] Proto-Value Functions: Developmental Reinforcement Learning *Sridhar Mahadevan*	[63] Multimodal Oriented Discriminant Analysis *Fernando De la Torre, Takeo Kanade*
[52] Predictive low-rank decomposition for kernel methods *Francis R. Bach, Michael I. Jordan*	[56] Integer Linear Programming Inference for Conditional Random Fields *Dan Roth, Wen-tau Yih*	[60] TD(lambda) Networks: Temporal-Difference Networks with Eligibility Traces *Brian Tanner, Richard Sutton*	[64] Generalized LARS as an Effective Feature Selection Tool for Text Classification With SVMs *S. Sathiya Keerthi*
[53] The cross entropy method for classification *Shie Mannor, Dori Peleg, Reuven Rubinstein*	[57] Active Learning for Hidden Markov Models: Objective Functions and Algorithms *Brigham Anderson, Andrew Moore*	[61] Learning to Compete, Compromise, and Cooperate in Repeated General-Sum Games Jacob W. Crandall, Michael A. Goodrich	[65] Online Feature Selection for Pixel Classification *Karen Glocer, Damian Eads, James Theiler*

12:40-14:14 *Lunch*

Tuesday August, 9, 2005

14:15-15:55

Session 17	Session 18	Session 19	Session 20
Learning from Structured Data	**Theory**	**Probability Estimation and Ranking**	**Scientific Discovery, Meta-Learning and Instance-Based Learning**
[66] Weighted Decomposition Kernels *Sauro Menchetti, Fabrizio Costa, Paolo Frasconi*	[70] PAC-Bayes Risk Bounds for Sample-Compressed Gibbs Classifiers *François Laviolette, Mario Marchand*	**ICML 2005 distinguished student paper:** [74] Predicting Good Probabilities With Supervised Learning *Alexandru Niculescu-Mizil, Rich Caruana*	[78] New D-Separation Identification Results for Learning Continuous Latent Variable Models *Ricardo Silva, Richard Scheines*
[67] Learning Structured Prediction Models: A Large Margin Approach *Ben Taskar, Vassil Chatalbashev, Daphne Koller, Carlos Guestrin*	[71] Error Bounds for Correlation Clustering *Thorsten Joachims, John Hopcroft*	[75] Naive Bayes Models for Probability Estimation *Daniel Lowd, Pedro Domingos*	[79] Reducing Overfitting in Process Model Induction *Will Bridewell, Narges Asani, Pat Langley, Ljupco Todorovski*
[68] Learning as Search Optimization: Approximate Large Margin Methods for Structured Prediction *Hal Daume III, Daniel Marcu*	[72] A Comparison of Tight Generalization Error Bounds *Matti Kääriäinen, John Langford*	[76] Augmenting Naive Bayes for Ranking *Harry Zhang, Liangxiao Jiang, Jiang Su*	[80] Predicting Relative Performance of Classifiers from Samples *Rui Leite, Pavel Brazdil*
[69] Propagating Distributions on a Hypergraph by Dual Information Regularization *Koji Tsuda*	[73] Error Limiting Reductions Between Classification Tasks *Alina Beygelzimer, Varsha Dani, Tom Hayes, John Langford, Bianca Zadrozny*	[77] Learning to Rank using Gradient Descent *Chris Burges, Tal Shaked, Erin Renshaw, Ari Lazier, Matt Deeds, Nicole Hamilton, Greg Hullender*	[81] Fast Condensed Nearest Neighbor Rule *Fabrizio Angiulli*

15:55-16.25 *Coffee Break [Aula]*

16:25-17.15

Session 21	Session 22	Session 23	Session 24
Multi-Instance Learning	**ROC Analysis**	**Logistic Regressions**	**Learning and Vision 2**
[82] Multi-Instance Tree Learning *Hendrik Blockeel, David Page, Ashwin Srinivasan*	[848] Optimizing Abstaining Classifiers using ROC Analysis *Tadeusz Pietraszekry*	[86] Incomplete-Data Classification using Logistic Regression *David Williams, Xuejun Liao, Ya Xue, Lawrence Carin*	[88] Linear Asymmetric Classifier for Cascade Detectors *Jianxin Wu, Matthew D. Mullin, James M. Rehg*
[83] Supervised versus Multiple Instance Learning: An Empirical Comparison *Soumya Ray, Mark Craven*	[85] ROC Confidence Bands : An Empirical Evaluation *Sofus A. Macskassy, Foster Provost, Saharon Rosset*	[87] Logistic Regression with an Auxiliary Data Source *Xuejun Liao, Ya Xue, Lawrence Carin*	[89] Variational Bayesian Image Modelling *Li Cheng, Feng Jiao, Dale Schuurmans, Shaojun Wang*

18:00 ***Boat Trip Departure***

20:00 ***Dinner at Petersberg***

Wednesday August, 10

Wednesday August 10, 2005

	Session 25	Session 26	Session 27	Session 28
09:00-10:40	Kernel Methods and SVMs 2	Reinforcement and Agent Learning	Clustering	Text Classification and Information Extraction
	[90] Implicit Surface Modelling as an Eigenvalue Problem *Christian Walder, Olivier Chapelle, Bernhard Schölkopf*	[94] Hedged learning: Regret minimization with learning experts *Yu-Han Chang, Leslie Kaelbling*	[98] Robust One-Class Clustering Using Hybrid Global and Local Search *Gunjan Gupta, Joydeep Ghosh*	[102] Learning Hierarchical Multi-Category Text Classification Models *Juho Rousu, Craig Saunders, Sandor Szedmak, John Shawe-Taylor*
	[91] Building Sparse Large Margin Classifiers *Mingrui Wu, Bernhard Schoelkopf, Goekhan Bakir*	[95] Dynamic Preferences in Multi-Criteria Reinforcement Learning *Sriraam Natarajan, Prasad Tadepalli*	[99] Multi-Way Distributional Clustering via Pairwise Interactions *Ron Bekkerman, Ran El-Yaniv, Andrew McCallum*	[103] A Model for Handling Approximate, Noisy or Incomplete Labeling in Text Classification *Ganesh Ramakrishnan, Krishna Prasad Chitrapura, Raghu Krishnapuram, Pushpak Bhattacharyya*
	[92] Adapting Two-Class Classification Methods to Many Class Problems *Simon I. Hill, Arnaud Doucet*	[96] Learning Approximate Preconditions for Methods in Hierarchical Plans *Okhtay Ilghami, Hector Munoz-Avila, Dana S. Nau, David W. Aha*	[100] Comparing Clusterings - An Axiomatic View *Marina Meila*	[104] Evaluating Machine Learning for Information Extraction *Neil Ireson, Fabio Ciravegna, Mary Elaine Califf, Dayne Freitag, Nicholas Kushmerick, Alberto Lavelli*
	[93] An Efficient Method for Simplifying Support Vector Machines *Duc Dung Nguyen, Tu Bao Ho*	[97] Recycling Data for Multi-Agent Learning *Santi Ontanon, Enric Plaza*	[101] Bayesian Hierarchical Clustering *Katherine Heller, Zubin Ghahramani*	[105] Learn to Weight Terms in Information Retrieval Using Category Information *Rong Jin, Joyce Y. Chai, Luo Si*
10:40-11:10	*Coffee Break [Aula]*			

Wednesday August 10, 2005

11:10-12:25

Session 29

Kernel Methods and SVMs 3

ICML 2005 distinguished student paper:
[106] Supervised Clustering with Support Vector Machines
Thomas Finley, Thorsten Joachims

[107] Healing the Relevance Vector Machine through Augmentation
Carl Edward Rasmussen, Joaquin Quinonero-Candela

Session 30

Dirichlet Models

[108] Dirichlet Enhanced Relational Learning
Zhao Xu, Volker Tresp, Kai Yu, Shipeng Yu, Hans-Peter Kriegel

[109] Modeling Word Burstiness Using the Dirichlet Distribution
Rasmus Madsen, David Kauchak, Charles Elkan

[110] Hierarchical Dirichlet Model for Document Classification
Sriharsha Veeramachaneni, Diego Sona, Paolo Avesani

Session 31

Learning in Bioinformatics and Robotics

[111] Learning Discontinuities with Products-of-Sigmoids for Switching between Local Models
Marc Toussaint, Sethu Vijayakumar

[112] Active Learning for Sampling in Time-Series Experiments With Application to Gene Expression Analysis
Rohit Singh, Nathan Palmer, David Gifford, Bonnie Berger, Ziv Bar-Joseph

[113] Unsupervised Evidence Integration
Philip M. Long, Vinay Varadan, Sarah Gilman, Mark Treshock, Rocco A. Servedioy

Session 32

Distances and Measures

[114] A New Mallows Distance-Based Metric for Comparing Clusterings
Ding Zhou, Jia Li, Hongyuan Zha

[115] Estimating and computing density based distance metrics
Sajama, Alon Orlitsky

[116] A Martingale Framework for Concept Change Detection in Time-Varying Data Streams
Shen-Shyang Ho

12:40-14:14 *Lunch*

14:15-15:15 **Invited Talk (joint with ILP 2005):** Why Computers Need to Learn About Music
Gerhard Widmer, University Linz, Austria

15:15-15:45 *Coffee Break [Aula]*

15:45-17:00

Session 33

Kernel Methods and SVMs

[117] A General Regression Technique for Learning Transductions
Corinna Cortes, Mehryar Mohri, Jason Weston

[118] Beyond the Point Cloud: from Transductive to Semi-supervised Learning
Vikas Sindhwani, Partha Niyogi, Mikhail Belkin

[119] Fast Maximum Margin Matrix Factorization for Collaborative Prediction
Jason D. M. Rennie, Nati Srebro

Session 34

Learning and Robotics

[120] Coarticulation: An Approach for Generating Concurrent Plans in Markov Decision Processes
Khashayar Rohanimanesh, Sridhar Mahadevan

[121] Recognition and Reproduction of Gestures using a Probabilistic Framework combining PCA, ICA and HMM
Sylvain Calinon, Aude Billard

[122] High Speed Obstacle Avoidance using Monocular Vision and Reinforcement learning
Jeff Michels, Ashutosh Saxena, Andrew Y. Ng
[Poster No. 62]

Session 35

Manifolds and Dimensionality Reduction

[123] Analysis and Extension of Spectral Methods for Nonlinear Dimensionality Reduction
Fei Sha, Lawrence K. Saul

[124] Clustering Through Ranking On Manifolds
Markus Breitenbach, Gregory Z. Grudic

[125] Intrinsic Dimensionality Estimation of Submanifolds in R^d
Matthias Hein, Jean-Yves Audibert

Session 36
(joint with ILP 2005)

Inductive Logic Programming Track

(ICML paper)
[126] Learning First-Order Probabilistic Models with Combining Rules
Sriraam Natarajan, Prasad Tadepalli, Eric Altendorf, Thomas G. Dietterich, Alan Fern, Angelo Restificary

(ILP Paper)
[127] Logical Bayesian Networks and Their Relation to Other Probabilistic Logical Models
Daan Fierens, Hendrik Blockeel, Maurice Bruynooghe, Jan Ramon

(ICML paper)
[128] Learning the Structure of Markov Logic Networks
Stanley Kok, Pedro Domingos

17:00-17:15 *Coffee Break*

Wednesday August 10, 2005

17:15-18:05

Session 37	**Session 38**	**Session 39**	**Session 40** (joint with ILP 2005)
Ensemble Methods and Output Codes	**Reinforcement Learning - Theory**	**Scalabiltiy**	**Statistical Relational Learning and ILP**
[129] A Smoothed Boosting Algorithm Using Probabilistic Output Codes *Rong Jin, Jian Zhang*	[131] A Theoretical Analysis of Model-Based Interval Estimation *Alexander L. Strehl, Michael L. Littman*	[133] Fast Inference and Learning in Large-State-Space HMMs *Sajid M. Siddiqi, Andrew W. Moore*	(ILP Paper) [135] Probabilistic First-Order Theory Revision from Examples *Aline Paes, Kate Revoredo, Gerson Zaverucha,* *Vitor Santos Costa*
[130] Unifying the Error-Correcting and Output-Code AdaBoost within the Margin Framework *Yijun Sun, Sinisa Todorovic,* *Jian Li, Dapeng Wu*	[132] Relating Reinforcement Learning Performance to Classification Performance *John Langford, Bianca Zadrozny*	[134] Core Vector Regression for Very Large Regression Problems *Ivor W. Tsang, James T. Kwok, Kimo T. Lai*	(ICML Paper) [136] Combining Model-Based and Instance-Based Learning for First Order Regression *Kurt Driessens, Saso Dzeroski*

18:05-19:00

ICML Business Meeting *[Lecture Room: HS I]*

POSTER SESSION 2 (joint with ILP 2005) *[Aula]*