

**ADVANCES IN NEURAL INFORMATION  
PROCESSING SYSTEMS 22**

*Proceedings of the 2009 Conference*

*<http://books.nips.cc/nips22.html>*

edited by

Yoshua Bengio, Dale Schuurmans, John Lafferty,  
Chris Williams and Aron Culotta



# Contents

Contents .....	iii
Preface .....	xxi
Donors .....	xxiv
NIPS foundation .....	xxv
Committees .....	xxvi
Reviewers .....	xxviii
<b>Information-theoretic lower bounds on the oracle complexity of convex optimization</b> , ALEKH AGARWAL, PETER BARTLETT, UC Berkeley, PRADEEP RAVIKUMAR, University of California, and MARTIN WAINWRIGHT, UC Berkeley .....	1
<b>Streaming k-means approximation</b> , NIR AILON, Google, RAGESH JAISWAL, and CLAIRE MONTELEONI, Columbia University .....	10
<b>Complexity of Decentralized Control: Special Cases</b> , MARTIN ALLEN, Connecticut College, and SHLOMO ZILBERSTEIN, University of Massachusetts at Amherst .....	19
<b>Learning from Multiple Partially Observed Views - an Application to Multilingual Text Categorization</b> , MASSIH AMINI, National Research Council Canada, NICOLAS USUNIER, Université Pierre et Marie Cur, and CYRIL GOUTTE, National Research Council Canada .....	28
<b>Constructing Topological Maps using Markov Random Fields and Loop-Closure Detection</b> , ROY ANATI, and KOSTAS DANILIDIS, University of Pennsylvania .....	37
<b>Data-driven calibration of linear estimators with minimal penalties</b> , SYLVAIN ARLOT, CNRS - ENS, and FRANCIS BACH, Ecole Normale Supérieure .....	46
<b>On Learning Rotations</b> , RAMAN ARORA, Univ. of Wisconsin-Madison .....	55
<b>Polynomial Semantic Indexing</b> , BING BAI, NEC Labs America, INC, JASON WESTON, NEC Labs America, DAVID GRANGIER, RONAN COLLOBERT, KUNIHICO SADAMASA, YANJUN QI, NEC Labs America, INC, CORINNA CORTES, Google Research, and MEHRYAR MOHRI, Courant Institute of Mathematical Sciences and Google Research .....	64
<b>Nonparametric Bayesian Models for Unsupervised Event Coreference Resolution</b> , COSMIN BEJAN, University of Texas at Dallas, MATTHEW TITSWORTH, ANDREW HICKL, Language Computer Corporation, and SANDA HARABAGIU, University of Texas at Dallas .....	73

<b>Group Sparse Coding</b> , SAMY BENGIO, FERNANDO PEREIRA, YORAM SINGER, and DENNIS STRELOW, Google .....	82
<b>Neurometric function analysis of population codes</b> , PHILIPP BERENS, SEBASTIAN GERWINN, ALEXANDER ECKER, and MATTHIAS BETHGE, MPI for Biological Cybernetics & University of Tübingen .....	90
<b>Slow, Decorrelated Features for Pretraining Complex Cell-like Networks</b> , JAMES BERGSTRA, and YOSHUA BENGIO, University of Montreal ..	99
<b>No evidence for active sparsification in the visual cortex</b> , PIETRO BERKES, BEN WHITE, and JOZSEF FISER, Brandeis University .....	108
<b>Manifold Regularization for SIR with Rate Root-n Convergence</b> , WEI BIAN, NTU, and DACHENG TAO, Nanyang Technological University .....	117
<b>Augmenting Feature-driven fMRI Analyses: Semi-supervised learning and resting state activity</b> , MATHEW BLASCHKO, University of Oxford, JACQUELYN SHELTON, Universitaet Tuebingen, and ANDREAS BARTELS, MPI for Biological Cybernetics .....	126
<b>Efficient Match Kernel between Sets of Features for Visual Recognition</b> , LIEFENG BO, Toyota Technological Institute at Chicago (TTI-C), and CRISTIAN SMINCHISCU, U Bonn .....	135
<b>Randomized Pruning: Efficiently Calculating Expectations in Large Dynamic Programs</b> , ALEXANDRE BOUCHARD-CÔTÉ, UC Berkeley, SLAV PETROV, Google Research, and DAN KLEIN, University of California Berkeley .....	144
<b>Unsupervised Feature Selection for the <math>k</math>-means Clustering Problem</b> , CHRISTOS BOUTSIDIS, Rensselaer Polytechnic Instit., MICHAEL MAHONEY, Stanford University, and PETROS DRINEAS, Rensselaer Polytechnic Institute .....	153
<b>On Invariance in Hierarchical Models</b> , JAKE BOUVRIE, MIT, LORENZO ROSASCO, Massachusetts Institute of Technology, and TOMASO POGGIO, MIT .....	162
<b>Nash Equilibria of Static Prediction Games</b> , MICHAEL BRÜCKNER, and TOBIAS SCHEFFER, University of Potsdam .....	171
<b>Optimal context separation of spiking haptic signals by second-order somatosensory neurons</b> , ROMAIN BRASSELET, CNRS - University Pierre & Marie Curie Paris 6, ROLAND JOHANSSON, UMEA University, and ANGELO ARLEO, CNRS - University Pierre & Marie Curie Paris 6	180
<b>Manifold Embeddings for Model-Based Reinforcement Learning under Partial Observability</b> , KEITH BUSH, and JOELLE PINEAU, McGill University .....	189
<b>Learning to Explore and Exploit in POMDPs</b> , CHENGHUI CAI, XUEJUN LIAO, Duke University, and LAWRENCE CARIN, Duke ECE .....	198
<b>Speaker Comparison with Inner Product Discriminant Functions</b> , WILLIAM CAMPBELL, MIT Lincoln Laboratory, ZAHY KARAM, MIT, and DOUGLAS STURIM, MIT Lincoln Laboratory .....	207
<b>A Stochastic approximation method for inference in probabilistic graphical models</b> , PETER CARBONETTO, University of Chicago, MATTHEW KING, University of British Columbia, and FIRAS HAMZE, D-Wave Systems .....	216

<b>Bayesian Nonparametric Models on Decomposable Graphs,</b> FRANCOIS CARON, INRIA Bordeaux, and ARNAUD DOUCET, Institute of Statistical Mathematics .....	225
<b>Adaptive Design Optimization in Experiments with People,</b> DANIEL CAVAGNARO, The Ohio State University, MARK PITT, and JAY MYUNG, Ohio State University .....	234
<b>Efficient Bregman Range Search,</b> LAWRENCE CAYTON, Max Planck Institute for Biological Cybernetics .....	243
<b>Discriminative Network Models of Schizophrenia,</b> GUILLERMO CECCHI, IRINA RISH, IBM T.J. Watson Research Center, BENJAMIN THYREAU, Neurospin, CEA-INSERM, BERTRAND THIRION, INRIA, MARION PLAZE, CEA-INSERM, MARIE-LAURE PAILLERE-MARTINOT, AP-HP, CATHERINE MARTELLI, Centre Hospitalier Paul Brousse, JEAN-LUC MARTINOT, INSERM - CEA - Univ. Paris Sud, and JEAN-BAPTISTE POLINE, Neurospin, CEA-INSERM .....	252
<b>Learning with Compressible Priors,</b> VOLKAN CEVHER, Rice University .	261
<b>Exploring Functional Connectivities of the Human Brain using Multivariate Information Analysis,</b> BARRY CHAI, Stanford, DIRK WALTHER, DIANE BECK, University of Illinois, and LI FEI-FEI, Princeton University .....	270
<b>Generalization Errors and Learning Curves for Regression with Multi-task Gaussian Processes,</b> KIAN MING CHAI, University of Edinburgh .....	279
<b>Reading Tea Leaves: How Humans Interpret Topic Models,</b> JONATHAN CHANG, JORDAN BOYD-GRABER, SEAN GERRISH, CHONG WANG, and DAVID BLEI, Princeton University .....	288
<b>A Parameter-free Hedging Algorithm,</b> KAMALIKA CHAUDHURI, YOAV FREUND, UC San Diego, and DANIEL HSU, University of California .....	297
<b>An Online Algorithm for Large Scale Image Similarity Learning,</b> GAL CHECHIK, Stanford university, URI SHALIT, The Hebrew University, VARUN SHARMA, and SAMY BENGIO, Google .....	306
<b>Ranking Measures and Loss Functions in Learning to Rank,</b> WEI CHEN, Chinese Academy of Sciences, TIE-YAN LIU, Microsoft Research Asia, YANYAN LAN, ZHI-MING MA, Chinese Academy of Sciences, and HANG LI, Microsoft Research Asia .....	315
<b>Factor Modeling for Advertisement Targeting,</b> YE CHEN, EBay Research Labs, MICHAEL KAPRALOV, Stanford University, DMITRY PAVLOV, Yandex Labs, and JOHN CANNY, University of California, Berkeley .....	324
<b>The Ordered Residual Kernel for Robust Motion Subspace Clustering,</b> TAT-JUN CHIN, HANZI WANG, and DAVID SUTER, The University of Adelaide .....	333
<b>Kernel Methods for Deep Learning,</b> YOUNGMIN CHO, University of California, San Diego, and LAWRENCE SAUL, University of California .....	342
<b>Approximating MAP by Compensating for Structural Relaxations,</b> ARTHUR CHOI, UCLA, and ADNAN DARWICHE, University of California .....	351

<b>AUC optimization and the two-sample problem,</b> STÉPHAN CLÉMENÇON, Telecom ParisTech, NICOLAS VAYATIS, ENS Cachan, and MARINE DEPECKER, Telecom ParisTech .....	360
<b>Statistical Models of Linear and Nonlinear Contextual Interactions in Early Visual Processing,</b> RUBEN COEN-CAGLI, Albert Einstein College of Medicine, PETER DAYAN, University College London, and ODELIA SCHWARTZ, Albert Einstein College of Medicine .....	369
<b>fMRI-Based Inter-Subject Cortical Alignment Using Functional Connectivity,</b> BRYAN CONROY, BEN SINGER, Princeton University, JAMES HAXBY, Dartmouth College, and PETER RAMADGE, Princeton University .....	378
<b>Sensitivity analysis in HMMs with application to likelihood maximization,</b> PIERRE-ARNAUD COQUELIN, Vekia, ROMAIN DEGUEST, Columbia University, and REMI MUNOS, INRIA .....	387
<b>Learning Non-Linear Combinations of Kernels,</b> CORINNA CORTES, Google Research, MEHRYAR MOHRI, Courant Institute of Mathematical Sciences and Google Research, and AFSHIN ROSTAMIZADEH, Courant Institute, New York University .....	396
<b>An Infinite Factor Model Hierarchy Via a Noisy-Or Mechanism,</b> AARON COURVILLE, DOUGLAS ECK, and YOSHUA BENGIO, University of Montreal .....	405
<b>Adaptive Regularization of Weight Vectors,</b> KOBY CRAMMER, The Technion, ALEX KULESZA, University of Pennsylvania, and MARK DREDZE, Johns Hopkins University .....	414
<b>Learning transport operators for image manifolds,</b> BENJAMIN CULPEPPER, UC Berkeley, and BRUNO OLSHAUSEN, University of California, Berkeley .....	423
<b>White Functionals for Anomaly Detection in Dynamical Systems,</b> MARCO CUTURI, Princeton University, JEAN-PHILIPPE VERT, ParisTech, and ALEXANDRE D'ASPREMONT, Princeton University .....	432
<b><math>L_1</math>-Penalized Robust Estimation for a Class of Inverse Problems Arising in Multiview Geometry,</b> ARNAK DALALYAN, and RENAUD KERIVEN, Université Paris-Est, ENPC .....	441
<b>Distribution-Calibrated Hierarchical Classification,</b> OFER DEKEL, Microsoft .....	450
<b>A Smoothed Approximate Linear Program,</b> VIJAY DESAI, Columbia University, VIVEK FARIAS, MIT Sloan, and CIAMAC MOALLEMI, Columbia University .....	459
<b>Localizing Bugs in Program Executions with Graphical Models,</b> LAURA DIETZ, Max Planck Institute for Infor, VALENTIN DALLMEIER, ANDREAS ZELLER, Saarland University, and TOBIAS SCHEFFER, University of Potsdam .....	468
<b>The Infinite Partially Observable Markov Decision Process,</b> FINALE DOSHI-VELEZ, Cambridge University, MIT .....	477
<b>A Bayesian Model for Simultaneous Image Clustering, Annotation and Object Segmentation,</b> LAN DU, Duke University, ECE Department, LU REN, Duke ECE, DAVID DUNSON, Duke, and LAWRENCE CARIN, Duke ECE .....	486

<b>Efficient Learning using Forward-Backward Splitting,</b> JOHN DUCHI, UC Berkeley, and YORAM SINGER, Google .....	495
<b>A Data-Driven Approach to Modeling Choice,</b> VIVEK FARIAS, MIT Sloan, SRIKANTH JAGABATHULA, and DEVAVRAT SHAH, MIT .....	504
<b>Subject independent EEG-based BCI decoding,</b> SIAMAC FAZLI, Technical University Berlin, CRISTIAN GROZEA, Fraunhofer Institute FIRST, MARTON DANOCZY, TU Berlin, BENJAMIN BLANKERTZ, Berlin Institute of Technology, FLORIN POPESCU, Fraunhofer FIRST, and KLAUS-ROBERT MULLER, Berlin Institute of Technology .....	513
<b>Semi-Supervised Learning in Gigantic Image Collections,</b> ROB FERGUS, New York University, YAIR WEISS, Hebrew University, and ANTONIO TORRALBA, Massachusetts Institute of Technology .....	522
<b>Evaluating multi-class learning strategies in a generative hierarchical framework for object detection,</b> SANJA FIDLER, MARKO BOBEN, and ALES LEONARDIS, University of Ljubljana .....	531
<b>Orthogonal Matching Pursuit From Noisy Random Measurements: A New Analysis,</b> ALYSON FLETCHER, University of California, Berkeley, and SUNDEEP RANGAN, Qualcomm, Inc. ....	540
<b>Sharing Features among Dynamical Systems with Beta Processes,</b> EMILY FOX, Massachusetts Institute of Technology, ERIK SUDDERTH, Brown University, MICHAEL JORDAN, UC Berkeley, and ALAN WILLSKY, MIT .....	549
<b>An Additive Latent Feature Model for Transparent Object Recognition,</b> MARIO FRITZ, UC Berkeley EECS and ICSI, MICHAEL BLACK, Brown University, GARY BRADSKI, Willow Garage, SERGEY KARAYEV, UC Berkeley, and TREVOR DARRELL, UC Berkeley EECS and ICSI .	558
<b>An LP View of the M-best MAP problem,</b> MENACHEM FROMER, and AMIR GLOBERSON, Hebrew University .....	567
<b>Estimating image bases for visual image reconstruction from human brain activity,</b> YUSUKE FUJIWARA, YOICHI MIYAWAKI, and YUKIYASU KAMITANI, ATR, JAPAN .....	576
<b>Graph-based Consensus Maximization among Multiple Supervised and Unsupervised Models,</b> JING GAO, FENG LIANG, UIUC, WEI FAN, IBM TJ Waston Research, YIZHOU SUN, and JIAWEI HAN, UIUC .....	585
<b>Lattice Regression,</b> ERIC GARCIA, and MAYA GUPTA, University of Washington .....	594
<b>From PAC-Bayes Bounds to KL Regularization,</b> PASCAL GERMAIN, ALEXANDRE LACASSE, Laval University, FRANCOIS LAVIOLETTE, MARIO MARCHAND, Université Laval, and SARA SHANIAN, Laval University .....	603
<b>Perceptual Multistability as Markov Chain Monte Carlo Inference,</b> SAMUEL GERSHMAN, Princeton University, ED VUL, and JOSHUA TENENBAUM, Massachusetts Institute of Technology .....	611
<b>A joint maximum-entropy model for binary neural population patterns and continuous signals,</b> SEBASTIAN GERWINN, PHILIPP BERENS, and MATTHIAS BETHGE, MPI for Biological Cybernetics & University of Tübingen .....	620

<b>A Biologically Plausible Model for Rapid Natural Scene Identification,</b> SENNAY GHEBREAB, STEVEN SCHOLTE, VICTOR LAMME, and ARNOLD SMEULDERS, University of Amsterdam .....	629
<b>A Gaussian Tree Approximation for Integer Least-Squares,</b> JACOB GOLDBERGER, Bar-Ilan U, and AMIR LESHEM, Bar-Ilan University .....	638
<b>Measuring Invariances in Deep Networks,</b> IAN GOODFELLOW, QUOC LE, ANDREW SAXE, and ANDREW NG, Stanford University .....	646
<b>Region-based Segmentation and Object Detection,</b> STEPHEN GOULD, TIANSHI GAO, and DAPHNE KOLLER, Stanford University .....	655
<b>Posterior vs Parameter Sparsity in Latent Variable Models,</b> JOAO GRACA, University of Lisbon, KUZMAN GANCHEV, University of Pennsylvania, BEN TASKAR, University of Pennsylvania, and FERNANDO PEREIRA, Google ...	664
<b>A Fast, Consistent Kernel Two-Sample Test,</b> ARTHUR GRETTON, Carnegie Mellon University and Max Planck Institute, KENJI FUKUMIZU, The Institute of Statistical Mathematics, ZAID HARCHAOUI, Carnegie Mellon University, and BHARATH SRIPERUMBUDUR, UC San Diego .....	673
<b>Non-stationary continuous dynamic Bayesian networks,</b> MARCO GRZEGORCZYK, Department of Statistics, TU Dortmund University, Germany, and DIRK HUSMEIER, Biomathematics and Statistics Scotland (BioSS), Edinburgh, UK .....	682
<b>Label Selection on Graphs,</b> ANDREW GUILLORY, and JEFF BILMES, University of Washington .....	691
<b>Beyond Convexity: Online Submodular Minimization,</b> ELAD HAZAN, IBM, and SATYEN KALE, Yahoo! Research .....	700
<b>On Stochastic and Worst-case Models for Investing,</b> ELAD HAZAN, IBM, and SATYEN KALE, Yahoo! Research .....	709
<b>Robust Nonparametric Regression with Metric-Space Valued Output,</b> MATTHIAS HEIN, Saarland University .....	718
<b>Hierarchical Learning of Dimensional Biases in Human Categorization,</b> KATHERINE HELLER, University of Cambridge, ADAM SANBORN, and NICK CHATER, University College London .....	727
<b>Bayesian Sparse Factor Models and DAGs Inference and Comparison,</b> RICARDO HENAO, and OLE WINTHER, Technical University of Denmark .....	736
<b>Sparse and Locally Constant Gaussian Graphical Models,</b> JEAN HONORIO, LUIS ORTIZ, DIMITRIS SAMARAS, Stony Brook University, NIKOS PARAGIOS, Ecole Centrale Paris, and RITA GOLDSTEIN, Brookhaven National Laboratory .....	745
<b>Differential Use of Implicit Negative Evidence in Generative and Discriminative Language Learning,</b> ANNE HSU, University of California Berkeley, and THOMAS GRIFFITHS, University of California, Berkeley .....	754
<b>Periodic Step Size Adaptation for Single Pass On-line Learning,</b> CHUN-NAN HSU, YU-MING CHANG, HANSHEN HUANG, IIS, Academia Sinica, and YUH-JYE LEE, Department of CSIE, National Taiwan University of Science and Technology .....	763

<b>Multi-Label Prediction via Compressed Sensing,</b> DANIEL HSU, University of California, SHAM KAKADE, Toyota Technological Institute, JOHN LANGFORD, Yahoo! Research, and TONG ZHANG, Rutgers University .....	772
<b>Accelerated Gradient Methods for Stochastic Optimization and Online Learning,</b> CHONGHAI HU, JAMES KWOK, and WEIKE PAN, Hong Kong University of Science and Technology .....	781
<b>Reconstruction of Sparse Circuits Using Multi-neuronal Excitation (RESCUME),</b> TAO HU, ANTHONY LEONARDO, Howard Hughes Medical Institute, Janelia Farm Research Campus, and DMITRI CHKLOVSKII, Janelia Farm Research Campus, Howard Hughes Medical Institute ..	790
<b>Riffled Independence for Ranked Data,</b> JONATHAN HUANG, and CARLOS GUESTRIN, Carnegie Mellon University .....	799
<b>Learning Brain Connectivity of Alzheimer’s Disease from Neuroimaging Data,</b> SHUAI HUANG, Arizona State University, JING LI, jing.li.8@asu.edu, LIANG SUN, JUN LIU, TERESA WU, Arizona State University, KEWEI CHEN, ADAM FLEISHER, ERIC REIMAN, Banner Alzheimer’s Institute and Banner PET Center, and JIEPING YE, Arizona State University .....	808
<b>Discrete MDL Predicts in Total Variation,</b> MARCUS HUTTER, Australian National University .....	817
<b>Particle-based Variational Inference for Continuous Systems,</b> ALEXANDER IHLER, ANDREW FRANK, and PADHRAIC SMYTH, UC Irvine ....	826
<b>Modeling Social Annotation Data with Content Relevance using a Topic Model,</b> TOMOHARU IWATA, NTT Communication Science Laboratories, TAKESHI YAMADA, NTT, and NAONORI UEDA, NTT Communication Science Laboratories .....	835
<b>On the Algorithmics and Applications of a Mixed-norm based Kernel Learning Formulation,</b> SAKETHA NATH JAGARLAPUDI, IIT-Bombay, DINESH G, RAMAN S, CHIRANJIB BHATTACHARYYA, Indian Institute of Science, Bangalore, AHARON BEN-TAL, Technion, Israel, and RAMAKRISHNAN K.R., Indian Institute of Science, Bangalore .....	844
<b>Bayesian Belief Polarization,</b> ALAN JERN, KAI-MIN CHANG, and CHARLES KEMP, Carnegie Mellon University .....	853
<b>Regularized Distance Metric Learning:Theory and Algorithm,</b> RONG JIN, Michigan State University, SHIJUN WANG, National Institutes of Health, and YANG ZHOU, Michigan State University .....	862
<b>Local Rules for Global MAP: When Do They Work ?,</b> KYOMIN JUNG, KAIST, PUSHMEET KOHLI, Microsoft, and DEVAVRAT SHAH, MIT .....	871
<b>Potential-Based Agnostic Boosting,</b> ADAM KALAI, Microsoft, and VARUN KANADE, Harvard University .....	880
<b>Directed Regression,</b> YI-HAO KAO, BENJAMIN VAN ROY, and XIANG YAN, Stanford University .....	889
<b>Breaking Boundaries Between Induction Time and Diagnosis Time Active Information Acquisition,</b> ASHISH KAPOOR, and ERIC HORVITZ, Microsoft Research .....	898

<b>Multiple Incremental Decremental Learning of Support Vector Machines,</b> MASAYUKI KARASUYAMA, and ICHIRO TAKEUCHI, Nagoya Institute of Technology .....	907
<b>Submodularity Cuts and Applications,</b> YOSHINOBU KAWAHARA, Osaka University, KIYOHITO NAGANO, Tokyo Institute of Technology, KOJI TSUDA, Advanced Industrial Science and Technology, and JEFF BILMES, University of Washington .....	916
<b>Individuation, Identification and Object Discovery,</b> CHARLES KEMP, ALAN JERN, Carnegie Mellon University, and FEI XU, University of California, Berkeley .....	925
<b>Abstraction and Relational learning,</b> CHARLES KEMP, and ALAN JERN, Carnegie Mellon University .....	934
<b>Quantification and the language of thought,</b> CHARLES KEMP, Carnegie Mellon University .....	943
<b>Matrix Completion from Noisy Entries,</b> RAGHUNANDAN KESHAVAN, ANDREA MONTANARI, and SEWOONG OH, Stanford University .....	952
<b>Unsupervised Detection of Regions of Interest Using Iterative Link Analysis,</b> GUNHEE KIM, Carnegie Mellon University, and ANTONIO TORRALBA, Massachusetts Institute of Technology .....	961
<b>Clustering sequence sets for motif discovery,</b> JONG KYOUNG KIM, and SEUNGJIN CHOI, POSTECH .....	970
<b>Semi-supervised Regression using Hessian energy with an application to semi-supervised dimensionality reduction,</b> KWANG IN KIM, Saarland University, FLORIAN STEINKE, Siemens Corporate Technology, Munich, Germany, and MATTHIAS HEIN, Saarland University .....	979
<b>Replacing supervised classification learning by Slow Feature Analysis in spiking neural networks,</b> STEFAN KLAMPFL, and WOLFGANG MAASS, Graz University of Technology .....	988
<b>Efficient and Accurate Lp-Norm Multiple Kernel Learning,</b> MARIUS KLOFT, Technical University of Berlin, ULF BREFELD, TU Berlin, SOEREN SONNENBURG, Friedrich Miescher Laboratory, Max Planck Society, PAVEL LASKOV, University of Tuebingen, KLAUS-ROBERT MÜLLER, Technical University of Berlin, and ALEXANDER ZIEN, LIFE Biosystems .....	997
<b>Sparsistent Learning of Varying-coefficient Models with Structural Changes,</b> MLADEN KOLAR, LE SONG, and ERIC XING, Carnegie Mellon University .....	1006
<b>Skill Discovery in Continuous Reinforcement Learning Domains using Skill Chaining,</b> GEORGE KONIDARIS, University of Massachusetts, and ANDREW BARTO, University of Massachusetts Amherst .....	1015
<b>Fast, smooth and adaptive regression in metric spaces,</b> SAMORY KPOTUFE, UCSD CSE .....	1024
<b>Fast Image Deconvolution using Hyper-Laplacian Priors,</b> DILIP KRISHNAN, and ROB FERGUS, New York University .....	1033
<b>Learning to Hash with Binary Reconstructive Embeddings,</b> BRIAN KULIS, UC Berkeley EECS & ICSI, and TREVOR DARRELL, UC Berkeley EECS and ICSI .....	1042

<b>Learning a Small Mixture of Trees</b> , M. PAWAN KUMAR, and DAPHNE KOLLER, Stanford University .....	1051
<b>Ensemble Nystrom Method</b> , SANJIV KUMAR, Google Research NY, MEHRVAR MOHRI, Courant Institute of Mathematical Sciences and Google Research, and AMEET TALWALKAR, Courant Institute (NYU) .....	1060
<b>Occlusive Components Analysis</b> , JÖRG LÜCKE, FIAS, Goethe-University Frankfurt, RICHARD TURNER, Gatsby Computational Neuroscience Unit, UCL, MANEESH SAHANI, University College London, and MARC HENNIGES, FIAS, Goethe-University Frankfurt .....	1069
<b>Monte Carlo Sampling for Regret Minimization in Extensive Games</b> , MARC LANCTOT, University of Alberta, KEVIN WAUGH, Carnegie Mellon University, MARTIN ZINKEVICH, Yahoo!, and MICHAEL BOWLING, University of Alberta .....	1078
<b>Inter-domain Gaussian Processes for Sparse Inference using Inducing Features</b> , MIGUEL LAZARO-GREDILLA, and ANIBAL FIGUEIRAS-VIDAL, Universidad Carlos III Madrid .....	1087
<b>Unsupervised feature learning for audio classification using convolutional deep belief networks</b> , HONGLAK LEE, PETER PHAM, YAN LARGMAN, and ANDREW NG, Stanford University .....	1096
<b>Functional network reorganization in motor cortex can be explained by reward-modulated Hebbian learning</b> , ROBERT LEGENSTEIN, Graz University of Technology, STEVEN CHASE, Carnegie Mellon University, ANDREW SCHWARTZ, University of Pittsburgh, and WOLFGANG MAASS, Graz University of Technology .....	1105
<b>An Integer Projected Fixed Point Method for Graph Matching and MAP Inference</b> , MARIUS LEORDEANU, Carnegie Mellon University, MARTIAL HEBERT, CMU, and RAHUL SUKTHANKAR, Intel .....	1114
<b>Probabilistic Relational PCA</b> , WU-JUN LI, DIT-YAN YEUNG, HKUST, and ZHIHUA ZHANG, Zhejiang University .....	1123
<b>Asymptotically Optimal Regularization in Smooth Parametric Models</b> , PERCY LIANG, University of California, FRANCIS BACH, Ecole Normale Supérieure, GUILLAUME BOUCHARD, Xerox Research Centre Europe, and MICHAEL JORDAN, University of California .....	1132
<b>Nonparametric Greedy Algorithms for the Sparse Learning Problem</b> , HAN LIU, and XI CHEN, Carnegie Mellon University .....	1141
<b>Grouped Orthogonal Matching Pursuit for Variable Selection and Prediction</b> , AURELIE LOZANO, IBM T.J. Watson Research, GRZEGORZ SWIRSZCZ, IBM Research, and NAOKI ABE, IBM T. J. Watson Research Center .....	1150
<b>Modeling the spacing effect in sequential category learning</b> , HONGJING LU, Dept. of Psychology & Statistics, UCLA, MATTHEW WEIDEN, Dept. of Psychology, UCLA, and ALAN YUILLE, UCLA .....	1159
<b>Whos Doing What: Joint Modeling of Names and Verbs for Simultaneous Face and Pose Annotation</b> , JIE LUO, Idiap / EPF Lausanne, BARBARA CAPUTO, Idiap Research Institute, and VITTORIO FERRARI, ETH Zurich .....	1168
<b>Variational Gaussian-process factor analysis for modeling spatio-temporal data</b> , JAAKKO LUTTINEN, and ALEXANDER ILIN, Helsinki University of Technology .....	1177

<b>Solving Stochastic Games</b> , LIAM MAC DERMED, and CHARLES ISBELL, Georgia Inst. of Technology .....	1186
<b>Bayesian estimation of orientation preference maps</b> , JAKOB MACKE, SEBASTIAN GERWINN, MPI for Biological Cybernetics & University of Tübingen, LEONARD WHITE, Duke University Medical Center, MATTHIAS KASCHUBE, Princeton University, and MATTHIAS BETHGE, MPI for Biological Cybernetics & University of Tübingen .....	1195
<b>Convergent Temporal-Difference Learning with Arbitrary Smooth Function Approximation</b> , HAMID MAEI, CSABA SZEPESVARI, University of Alberta, SHALABH BHATNAGAR, Indian Institute of Science, Bangalore, India, DOINA PRECUP, McGill University, DAVID SILVER, and RICH SUTTON, University of Alberta .....	1204
<b>Compressed Least-Squares Regression</b> , ODALRIC MAILLARD, and REMI MUNOS, INRIA .....	1213
<b>Beyond Categories: The Visual Memex Model for Reasoning About Object Relationships</b> , TOMASZ MALISIEWICZ, and ALYOSHA EFROS, Carnegie Mellon University .....	1222
<b>Efficient Large-Scale Distributed Training of Conditional Maximum Entropy Models</b> , GIDEON MANN, RYAN McDONALD, Google, MEHRYAR MOHRI, Google Research, NATHAN SILBERMAN, Google Inc., and DAN WALKER, New York University .....	1231
<b>Toward Provably Correct Feature Selection in Arbitrary Domains</b> , DIMITRIS MARGARITIS, Iowa State University .....	1240
<b>FACTORIE: Probabilistic Programming via Imperatively Defined Factor Graphs</b> , ANDREW MCCALLUM, KARL SCHULTZ, and SAMEER SINGH, University of Massachusetts, Amherst .....	1249
<b>Matrix Completion from Power-Law Distributed Samples</b> , RAGHU MEKA, PRATEEK JAIN, University of Texas at Austin, and INDERJIT DHILLON, University of Texas .....	1258
<b>Extending Phase Mechanism to Differential Motion Opponency for Motion Pop-out</b> , YICONG MENG, and BERTRAM SHI, Hong Kong University of Science and Technology .....	1267
<b>Nonparametric Latent Feature Models for Link Prediction</b> , KURT MILLER, UC Berkeley, THOMAS GRIFFITHS, University of California, Berkeley, and MICHAEL JORDAN, University of California .....	1276
<b>Accelerating Bayesian Structural Inference for Non-Decomposable Gaussian Graphical Models</b> , BABACK MOGHADDAM, Caltech, BENJAMIN MARLIN, EMTIYAZ KHAN, and KEVIN MURPHY, University of British Columbia .....	1285
<b>Large Scale Nonparametric Bayesian Inference: Data Parallelisation in the Indian Buffet Process</b> , SHAKIR MOHAMED, DAVID KNOWLES, ZOUBIN GHAHRAMANI, University of Cambridge, and FINALE DOSHI-VELEZ, Cambridge University, MIT .....	1294
<b>Which graphical models are difficult to learn?</b> , ANDREA MONTANARI, and JOSE AYRES PEREIRA, Stanford University .....	1303
<b>A Generalized Natural Actor-Critic Algorithm</b> , TETSURO MORIMURA, IBM Research - Tokyo, EIJI UCHIBE, JUNICHIRO YOSHIMOTO, and KENJI DOYA, Okinawa Institute of Science and Technology .....	1312

<b>Predicting the Optimal Spacing of Study: A Multiscale Context Model of Memory,</b> MICHAEL MOZER, University of Colorado at Boulder, HAROLD PASHLER, UC San Diego, NICHOLAS CEPEDA, York University, ROBERT LINDSEY, University of Colorado, and ED VUL, Massachusetts Institute of Technology .....	1321
<b>Statistical Analysis of Semi-Supervised Learning: The Limit of Infinite Unlabelled Data,</b> BOAZ NADLER, Weizmann Institute of Science, NATHAN SREBRO, Toyota Technological Institute at Chicago, and XUEYUAN ZHOU, University of Chicago .....	1330
<b>3D Object Recognition with Deep Belief Nets,</b> VINOD NAIR, and GEOFFREY HINTON, University of Toronto .....	1339
<b>A unified framework for high-dimensional analysis of <math>M</math>-estimators with decomposable regularizers,</b> SAHAND NEGAHBAN, UC, Berkeley, PRADEEP RAVIKUMAR, MARTIN WAINWRIGHT, and BIN YU, University of California .....	1348
<b>STDP enables spiking neurons to detect hidden causes of their inputs,</b> BERNHARD NESSLER, MICHAEL PFEIFFER, and WOLFGANG MAASS, Graz University of Technology .....	1357
<b>Noisy Generalized Binary Search,</b> ROB NOWAK, University of Wisconsin, Madison .....	1366
<b>Submanifold density estimation,</b> ARKADAS OZAKIN, Georgia Tech Research Institute, and ALEXANDER GRAY, Georgia Institute of Technology ....	1375
<b>Correlation Coefficients are Insufficient for Analyzing Spike Count Dependencies,</b> ARNO ONKEN, Berlin Institute of Technology, STEFFEN GRÜNEWÄLDER, University College London, and KLAUS OBERMAYER, Berlin Institute of Technology .....	1383
<b>Construction of Nonparametric Bayesian Models from Parametric Bayes Equations,</b> PETER ORBANZ, University of Cambridge .....	1392
<b>Learning from Neighboring Strokes: Combining Appearance and Context for Multi-Domain Sketch Recognition,</b> TOM OUYANG, and RANDALL DAVIS, MIT CSAIL .....	1401
<b>Zero-shot Learning with Semantic Output Codes,</b> MARK PALATUCCI, Carnegie Mellon University, DEAN POMERLEAU, Intel Research, GEOFFREY HINTON, University of Toronto, and TOM MITCHELL, Carnegie Mellon University .....	1410
<b>Conditional Neural Fields,</b> JIAN PENG, LIEFENG BO, and JINBO XU, TTI-C .....	1419
<b>Free energy score space,</b> ALESSANDRO PERINA, MARCO CRISTANI, UMBERTO CASTELLANI, VITTORIO MURINO, University of Verona, and NEBOJSA JOJIC, Microsoft Research .....	1428
<b>Maximum likelihood trajectories for continuous-time Markov chains,</b> THEODORE PERKINS, Ottawa Hospital Research Inst. ....	1437
<b>Robust Value Function Approximation Using Bilinear Programming,</b> MAREK PETRIK, University of Massachusetts Amherst, and SHLOMO ZILBERSTEIN, University of Massachusetts at Amherst .....	1446

<b>Exponential Family Graph Matching and Ranking,</b> JAMES PETERSON, TIBERIO CAETANO, JULIAN MCAULEY, NICTA, and JIN YU, Nicta .....	1455
<b>Know Thy Neighbour: A Normative Theory of Synaptic Depression,</b> JEAN-PASCAL PFISTER, University of Cambridge, PETER DAYAN, University College London, and MATE LENGYEL, University of Cambridge .....	1464
<b>Time-rescaling methods for the estimation and assessment of non-Poisson neural encoding models,</b> JONATHAN PILLOW, University of Texas at Austin .....	1473
<b>Bilinear classifiers for visual recognition,</b> HAMED PIRSIAVASH, DEVA RAMANAN, and CHARLESS FOWLKES, UC Irvine .....	1482
<b>Convex Relaxation of Mixture Regression with Efficient Algorithms,</b> NOVI QUADRIANTO, SML-NICTA and RISE-ANU, TIBERIO CAETANO, NICTA, JOHN LIM, NICTA and ANU, and DALE SCHUURMANS, University of Alberta .....	1491
<b>Distribution Matching for Transduction,</b> NOVI QUADRIANTO, SML-NICTA and RISE-ANU, JAMES PETERSON, NICTA, and ALEX SMOLA, Yahoo! .....	1500
<b>Locality-sensitive binary codes from shift-invariant kernels,</b> MAXIM RAGINSKY, Duke University, and SVETLANA LAZEBNIK, University of North Carolina .....	1509
<b>Multi-Label Prediction via Sparse Infinite CCA,</b> PIYUSH RAI, and HAL DAUME, University of Utah .....	1518
<b>Linear-time Algorithms for Pairwise Statistical Problems,</b> PARIKSHIT RAM, Georgia Institute of Technolog, DONGRYEOL LEE, Georgia Institute of Technolog, WILLIAM MARCH, Georgia Tech, and ALEXANDER GRAY, Georgia Institute of Technolog .....	1527
<b>Rank-Approximate Nearest Neighbor Search: Retaining Meaning and Speed in High Dimensions,</b> PARIKSHIT RAM, Georgia Institute of Technolog, DONGRYEOL LEE, HUA OUYANG, and ALEXANDER GRAY, Georgia Institute of Technolog .....	1536
<b>Asymptotic Analysis of MAP Estimation via the Replica Method and Compressed Sensing,</b> SUNDEEP RANGAN, Qualcomm, Inc., ALYSON FLETCHER, University of California, Berkeley, and VIVEK GOYAL, Massachusetts Institute of Technolog .....	1545
<b>Spatial Normalized Gamma Processes,</b> VINAYAK RAO, and YEE WHYI TEH, Gatsby Computational Neuroscience Unit, UCL .....	1554
<b>Lower bounds on minimax rates for nonparametric regression with additive sparsity and smoothness,</b> GARVESH RASKUTTI, UC Berkeley, MARTIN WAINWRIGHT, and BIN YU, University of California .....	1563
<b>A Game-Theoretic Approach to Hypergraph Clustering,</b> SAMUEL ROTA BULÒ, Università Ca' Foscari di Venezia, and MARCELLO PELILLO, Università Ca Foscari di Venezia .....	1571
<b>Segmenting Scenes by Matching Image Composites,</b> BRYAN RUSSELL, INRIA - ENS Paris, ALYOSHA EFROS, Carnegie Mellon University,	

JOSEF SIVIC, INRIA ENS, BILL FREEMAN, Massachusetts Institute of Technology, and ANDREW ZISSERMAN, University of Oxford .....	1580
<b>Filtering Abstract Senses From Image Search Results,</b> KATE SAENKO, MIT, and TREVOR DARRELL, UC Berkeley EECS and ICSI .....	1589
<b>Learning in Markov Random Fields using Tempered Transitions,</b> RUSLAN SALAKHUTDINOV, Department of Brain and Cognitive Sciences and CSAIL MIT .....	1598
<b>Replicated Softmax: an Undirected Topic Model,</b> RUSLAN SALAKHUTDINOV, Department of Brain and Cognitive Sciences and CSAIL MIT, and GEOFFREY HINTON, University of Toronto .....	1607
<b>Learning models of object structure,</b> JOSEPH SCHLECHT, and KOBUS BARNARD, University of Arizona .....	1615
<b>Linearly constrained Bayesian matrix factorization for blind source separation,</b> MIKKEL SCHMIDT, University of Cambridge .....	1624
<b>Speeding up Magnetic Resonance Image Acquisition by Bayesian Multi-Slice Adaptive Compressed Sensing,</b> MATTHIAS SEEGER, Saarland University and Max Planck Institute for Informatics .....	1633
<b>Improving Existing Fault Recovery Policies,</b> GUY SHANI, and CHRISTOPHER MEEK, Microsoft Research .....	1642
<b>Positive Semidefinite Metric Learning with Boosting,</b> CHUNHUA SHEN, JUNAE KIM, NICTA, LEI WANG, The Australian National University, and ANTON VAN DEN HENGEL, University of Adelaide .....	1651
<b>Fast subtree kernels on graphs,</b> NINO SHERVASHIDZE, and KARSTEN BORGFWARDT, MPIs Tuebingen .....	1660
<b>Neural Implementation of Hierarchical Bayesian Inference by Importance Sampling,</b> LEI SHI, UC Berkeley, and THOMAS GRIFFITHS, University of California, Berkeley .....	1669
<b>Learning Label Embeddings for Nearest-Neighbor Multi-class Classification with an Application to Speech Recognition,</b> NATASHA SINGH-MILLER, MIT, and MICHAEL COLLINS, Massachusetts Institute of Technology .....	1678
<b>Semi-supervised Learning using Sparse Eigenfunction Bases,</b> KAUSHIK SINHA, and MIKHAIL BELKIN, Ohio State University .....	1687
<b>Hierarchical Modeling of Local Image Features through <math>L_p</math>-Nested Symmetric Distributions,</b> FABIAN SINZ, MPI for Biological Cybernetics & University of Tübingen, EERO SIMONCELLI, New York University, and MATTHIAS BETHGE, MPI for Biological Cybernetics & University of Tübingen .	1696
<b>A Sparse Non-Parametric Approach for Single Channel Separation of Known Sounds,</b> PARIS SMARAGDIS, Adobe Systems Inc., MADHUSUDANA SHASHANKA, Mars Inc., and BHIKSHA RAJ, Carnegie Mellon University .....	1705
<b>A Bayesian Analysis of Dynamics in Free Recall,</b> RICHARD SOCHER, Stanford University, SAMUEL GERSHMAN, ADLER PEROTTE, PER SEDERBERG, DAVID BLEI, and KENNETH NORMAN, Princeton University ....	1714
<b>Kernels and learning curves for Gaussian process regression on random graphs,</b> PETER SOLLICH, Kings College London, MATTHEW URRY, King's College London, and CAMILLE COTI, INRIA Saclay-Ile de France	1723

<b>Time-Varying Dynamic Bayesian Networks,</b> LE SONG, MLADEN KOLAR, and ERIC XING, Carnegie Mellon University .....	1732
<b>Code-specific policy gradient rules for spiking neurons,</b> HENNING SPREKELER, GUILLAUME HENNEQUIN, and WULFRAM GERSTNER, Ecole Polytechnique Federale de Lausanne .....	1741
<b>Kernel Choice and Classifiability for RKHS Embeddings of Probability Distributions,</b> BHARATH SRIPERUMBUDUR, UC San Diego, KENJI FUKUMIZU, The Institute of Statistical Mathematics, ARTHUR GRETTON, Carnegie Mellon University and Max Planck Institute, GERT LANCKRIET, University of California, and BERNHARD SCHOELKOPF, MPI for Biological Cybernetics .....	1750
<b>On the Convergence of the Concave-Convex Procedure,</b> BHARATH SRIPERUMBUDUR, UC San Diego, and GERT LANCKRIET, University of California .....	1759
<b>Fast Learning from Non-i.i.d. Observations,</b> INGO STEINWART, Los Alamos National Laboratory, and ANDREAS CHRISTMANN, University of Bayreuth .....	1768
<b>Structural inference affects depth perception in the context of potential occlusion,</b> IAN STEVENSON, and KONRAD KOERDING, Northwestern University .....	1777
<b>The Wisdom of Crowds in the Recollection of Order Information,</b> MARK STEYVERS, MICHAEL LEE, University of California, BRENT MILLER, and PERNILLE HEMMER, University of California, Irvine .....	1785
<b>Online Learning of Assignments,</b> MATTHEW STREETER, Google, DANIEL GOLOVIN, Carnegie Mellon University, and ANDREAS KRAUSE, California Institute of Technology .....	1794
<b>Entropic Graph Regularization in Non-Parametric Semi-Supervised Classification,</b> AMARNAG SUBRAMANYA, and JEFF BILMES, University of Washington .....	1803
<b>Efficient Recovery of Jointly Sparse Vectors,</b> LIANG SUN, JUN LIU, JIANHUI CHEN, and JIEPING YE, Arizona State University .....	1812
<b>Modelling Relational Data using Bayesian Clustered Tensor Factorization,</b> ILYA SUTSKEVER, University of Toronto, RUSLAN SALAKHUTDINOV, Department of Brain and Cognitive Sciences and CSAIL MIT, and JOSHUA TENENBAUM, Massachusetts Institute of Technology .....	1821
<b>Adapting to the Shifting Intent of Search Queries,</b> UMAR SYED, Princeton University, ALEKSANDRS SLIVKINS, and NINA MISHRA, Microsoft Research .....	1829
<b>Indian Buffet Processes with Power-law Behavior,</b> YEE WHYE TEH, and DILAN GORUR, Gatsby Computational Neuroscience Unit, UCL .....	1838
<b>Nonlinear directed acyclic structure learning with weakly additive noise models,</b> ROBERT TILLMAN, Carnegie Mellon University, ARTHUR GRETTON, Carnegie Mellon and MPI for Biological Cybernetics, and PETER SPIRITES, Carnegie Mellon .....	1847
<b>Compositionality of optimal control laws,</b> EMANUEL TODOROV, UW ..	1856

<b>Maximin affinity learning of image segmentation,</b> SRINIVAS TURAGA, MIT, KEVIN BRIGGMAN, MORITZ HELMSTAEDTER, WINFRIED DENK, Max-Planck Institute for Medical Research, and SEBASTIAN SEUNG, MIT	1865
<b>Help or Hinder: Bayesian Models of Social Goal Inference,</b> TOMER ULLMAN, CHRIS BAKER, OWEN MACINDOE, OWAIN EVANS, NOAH GOODMAN, and JOSHUA TENENBAUM, Massachusetts Institute of Technology	1874
<b>Learning to Rank by Optimizing NDCG Measure,</b> HAMED VALIZADEGAN, RONG JIN, Michigan State University, RUOFEI ZHANG, and JIANCHANG MAO, Yahoo!	1883
<b>Streaming Pointwise Mutual Information,</b> BENJAMIN VAN DURME, University of Rochester, and ASHWIN LALL, Georgia Institute of Technology	1892
<b>Bayesian Source Localization with the Multivariate Laplace Prior,</b> MARCEL VAN GERVEN, BOTOND CSEKE, ICIS, ROBERT OOSTENVELD, DCCN, and TOM HESKES, Radboud University Nijmegen	1901
<b>Gaussian process regression with Student-t likelihood,</b> JARNO VANHATALO, PASI JYLÄNKI, and AKI VEHTARI, Helsinki University of Technology	1910
<b>Measuring model complexity with the prior predictive,</b> WOLF VANPAEMEL, Kuleuven	1919
<b>Structured output regression for detection with partial truncation,</b> ANDREA VEDALDI, and ANDREW ZISSERMAN, University of Oxford	1928
<b>Bootstrapping from Game Tree Search,</b> JOEL VENESE, UNSW / NICTA, DAVID SILVER, University of Alberta, WILLIAM UTHUR, NICTA / University of New South Wales, and ALAN BLAIR, NICTA / UNSW	1937
<b>Tracking Dynamic Sources of Malicious Activity at Internet Scale,</b> SHOBHA VENKATARAMAN, AT&T Labs – Research, AVRIM BLUM, CMU, DAWN SONG, UC Berkeley, SUBHABRATA SEN, and OLIVER SPATSCHECK, AT&T Labs – Research	1946
<b>Explaining human multiple object tracking as resource-constrained approximate inference in a dynamic probabilistic model,</b> ED VUL, MICHAEL FRANK, Massachusetts Institute of Technology, GEORGE ALVAREZ, Dept. of Psychology, Harvard University, and JOSHUA TENENBAUM, Massachusetts Institute of Technology	1955
<b>Fast Graph Laplacian Regularized Kernel Learning via Semidefinite Quadratic Linear Programming,</b> XIAO-MING WU, ANTHONY MAN-CHO SO, ZHENGUO LI, and SHUO-YEN ROBERT LI, The Chinese University of Hong Kong	1964
<b>Rethinking LDA: Why Priors Matter,</b> HANNA WALLACH, DAVID MIMNO, and ANDREW MCCALLUM, University of Massachusetts Amherst	1973
<b>Decoupling Sparsity and Smoothness in the Discrete Hierarchical Dirichlet Process,</b> CHONG WANG, and DAVID BLEI, Princeton University	1982
<b>Variational Inference for the Nested Chinese Restaurant Process,</b> CHONG WANG, and DAVID BLEI, Princeton University	1990
<b>Sufficient Conditions for Agnostic Active Learnable,</b> LIWEI WANG, Peking University	1999

<b>A Rate Distortion Approach for Semi-Supervised Conditional Random Fields,</b> YANG WANG, GHOLAMREZA HAFFARI, Simon Fraser University, SHAOJUN WANG, Wright State University, and GREG MORI, Simon Fraser U .....	2008
<b>Graph Zeta Function in the Bethe Free Energy and Loopy Belief Propagation,</b> YUSUKE WATANABE, and KENJI FUKUMIZU, The Institute of Statistical Mathematics .....	2017
<b>Strategy Grafting in Extensive Games,</b> KEVIN WAUGH, NOLAN BARD, and MICHAEL BOWLING, University of Alberta .....	2026
<b>Whose Vote Should Count More: Optimal Integration of Labels from Labelers of Unknown Expertise,</b> JACOB WHITEHILL, PAUL RUVOLO, TING-FAN WU, JACOB BERGSMA, UCSD, and JAVIER MOVELLAN, University of California .....	2035
<b>Training Factor Graphs with Reinforcement Learning for Efficient MAP Inference,</b> MICHAEL WICK, KHASHAYAR ROHANIMANESH, SAMEER SINGH, and ANDREW MCCALLUM, University of Massachusetts, Amherst .....	2044
<b>Sequential effects reflect parallel learning of multiple environmental regularities,</b> MATTHEW WILDER, University of Colorado Boulder, MATT JONES, and MICHAEL MOZER, University of Colorado at Boulder .....	2053
<b>A Neural Implementation of the Kalman Filter,</b> ROBERT WILSON, Princeton University, and LEIF FINKEL, University of Pennsylvania .....	2062
<b>Sparse Estimation Using General Likelihoods and Non-Factorial Priors,</b> DAVID WIPF, and SRIKANTAN NAGARAJAN, UC San Francisco .....	2071
<b>Robust Principal Component Analysis: Exact Recovery of Corrupted Low-Rank Matrices via Convex Optimization,</b> JOHN WRIGHT, Microsoft Research, ARVIND GANESH, University of Illinois, SHANKAR RAO, HRL Laboratories, YIGANG PENG, Microsoft Research Asia, and YI MA, University of Illinois at Urbana-Champaign .....	2080
<b>Learning Bregman Distance Functions and Its Application for Semi-Supervised Clustering,</b> LEI WU, Nanyang Technological University, RONG JIN, Michigan State University, STEVEN CHU-HONG HOI, Nanyang Technological University, JIANKE ZHU, ETH Zurich, and NENGHAI YU, University of Science and Technology of China .....	2089
<b>Statistical Consistency of Top-k Ranking,</b> FEN XIA, Institute of Automation, Chinese Academy of Sciences, TIE-YAN LIU, and HANG LI, Microsoft Research Asia .....	2098
<b>Boosting with Spatial Regularization,</b> ZHEN XIANG, Princeton University, YONGXIN XI, URI HASSON, and PETER RAMADGE, Princeton University .....	2107
<b>Dual Averaging Method for Regularized Stochastic Learning and Online Optimization,</b> LIN XIAO, Microsoft Research .....	2116
<b>Adaptive Regularization for Transductive Support Vector Machine,</b> ZENGLIN XU, CUHK, RONG JIN, Michigan State University, JIANKE ZHU, ETH Zurich, IRWIN KING, CUHK, MICHAEL LYU, The Chinese University of HK, and ZHIRONG YANG, CUHK,TKK .....	2125

<b>Parallel Inference for Latent Dirichlet Allocation on Graphics Processing Units</b> , FENG YAN, Purdue University, NINGYI XU, Microsoft Research Asia, and YUAN QI, Purdue University .....	2134
<b>Dirichlet-Bernoulli Alignment: A Generative Model for Multi-Class Multi-Label Multi-Instance Corpora</b> , SHUANG-HONG YANG, HONGYUAN ZHA, Georgia Tech, and BAO-GANG HU, Chinese Academy of Sciences .....	2143
<b>Heterogeneous multitask learning with joint sparsity constraints</b> , XIAOLIN YANG, SEYOUNG KIM, and ERIC XING, Carnegie Mellon University .	2151
<b>Noise Characterization, Modeling, and Reduction for In Vivo Neural Recording</b> , ZHI YANG, QI ZHAO, UC Santa Cruz, EDWARD KEEFER, UT Southwestern Medical Center, and WENTAI LIU, UC Santa Cruz .	2160
<b>Heavy-Tailed Symmetric Stochastic Neighbor Embedding</b> , ZHIRONG YANG, CUHK,TKK, IRWIN KING, ZENGLIN XU, CUHK, and ERKKI OJA, TKK .....	2169
<b>Hierarchical Mixture of Classification Experts Uncovers Interactions between Brain Regions</b> , BANGPENG YAO, Stanford University, DIRK WALTHER, DIANE BECK, University of Illinois, and LI FEI-FEI, Princeton University .....	2178
<b>Multi-Step Dyna Planning for Policy Evaluation and Control</b> , HENGSHUAI YAO, University of alberta, RICH SUTTON, University of Alberta, SHALABH BHATNAGAR, Indian Institute of Science, DONGCUI DIAO, South China Normal University, and CSABA SZEPESVARI, University of Alberta .....	2187
<b>Conditional Random Fields with High-Order Features for Sequence Labeling</b> , NAN YE, National University of Singapo, WEE SUN LEE, National University of Singapore, HAI LEONG CHIEU, DSO National Laboratories, and DAN WU, Singapore MIT Alliance .....	2196
<b>Analysis of SVM with Indefinite Kernels</b> , YIMING YING, COLIN CAMPBELL, University of Bristol, and MARK GIROLAMI, University of Glasgow	2205
<b>Sparse Metric Learning via Smooth Optimization</b> , YIMING YING, University of Bristol, KAIZHU HUANG, NLP, Institute of Automation, Chinese Academy of Sciences, and COLIN CAMPBELL, University of Bristol .....	2214
<b>Nonlinear Learning using Local Coordinate Coding</b> , KAI YU, NEC Laboratories, TONG ZHANG, Rutgers, and YIHONG GONG, NEC Laboratories America .....	2223
<b>A General Projection Property for Distribution Families</b> , YAO-LIANG YU, YUXI LI, DALE SCHUURMANS, and CSABA SZEPESVARI, University of Alberta .....	2232
<b>Optimal Scoring for Unsupervised Learning</b> , ZHIHUA ZHANG, and GUANG DAI, Zhejiang University .....	2241
<b>Anomaly Detection with Score functions based on Nearest Neighbor Graphs</b> , MANQI ZHAO, and VENKATESH SALIGRAMA, Boston University .....	2250
<b>DUOL: A Double Updating Approach for Online Learning</b> , PEILIN ZHAO, STEVEN CHU-HONG HOI, Nanyang Technological University, and RONG JIN, Michigan State University .....	2259

<b>Optimizing Multi-Class Spatio-Spectral Filters via Bayes Error Estimation for EEG Classification,</b> WENMING ZHENG, Southeast University, P.R. China, and ZHOUCHE LIN, Microsoft Research Asia, P.R. China	2268
<b>Efficient Moments-based Permutation Tests,</b> CHUNXIAO ZHOU, UIUC, HUIXIA JUDY WANG, North Carolina State University, and YONGMEI MICHELLE WANG, University of Illinois at Urbana-Champaign	2277
<b>Canonical Time Warping for Alignment of Human Behavior,</b> FENG ZHOU, and FERNANDO DE LA TORRE, Carnegie Mellon University	2286
<b>Non-Parametric Bayesian Dictionary Learning for Sparse Image Representations,</b> MINGYUAN ZHOU, Duke ECE, HAOJUN CHEN, Duke University, JOHN PAISLEY, LU REN, Duke ECE, GUILLERMO SAPIRO, University of Minnesota, and LAWRENCE CARIN, Duke ECE	2295
<b>Thresholding Procedures for High Dimensional Variable Selection and Statistical Estimation,</b> SHUHENG ZHOU, ETH Zurich	2304
<b>Nonparametric Bayesian Texture Learning and Synthesis,</b> LONG ZHU, Massachusetts Institute of Technology, YUANHAO CHEN, UCLA, BILL FREEMAN, and ANTONIO TORRALBA, Massachusetts Institute of Technology	2313
<b>Human Rademacher Complexity,</b> XIAOJIN ZHU, TIMOTHY ROGERS, University of Wisconsin-Madison, and BRYAN GIBSON, University of Wisconsin	2322
<b>Slow Learners are Fast,</b> MARTIN ZINKEVICH, ALEX SMOLA, and JOHN LANGFORD, Yahoo!	2331
<b>The "tree-dependent components" of natural scenes are edge filters,</b> DANIEL ZORAN, Hebrew University of Jerusalem, and YAIR WEISS, Hebrew University	2340
<b>Subject Index</b>	2349
<b>Author Index</b>	2353

# Preface

This volume contains the papers presented at the twenty-third<sup>1</sup> annual conference on Neural Information Processing Systems (NIPS), held in British Columbia, Canada from December 7th through 10th, 2009. NIPS is a premier interdisciplinary conference that highlights information processing research from computational, biological, physical, and mathematical perspectives. This synthesis of backgrounds enables unique insights into learning processes, and we are pleased to present the exciting results in this volume.

The papers were accepted to NIPS following a thorough, highly competitive and rigorous review process. We had 1105 submissions of which only 263 were accepted to the conference. NIPS is a very selective and high-quality conference thanks to the outstanding efforts of the group of people who evaluate, select and improve the papers: the program chairs, the program committee, and the reviewers. Every paper was double-blind reviewed, initially by at least three reviewers who were assigned by the program committee. In cases where reviews were contradictory or the reviewers were uncertain, additional reviewers were assigned. After the initial reviews were entered into the system, the authors were given the opportunity to respond to the reviews, and an electronic discussion was initiated in which the reviewers and the program committee member responsible for that paper tried to resolve any differences of opinion regarding the paper. In case major disagreement still existed after the discussion, additional reviewers could be assigned to the paper. Finally, borderline papers were read by additional members of the program committee and the decisions were made based on discussions of the program committee members in August 2009.

As in previous years, the submissions covered a broad range of areas, including: supervised learning, probabilistic models and methods, unsupervised and semi-supervised learning, control and reinforcement learning, learning theory, optimization for learning algorithms, neuroscience, cognitive science, and applications of learning algorithms in vision, robotics, natural language, speech and signal processing, bio-informatics, and brain imaging. Authors were not forced to choose a single area with which to label their submission and, as could be expected from such an interdisciplinary meeting, the majority of submissions chose multiple areas.

These themes can also be seen in the five student-authored papers which received awards. In order to be eligible for an award, a paper had to be nominated by the student's advisor who confirmed that at least fifty percent of the research reported in the paper was performed by one or more student authors. Out of these nominated papers, the program committee generated a short list based on the comments of the paper's reviewers. Finally, a subcommittee read all papers on the short list and chose two papers for an outstanding paper award and three for an honorable mention. The two outstanding student paper awards went to: *An LP View of the M-best MAP problem*, by Menachem Fromer and Amir Globerson; and *Fast*

---

<sup>1</sup>Using zero-based counting, this is volume 22.

*subtree kernels on graphs*, by Nino Shervashidze and Karsten Borgwardt. The three student paper honorable mentions went to: *Reading Tea Leaves: How Humans Interpret Topic Models*, by Jonathan Chang, Jordan Boyd-Graber, Sean Gerrish, Chong Wang, and David Blei; *Multi-Label Prediction via Compressed Sensing* by Daniel Hsu, Sham Kakade, John Langford, and Tong Zhang; and *Kernel Choice and Classifiability for RKHS Embeddings of Probability Distributions* by Bharath Sriperumbudur, Kenji Fukumizu, Arthur Gretton, Gert Lanckriet, and Bernhard Schölkopf.

In addition to submitted papers, NIPS had six invited talks at the plenary session. These invited speakers were chosen to highlight research in fields that are related to NIPS. Sergio Verdu of Princeton University talked about “Relative Entropy.” Geoffrey Hinton of the University of Toronto talked about the “Deep Learning with Multiplicative Interactions.” Mirta Hartmann of Northwestern University talked about “The Rat Vibrissal Array as a Model Sensorimotor System.” Yair Weiss of Hebrew University talked about “Learning and Inference in Low-Level Vision.” Persi Diaconis of Stanford talked about “Bayesian Analysis of Markov Chains.” Karl Deisseroth of Stanford talked about “Optogenetics: Development and Applications.” The talks by Geoffrey Hinton and Yair Weiss are part of the Ed Posner Memorial Lecture Series, in honor of the late Ed Posner, the first president of the NIPS Foundation.

As in previous years, the conference was preceded by a day of tutorials and followed by two days of workshops. The tutorials included presenters from a remarkably broad range of subjects. Gunnar Martinsson discussed “Making Very Large-Scale Linear Algebraic Computations Possible Via Randomization.” Antonio Torralba discussed “Understanding Visual Scenes.” Michael Littman discussed “Model-Based Reinforcement Learning.” Francis Bach discussed “Sparse Methods for Machine Learning: Theory and Algorithms.” Ronan Collobert and Jason Weston discussed “Deep Learning in Natural Language Processing.” Arnaud Doucet and Nando de Freitas discussed “Sequential Monte-Carlo Methods.” The workshops focused on more specialized subjects and fostered the lively, informal exchanges for which they are eagerly anticipated each year.

Putting together a conference of this scale is only made possible by the contributions of many people. We gratefully acknowledge our corporate sponsors: Air Force Office of Scientific Research, Artificial Intelligence, Google, Microsoft Research, IBM Research, D.E. Shaw & Co., Yahoo Labs, Alberta Ingenuity Center for Machine Learning, MITACS, Intel, Pascal, Toyota, and Springer. The NIPS board, headed by Terry Sejnowski, provided excellent guidance and continuity within the great tradition of NIPS. Mary Ellen Perry’s efforts on all matters having to do with NIPS were crucial in getting things to run smoothly. Our roles would have been impossible without the other members of the NIPS 2009 Organizing Committee: Yann LeCun, Richard Zemel, and Hans Peter Graf. We also wish to thank our workflow master Yucheng Low.

The NIPS 2009 Program Committee included: Jean-Yves Audibert, David Blei, Kwabena Boahen, Michael Bowling, Nicolo Cesa-Bianchi, Aaron Courville, Koby Crammer, Nathaniel Daw, David Dunson, Paolo Frasconi, Nir Friedman, Arthur Gretton, Matthias Hein, Aapo Hyvarinen, Thorsten Joachims, Mark Johnson, Charles Kemp, Wee Sun Lee, Tai Sing Lee, Jon McAuliffe, Yael Niv, Robert Nowak, Pascal Poupart, Carl Rasmussen, Erik Sudderth, Ben Taskar, Antonio Torralba, Bill Triggs, Sethu Vijayakumar, and Andrew Zisserman. It was a privilege to work with such a professional and hardworking group of scientists. We also thank the NIPS 2009 reviewers, listed in the following pages for their tireless efforts in providing objective evaluations of the papers submitted to the conference.

Finally, we wish to thank the people most responsible for this conference — you, the scientists who have shared your latest discoveries with this community. Your dedication to high-caliber scientific research has made organizing this conference a pleasant and educational task.

Yoshua Bengio, University of Montreal  
Dale Shuurmans, University of Alberta  
John Lafferty, Carnegie Mellon University  
Chris Williams, University of Edinburgh  
Aron Culotta, Southeastern Louisiana University  
December 2009

## Donors

NIPS gratefully acknowledges the generosity of those individuals and organizations who have provided financial support for the NIPS 2009 conference. The financial support enabled us to sponsor student travel and participation, the outstanding student paper awards, the demonstration track and the opening buffet.

AIR FORCE OFFICE OF SCIENTIFIC RESEARCH  
ARTIFICIAL INTELLIGENCE  
GOOGLE  
MICROSOFT RESEARCH  
IBM RESEARCH  
D.E. SHAW & Co.  
YAHOO LABS  
ALBERTA INGENUITY CENTER FOR MACHINE LEARNING  
MITACS  
INTEL  
PASCAL  
TOYOTA  
SPRINGER

## NIPS Foundation Officers and Board Members

### President

TERRENCE SEJNOWSKI, The Salk Institute

### Vice President for Development

SEBASTIAN THRUN, Stanford University

### Treasurer

MARIAN STEWART BARTLETT, University of California, San Diego

### Secretary

MICHAEL MOZER, University of Colorado, Boulder

### Legal Advisor

PHIL SOTEL, Pasadena, CA

### Executive Board

SUE BECKER, McMaster University, Ontario, Canada

THOMAS G. DIETTERICH, Oregon State University

JOHN C. PLATT, Microsoft Research

LAWRENCE SAUL, University of Pennsylvania

BERNHARD SCHÖLKOPF, Max Planck Institute

SARA A. SOLLA, Northwestern University Medical School

YAIR WEISS, Hebrew University of Jerusalem

DAPHNE KOLLER, Stanford University

### Advisory Board

GARY BLASDEL, Harvard Medical School

JACK COWAN, University of Chicago

STEPHEN HANSON, Rutgers University

MICHAEL I. JORDAN, University of California, Berkeley

MICHAEL KEARNS, University of Pennsylvania

SCOTT KIRKPATRICK, Hebrew University, Jerusalem

RICHARD LIPPMANN, Massachusetts Institute of Technology

TODD K. LEEN, Oregon Graduate Institute

BARTLETT MEL, University of Southern California

JOHN MOODY, International Computer Science Institute, Berkeley and Portland

GERALD TESAURO, IBM Watson Labs

DAVE TOURETZKY, Carnegie Mellon University

### Emeritus Members

TERRENCE L. FINE, Cornell University

EVE MARDER, Brandeis University

## Organizing Committee

### General Chair

YOSHUA BENGIO, University of Montreal  
DALE SCHUURMANS, University of Alberta

### Program Chairs

JOHN LAFFERTY, Carnegie Mellon University  
CHRIS WILLIAMS, University of Edinburgh

### Tutorials Chair

YANN LECUN, New York University

### Workshop Chairs

RICHARD ZEMEL, University of Toronto

### Demonstration Chairs

HANS PETER GRAF, NEC Laboratories America, Inc.

### Publications Chair and Electronic Proceedings Chair

ARON CULOTTA, Southeastern Louisiana University

### Volunteers Chair

NIPS Foundation Office

### Publicity Chair

NIPS Foundation Office

## Program Committee

JEAN-YVES AUDIBERT, Ecole des Ponts ParisTech  
DAVID BLEI, Princeton University  
KWABENA BOAHEN, Stanford University  
MICHAEL BOWLING, University of Alberta  
NICOLO CESA-BIANCHI, University of Milan  
AARON COURVILLE, University of Montreal  
KOBY CRAMMER, University of Pennsylvania  
NATHANIEL DAW, New York University  
DAVID DUNSON, Duke University  
PAOLO FRASCONI, University of Florence  
NIR FRIEDMAN, Hebrew University of Jerusalem  
ARTHUR GRETTON, Carnegie Mellon University and Max Planck Institute  
MATTHIAS HEIN, Saarland University  
AAPO HYVARINEN, University of Helsinki  
THORSTEN JOACHIMS, Cornell University  
MARK JOHNSON, Brown University  
CHARLES KEMP, Carnegie Mellon University  
JOHN LAFFERTY, Carnegie Mellon University  
WEE SUN LEE, National University of Singapore  
TAI SING LEE, Carnegie Mellon University  
JON MCAULIFFE, University of Pennsylvania  
Yael NIV, Princeton University  
ROBERT NOWAK, University of Wisconsin, Madison  
PASCAL POUPART, University of Waterloo  
CARL RASMUSSEN, University of Cambridge  
ERIK SUDDERTH, Brown University  
BEN TASKAR, University of Pennsylvania  
ANTONIO TORRALBA, Massachusetts Institute of Technology  
BILL TRIGGS, Laboratoire Jean Kuntzmann, CNRS  
SETHU VIJAYAKUMAR, University of Edinburgh  
CHRIS WILLIAMS, University of Edinburgh  
ANDREW ZISSERMAN, University of Oxford

## Reviewers

PIETER ABBEEL  
NAOKI ABE  
RYAN ADAMS  
FELIX AGAKOV  
ALEKH AGARWAL  
DEEPAK AGARWAL  
EDO AIROLDI  
SHOTARO AKAHO  
KARTEEK ALAHARI  
YASEMIN ALTUN  
CHANDRASEKARAN ANAND  
CHARLES ANDERSON  
GALEN ANDREW  
ANDRAS ANTOS  
CEDRIC ARCHAMBEAU  
ANDREAS ARGYRIOU  
ARTIN ARMAGAN  
HIDEKI ASOH  
CHRIS ATKESON  
JEAN-YVES AUDIBERT  
PETER AUER  
MEG AYCINENA LIPPOW  
FRANCIS BACH  
TIMOTHY BAILEY  
SIVARAMAN BALAKRISHNAN  
ARINDAM BANERJEE  
ZIV BAR-JOSEPH  
RICHARD BARANIUK  
DAVID BARBER  
EVGENIY BART  
ANDREW BARTO  
REGINA BARZILAY  
SUMIT BASU  
AARON BATISTA  
CHRISTIAN BECKMANN  
ULRIK BEIERHOLM  
GILL BEJERANO  
MIKHAIL BELKIN  
ASA BEN HUR  
SAM Y BENGIO  
KRISTIN BENNETT  
MATTHIAS BETHGE  
BRETT BETHKE  
JINBO BI  
STEFFEN BICKEL  
DANNY BICKSON  
HORST BISCHOF  
ANDREW BLAKE  
GILLES BLANCHARD  
MATHEW BLASCHKO  
DAVID BLEI  
KWABENA BOAHEN  
KARSTEN BORWARDT  
VIVEK BORKAR  
MATTHEW BOTVINICK  
GUILLAUME BOUCHARD  
RICHARD BOWDEN  
MICHAEL BOWLING  
JORDAN BOYD-GRABER  
ULF BREFELD  
TABA BRIAN  
SEBASTIEN BUBECK  
JOACHIM BUHMANN  
WOLFRAM BURGARD  
CHRIS BURGES  
KEITH BUSH  
KATHERINE CAMERON  
STEPHANE CANU  
OLIVIER CAPPE  
LARRY CARIN  
FRANCOIS CARON  
MIGUEL A. CARREIRA-PERPINAN  
XAVIER CARRERAS  
CARLOS CARVALHO  
RUI CASTRO  
GAVIN CAWLEY  
LAWRENCE CAYTON  
TAYLAN CEMGIL  
NICOLO CESA-BIANCHI  
SOUMEN CHAKRABARTI  
JONATHAN CHANG  
KAMALIKA CHAUDHURI  
GAL CHECHIK  
LI CHENG  
SONIA CHERNOVA  
DAVID CHIANG  
SILVIA CHIAPPA  
HAI LEONG CHIEU  
YEJIN CHOI  
SUMIT CHOPRA  
ANDREAS CHRISTMANN  
KEN CHURCH  
ANDRZEJ CICHOCKI  
STEPHEN CLARK  
MARK COATES  
MICHAEL COLLINS  
RONAN COLLOBERT  
FRANCESCO CORONA  
GREG CORRADO  
TIMOTHEE COUR  
AARON COURVILLE  
KOB Y CRAMMER  
ANTONIO CRIMINISI  
JAMES CUSSENS  
MARCO CUTURI  
FLORENCE D'ALCHE-BUC  
KIMBERLEE D'ARDENNE  
ARNAK DALALYAN  
DAVID DANKS  
ANIRBAN DASGUPTA  
SANJOY DASGUPTA  
DENVER DASH

HAL DAUME  
NATHANIEL DAW  
NANDO DE FREITAS  
ROB DE RUYTER  
VIRGINIA DE SA  
DENNIS DeCOSTE  
OFER DEKEL  
OLIVIER DELALLEAU  
INDERJIT DHILLON  
THOMAS DIETTERICH  
CHRIS DING  
CARLOS DIUK WASSER  
ADRIAN DOBRA  
EIZABURO DOI  
BRENT DOIRON  
PIOTR DOLLAR  
FINALE DOSHI  
ARNAUD DOUCET  
PETROS DRINEAS  
JOHN DUCHI  
MIROSLAV DUDIK  
DAVID DUNSON  
URI EDEN  
JAMES ELDER  
GAL ELIDAN  
CHARLES ELKAN  
DANIEL ELLIS  
YAAKOV ENGEL  
BARBARA ENGELHARDT  
DUMITRU ERHAN  
ELEAZAR ESKIN  
JASON FARQUHAR  
JACOB FELDMAN  
ROB FERGUS  
ALAN FERN  
VITTORIO FERRARI  
ILA FIETE  
MARIO FIGUEIREDO  
JENNY FINKEL  
JOZSEF FISER  
JOHN FISHER  
ANDREW FITZGIBBON  
PETER FOLDIAK  
FOPE FOLOWOSELE  
DAVID FORSYTH  
CHARLESS FOWLKES  
EMILY FOX  
MICHAEL FRANK  
PAOLO FRASCONI  
PETER FRAZIER  
DESOBRY FREDERIC  
BILL FREEMAN  
NIR FRIEDMAN  
KARL FRISTON  
KENJI FUKUMIZU  
KUZMAN GANCHEV  
GILLES GASSO  
PETER GEHLER  
CLAUDIO GENTILE

CAUWENBERGHS GERT  
SEBASTIAN GERWINN  
MOHAMMAD GHAVAMZADEH  
DEBASHIS GHOSH  
INDIVERI GIACOMO  
ANDREW GILPIN  
MARK GIROLAMI  
AMIR GLOBERSON  
JOZIEN GOENSE  
JACOB GOLDBERGER  
SHARON GOLDWATER  
NOAH GOODMAN  
GEOFF GORDON  
DILAN GORUR  
VIVEK GOYAL  
JOAO GRACA  
YVES GRANDVALET  
DAVID GRANGIER  
KRISTEN GRAUMAN  
RUSS GREINER  
ARTHUR GRETTON  
REMI GRIBONVAL  
JIM GRIFFIN  
THOMAS GRIFFITHS  
MORITZ GROSSE-WENTRUP  
GREG GRUDIC  
YUHONG GUO  
TODD GURECKIS  
MICHAEL GUTMANN  
PATRICK HAFFNER  
ADRIAN HAITH  
TARA HAMILTON  
JIHUN HAMM  
BARBARA HAMMER  
FIRAS HAMZE  
EDWIN HANCOCK  
ZAID HARCHAOU  
DAVID HARDOON  
STEFAN HARMELING  
JOHN HARRIS  
MATT HARRISON  
RICHARD HARTLEY  
ANDREA HASENSTAUB  
MILOS HAUSKRECHT  
ELAD HAZAN  
XUMING HE  
MARTIAL HEBERT  
MATTHIAS HEIN  
KATHERINE HELLER  
RALF HERBRICH  
MARK HERBSTER  
TOM HESKES  
JEREMY HILL  
GEOFFREY HINTON  
SEPP HOCHREITER  
JESSE HOEY  
HEIKO HOFFMANN  
JAKE HOFMAN  
THOMAS HOFMANN

STEVEN CHU-HONG HOI  
DEREK HOIEM  
ANTTI HONKELA  
ERIC HORVITZ  
MATTHEW HOWARD  
PATRIK HOYER  
JONATHAN HUANG  
MARCUS HUTTER  
QUENTIN HUYS  
AAPO HYVARINEN  
CHRISTIAN IGEL  
ALEXANDER IHLER  
SHIRO IKEDA  
MASATO INOUE  
MICHAEL ISARD  
TOMMI JAAKKOLA  
LAURENT JACOB  
ROBERT JACOBS  
HERBERT JAEGER  
FRANK JAEKEL  
MICHAEL JAMES  
DOMINIK JANZING  
MEHRDAD JAZAYERI  
TONY JEBARA  
STEFANIE JEGELKA  
SHANE JENSEN  
RONG JIN  
THORSTEN JOACHIMS  
MARK JOHNSON  
NEBOJSA JOJIC  
MICHAEL JORDAN  
FREDERIC JURIE  
BALÁZS KÉGL  
MICHAEL KALISH  
TAKAFUMI KANAMORI  
TAKAFUMI KANAMORI  
HYUN MIN KANG  
TOMMY KAPLAN  
BERT KAPPEN  
YAN KARKLIN  
MEIER KARLHEINZ  
HISASHI KASHIMA  
SAMUEL KASKI  
SATHIYA KEERTHI  
CHARLES KEMP  
KRISTIAN KERSTING  
JOSEPH KESHET  
KEE-EUNG KIM  
SERGEY KIRSHNER  
JYRKI KIVINEN  
STEFAN KLANKE  
ROBERT KLEINBERG  
JENS KOBER  
KILIAN KOEPEL  
KONRAD KOERDING  
PUSHMEET KOHLI  
ERIC KOLACZYK  
MLADEN KOLAR  
DAPHNE KOLLER

VLADIMIR KOLMOGOROV  
ZICO KOLTER  
RISI KONDOR  
ARYEH KONTOROVICH  
TERRY KOO  
JANA KOSECKA  
URS KOSTER  
RICHARD KRAUZLIS  
BALAJI KRISHNAPURAM  
EYAL KRUPKA  
BRIAN KULIS  
M. PAWAN KUMAR  
SANJIV KUMAR  
TAKIO KURITA  
JAMES KWOK  
JOHN LAFFERTY  
CHRISTOPH LAMPERT  
NIELS LANDWEHR  
HUGO LAROCHELLE  
JAN LARSEN  
PAVEL LASKOV  
FRANCOIS LAVIOLETTE  
NEIL LAWRENCE  
ALESSANDRO LAZARIC  
SVETLANA LAZEBNIK  
NICOLAS LE ROUX  
GUY LEBANON  
DANIEL LEE  
TAI SING LEE  
WEE SUN LEE  
ROBERT LEGENSTEIN  
MATE LENGYEL  
VINCENT LEPETIT  
CHRISTINA LESLIE  
ANAT LEVIN  
ROGER LEVY  
LIHONG LI  
PING LI  
YISHENG LI  
PERCY LIANG  
HSUAN-TIEN LIN  
CE LIU  
TIE-YAN LIU  
YAN LIU  
DANIEL LIZOTTE  
YONATAN LOEWENSTEIN  
MICHAEL LONDON  
PHIL LONG  
TOMAS LOZANO-PEREZ  
ELLIOT LUDVIG  
JUSTIN MA  
WEI JI MA  
JAKOB MACKE  
SRIDHAR MAHADEVAN  
SATYAKI MAHALANABIS  
JULIEN MAIRAL  
JESUS MALO  
GIDEON MANN  
SHIE MANNOR

VIKASH MANSINGHKA  
JIRI MATAS  
JON MCAULIFFE  
CHRIS MEEK  
RON MEIR  
FRANCISCO MELO  
ROLAND MEMISEVIC  
VIVIENNE MING  
EINAT MINKOV  
MICHAEL MISTRY  
SRINJOY MITRA  
DAICHI MOCHIHASHI  
BABACK MOGHADDAM  
SHAKIR MOHAMED  
CLAIRE MONTELEONI  
JORIS MOOIJ  
GREG MORI  
QUAID MORRIS  
MICHAEL MOZER  
SAYAN MUKHERJEE  
KLAUS-ROBERT MULLER  
REMI MUNOS  
NOBORU MURATA  
KEVIN MURPHY  
IAIN MURRAY  
BOAZ NADLER  
RAMESH NALLAPATI  
RAMA NATARAJAN  
DANIEL NAVARRO  
GERHARD NEUMANN  
DAVID NEWMAN  
XUANLONG NGUYEN  
DUY NGUYEN-TUONG  
HANNES NICKISCH  
ALEX NICULESCU-MIZIL  
Yael Niv  
WILLIAM NOBLE  
ROB NOWAK  
SEBASTIAN NOWOZIN  
KLAUS OBERMAYER  
UWE OHLER  
AUDE OLIVA  
BRUNO OLSHAUSEN  
CHENG SOON ONG  
SYLVIE ONG  
TAKASHI ONODA  
MANFRED OPPER  
FRANCESCO ORABONA  
GERGO ORBAN  
PETER ORBANZ  
MILES OSBORNE  
CHRISTIAN OSENDORFER  
SIMON OSINDERO  
DAVID PAGE  
CHRIS PAL  
SYLVAIN PARIS  
HYEYOUNG PARK  
RONALD PARR  
NAAMA PARUSH

ANDREA PASSERINI  
MIROSLAV PAWLAK  
ITSIK PE'ER  
BARAK PEARLMUTTER  
DMITRY PECHYONY  
KRISTIAAN PELCKMANS  
MARCELLO PELILLO  
JAAKKO PELTONEN  
FERNANDO PEREIRA  
FRANCISCO PEREIRA  
FERNANDO PEREZ-CRUZ  
JAN PETERS  
SLAV PETROV  
JONATHAN PILLOW  
MARK PITT  
CHRISTIAN PLAGEMANN  
JOHN PLATT  
JEAN PONCE  
MASSI PONTIL  
BRIAN POTETZ  
PASCAL POUPART  
DOINA PRECUP  
HUBERT PREISSL  
PATRICK PREZ  
YUAN QI  
ARIADNA QUATTONI  
JOAQUIN QUINONERO-CANDELA  
FILIP RADLINSKI  
MAXIM RAGINSKY  
ALI RAHIMI  
RAJAT RAINA  
UMESH RAJASHEKAR  
ALAIN RAKOTOMAMONJY  
LIVA RALAIVOLA  
DEVA RAMANAN  
MARC'AURELIO RANZATO  
CARL RASMUSSEN  
NATHAN RATLIFF  
MAGNUS RATTRAY  
PRADEEP RAVIKUMAR  
MARK REID  
STEFAN RIEZLER  
PHILIPPE RIGOLLET  
HELGE RITTER  
ABEL RODRIGUEZ  
TIMOTHY ROGERS  
JUSTIN ROMBERG  
LORENZO ROSASCO  
DAVID ROSENBERG  
DAVID ROSS  
MICHAEL ROSS  
STEPHANE ROSS  
AFSHIN ROSTAMIZADEH  
STEFAN ROTH  
VOLKER ROTH  
CARSTEN ROTHER  
DANIEL ROY  
CYNTHIA RUDIN  
THOMAS RUECKSTIESS

ALEX RUSSEL  
BRYAN RUSSELL  
MANEESH SAHANI  
PAUL SAJDA  
RUSLAN SALAKHUTDINOV  
ADAM SANBORN  
MARK SANDLER  
TED SANDLER  
GUIDO SANGUINETTI  
SCOTT SANNER  
BEN SAPP  
CRAIG SAUNDERS  
STEFAN SCHAAL  
TOBIAS SCHEFFER  
BERNT SCHIELE  
CORDELIA SCHMID  
SCOTT SCHMIDLER  
MIKKEL SCHMIDT  
JEFF SCHNEIDER  
BERNHARD SCHOELKOPF  
PAUL SCHRATER  
TANJA SCHULTZ  
CLAYTON SCOTT  
MICHELE SEBAG  
MATTHIAS SEEGER  
FRANK SEHNKE  
WALTER SENN  
PEGGY SERIES  
THOMAS SERRE  
ROCCO SERVEDIO  
FEI SHA  
PATRICK SHAFTO  
GREGORY SHAKHNAROVICH  
OHAD SHAMIR  
TATYANA SHARPEE  
AMNON SHASHUA  
JOHN SHAWE-TAYLOR  
CHRISTIAN SHELTON  
XIAOTONG SHEN  
PRADEEP SHENOY  
BERTRAM SHI  
LIU SHIH-CHII  
SHOHEI SHIMIZU  
JONATHON SHLENS  
LAVI SHPIGELMAN  
ILYA SHPITSER  
OREN SHRIKI  
IVO SHTEREV  
LEONID SIGAL  
RICARDO SILVA  
DAVID SILVER  
EERO SIMONCELLI  
OZGUR SIMSEK  
VIKAS SINDHWANI  
AMIT SINGER  
YORAM SINGER  
AARTI SINGH  
TOMAS SINGLIAR  
FABIAN SINZ

JOSEF SIVIC  
NOAM SLONIM  
CRISTIAN SMINCHISESCU  
STELIOS SMIRNAKIS  
NOAH SMITH  
ALEX SMOLA  
ED SNELSON  
STEFANO SOATTO  
PETER SOLLICH  
FRITZ SOMMER  
LE SONG  
ALESSANDRO SPERDUTI  
SUVRIT SRA  
NATHAN SREBRO  
KARTHIK SRIDHARAN  
BHARATH SRIPERUMBUDUR  
DANIEL STEFANKOVIC  
OLIVER STEGLE  
JOCHEN STEIL  
FLORIAN STEINKE  
INGO STEINWART  
MARK STEYVERS  
SUSANNE STILL  
ALAN STOCKER  
AMOS STORKEY  
JONATHAN STROUD  
NATHAN STURTEVANT  
AMARNAG SUBRAMANYA  
ERIK SUDDERTH  
ILYA SUTSKEVER  
CHARLES SUTTON  
RICH SUTTON  
UMAR SYED  
CSABA SZEPESVARI  
PRASAD TADEPALLI  
PARTHA TALUKDAR  
ERIK TALVITE  
AMEET TALWALKAR  
AMOS TANAY  
TONG BOON TANG  
MARSHALL TAPPEN  
BEN TASKAR  
SEKHAR TATIKONDA  
GRAHAM TAYLOR  
MATT TAYLOR  
RUSS TEDRAKE  
YEE WHYE TEH  
JOSHUA TENENBAUM  
CHOON HUI TEO  
AMBUJ TEWARI  
OLIVIER TEYTAUD  
EVANGELOS THEODOROU  
ROMAIN THIBAUX  
MICHAEL THON  
ROBERT TIBSHIRANI  
ROBERT TILLMAN  
JO-ANNE TING  
MICHALIS TITSIAS  
MICHAEL TODD

ANDREA TOLIAS  
ANTONIO TORRALBA  
MARC TOUSSAINT  
KRISTINA TOUTANOVA  
VOLKER TRESP  
JOCHEN TRIESCH  
BILL TRIGGS  
JULIA TROMMERSHAUSER  
JOEL TROPP  
IVOR WAI-HUNG TSANG  
IOANNIS TSOCHANTARIDIS  
KOJI TSUDA  
ZHUOWEN TU  
TINNE TUYTELAARS  
ELI UCHIBE  
NAONORI UEDA  
LYLE UNGAR  
RAQUEL URTASUN  
WILL UThER  
GIORGIO VALENTINI  
ANTAL VAN DEN BOSCH  
PATRICK VAN DER SMAGT  
MARTIJN VAN OTTERLO  
MARK VAN ROSSUM  
JARNO VANHATALO  
NUNO VASCONCELOS  
GAURAV VEDA  
ANDREA VEDALDI  
AKI VEHTARI  
JAKOB VERBEEK  
ALESSANDRO VERRI  
JEAN-PHILIPPE VERT  
SETHU VIJAYAKUMAR  
S.V.N. VISHWANATHAN  
R. JACOB VOGELSTEIN  
ULRIKE VON LUXBURG  
SLOBODAN VUCETIC  
ED VUL  
MARTIN WAINWRIGHT  
CHRISTIAN WALDER  
HANNA WALLACH  
LEI WANG  
ZHUANG WANG  
LARRY WASSERMAN  
CHU WEI  
KILLIAN WEINBERGER  
DAVID WEISS  
YAIR WEISS  
MAX WELLING  
WIM WIEGERINCK

ERIC WIEWIORA  
REBECCA WILLETT  
CHRIS WILLIAMS  
ROBERT WILSON  
DAVID WINGATE  
JOHN WINN  
OLE WINThER  
PATRICK WOLFE  
DANIEL WOLPERT  
JENNIFER WORTMAN VAUGHAN  
STEVE WRIGHT  
MINGRUI WU  
WEI WU  
YING-NIAN WU  
ERIC XING  
LINLI XU  
KATSU YAMANE  
MING-HSUAN YANG  
QIANG YANG  
ZHIJUN YANG  
CHEN YANOVER  
JIEPING YE  
SCOTT WEN-TAU YIH  
YIMING YING  
ELAD YOM-TOV  
BYRON YU  
CHUN-NAM YU  
KAI YU  
SHIPENG YU  
STELLA YU  
YISONG YUE  
MIKHAIL ZASLAVSKIY  
ASSAF ZEEVI  
LUKE ZETTLEMOYER  
HONGYUAN ZHA  
DELL ZHANG  
KUN ZHANG  
ALICE ZHENG  
LU ZHENG Dong  
DING XUAN ZHOU  
SHUHENG ZHOU  
LONG ZHU  
XIAOJIN ZHU  
TODD ZICKLER  
ANDREAS ZIEHE  
MARTIN ZINKEVICH  
ANDREW ZISSERMAN  
ONNO ZOETER  
BARBARA ZWICKNAGL



# Subject Index

- Applications, 28, 324, 468, 1401, 1642, 1937, 1946, 2232
- Bioinformatics, 682, 970, 997, 1428, 1732, 2151
- Collaborative Filtering, 952, 1258
- Graphics, 1033
- Information Retrieval, 28, 64, 243, 306, 315, 1042
- Natural Language Processing, 73, 144, 664, 1249, 1973
- Systems Biology, 970
- Time Series Prediction, 432, 1006, 1473
- Web Applications, 243, 324, 835, 961, 1829
  
- Cognitive Science, 234, 611, 754, 853, 925, 934, 943, 1222, 1777, 1785, 1874, 1955
- Attention, 1955
- Development, 727
- Inference & Reasoning, 611, 853, 925, 1874, 2035, 2062
- Knowledge Representation & Acquisition, 727, 934, 943, 1159, 1321, 1785, 1874
- Language, 754
- Learning, 754, 925, 934, 943, 1159, 1321, 2322
- Memory, 234, 1321, 1714, 1785, 1955
- Model Comparison Methods, 234, 1919
- Perception, 611, 1669, 1777, 1919, 1955, 2062
- Reinforcement Learning, 1105
- Response Time Modeling, 2053
- Control and Reinforcement Learning, 1186, 1856, 2187
- Bayesian RL, 198, 477
- Control, 459, 1446, 1642, 2187
- Markov Decision Processes, 459, 1446
- Multi-Agent Systems and Game Theory, 19, 1078, 1186, 2026
- Planning and Decision Making, 1446, 2187
- Policy Search, 1312
- POMDPs, 19, 198, 477, 1642
- Reinforcement Learning, 189, 1015, 1186, 1204, 1312, 1446, 1642, 1741, 1937, 2044
  
- Hardware, 2134
  
- Neuroscience, 108, 180, 790, 808, 988, 1105, 1383, 1473
- Brain Imaging, 126, 252, 270, 378, 790, 808, 1195, 1410, 1633, 1901, 2107, 2178
- Brain-computer Interfaces & Neural Prostheses, 189, 513, 1105, 2160, 2268
- Computational Neural Models, 162, 369, 620, 808, 1105, 1267, 1357, 1473, 1669, 2062, 2160
- Cortex, 378, 1195
- Motor Control, 1105
- Neural Decoding, 90, 180, 576, 790, 1195, 1410, 1464, 2062, 2160
- Neural Populations, 90, 180, 620, 1195, 1267, 1383, 1669, 2062
- Plasticity, 1105, 1357, 1464
- Spiking Neurons, 180, 988, 1357, 1669, 1741, 2160
  
- Optimization, 495, 504, 1033, 1571, 1759, 1883, 2169, 2232
- Combinatorial Optimization, 10, 916, 1794
- Constrained Optimization, 55, 907, 1759
- Convergence Analysis, 495, 781, 862, 1759, 2205
- Convex Optimization, 1, 171, 243, 396, 495, 781, 997, 1051, 1651, 1759, 1964, 2080, 2116, 2205, 2214
- Gradient Methods, 1, 378, 387, 495, 763, 781, 952, 1937, 2205, 2214, 2331
- Non-convex Optimization, 378, 1033, 1759, 1883
- Stochastic Methods, 1, 763, 781, 2116, 2232
  
- Probabilistic Models and Methods, 387, 504, 567, 638, 799, 871, 1069, 1159, 1177, 1249, 1294,

1303, 1536, 1545, 1910, 2008, 2053, 2295  
 Bayesian Methods, 73, 216, 225, 234, 405, 441, 468, 486, 549, 736, 799, 1069, 1276, 1294, 1392, 1464, 1518, 1554, 1615, 1624, 1633, 1714, 1723, 1777, 1838, 1901, 1973, 1982, 1990, 2071, 2295  
 Belief Propagation, 37, 351, 826, 2017  
 Causal Inference, 1847  
 Density Estimation, 432, 1375, 1473, 1696, 2277  
 Exact and Approximate Inference, 216, 351, 360, 567, 638, 799, 826, 871, 1114, 1294, 1437, 1545, 1892, 1910, 2277  
 Gaussian Processes, 279, 1087, 1177, 1195, 1723, 1910  
 Graphical Models, 225, 324, 351, 405, 468, 486, 664, 682, 745, 826, 835, 970, 1249, 1276, 1285, 1303, 1401, 1419, 1598, 1607, 1990, 2035, 2134, 2340  
 Missing Data, 952, 1410, 2295  
 Mixture Models, 225, 486, 1051, 1491  
 Model Selection & Structure Learning, 682, 736, 745, 1006, 1285, 1303, 1615, 1642, 1732, 1847, 2304  
 Monte Carlo Methods, 144, 216, 549, 826, 1294, 1536, 1554, 1598, 1615, 1624, 1982, 2134  
 Structured and Relational Data, 934, 1123, 1249, 1276, 1455, 1821, 2143, 2178  
 Temporal Models and Sequence Data, 189, 297, 432, 549, 1177, 1437, 1892, 2196, 2286  
 Variational Methods, 216, 826, 1069, 1177, 1633, 1990, 2134  
 Supervised Learning, 28, 360, 513, 540, 603, 772, 1132, 1150, 1159, 2107  
 Classification, 135, 171, 252, 360, 585, 603, 763, 880, 997, 1231, 1339, 1410, 1428, 1482, 1518, 1678, 1750, 1768, 1865, 2107, 2125, 2143, 2151, 2205, 2214, 2259  
 Ensemble Methods and Boosting, 585, 880, 1150, 1231, 1651, 1883, 2107  
 Kernel Methods, 46, 135, 333, 342, 396, 432, 673, 844, 907, 997, 1060, 1087, 1527, 1660, 1750, 1768, 1928, 2205, 2259  
 Large Margin Methods, 414, 603, 997  
 Learning with Structured Data, 315, 450, 718, 763, 772, 1419, 1455, 1660, 1678, 1865, 1928, 2008, 2044, 2098, 2107, 2143, 2196  
 Model Selection, 46, 540, 1006, 1141, 1213  
 Neural Networks, 64, 99, 342, 646, 763, 1339, 1865  
 Regression, 46, 55, 261, 441, 540, 594, 718, 889, 1006, 1024, 1087, 1141, 1150, 1213, 1348, 1491, 1723, 1768, 1910, 1928, 2151  
 Sparsity and Feature Selection, 46, 117, 252, 441, 540, 772, 916, 997, 1006, 1087, 1141, 1150, 1213, 1240, 1339, 1563, 1812, 2071, 2116, 2214  
 Theory, 162, 261, 279, 441, 700, 709, 772, 817, 880, 1392, 1509, 1527, 1723, 1750, 1768, 2232  
 Consistency, 360, 387, 673, 718, 1132, 1348, 1563, 1750, 2098, 2250  
 Convergence Analysis, 117, 862, 1204, 1348, 1545, 1563, 1768  
 Game Theory & Computational Economics, 171, 709, 1078, 2232  
 Information Theory, 1, 180, 700, 709, 1563  
 Online Learning, 10, 55, 297, 414, 495, 700, 709, 763, 781, 862, 1794, 1829, 1946, 2116, 2259  
 Robotics  
   Exploration & Map Building, 37  
 Speech and Signal Processing, 207, 1096  
   Signal Processing, 55, 378, 387, 540, 1812  
   Source Separation, 1705  
   Speaker Identification, 207  
   Speech Recognition, 1678, 1803

2295, 2331  
 Statistical Learning Theory, 1, 28,  
 46, 360, 450, 603, 718, 862,  
 889, 1213, 1348, 1366, 1410,  
 1563, 1750, 1768, 1999, 2223,  
 2304, 2322  
 Unsupervised and Semi-supervised  
 Learning, 10, 28, 82, 153,  
 243, 342, 522, 664, 691, 952,  
 1069, 1168, 1330, 1339, 1536,  
 1687, 1964, 2008, 2035, 2125,  
 2169, 2223  
 Active Learning, 691, 898, 1633,  
 1999, 2035  
 Anomaly Detection, 432, 2250  
 Clustering, 10, 153, 225, 243,  
 333, 549, 585, 925, 970, 1159,  
 1571, 1821, 1964, 2089, 2169,  
 2241  
 Embeddings and Manifold Learn-  
 ing, 117, 189, 423, 718, 979,  
 1042, 1509, 1964, 2169  
 ICA, PCA, CCA & Other Linear  
 Models, 117, 629, 1123, 1294,  
 1518, 2080, 2241, 2286  
 Matrix Factorization, 135, 324,  
 1258, 1624, 1821  
 Similarity and Distance Learning,  
 243, 306, 396, 1222, 1509,  
 1964, 2089, 2214  
 Spectral Methods, 333, 522, 952,  
 1330  
 Topic Models, 288, 324, 558, 835,  
 1589, 1607, 1714, 1973, 1982,  
 1990, 2143  
 Transduction Learning, 585, 691,  
 979, 1500, 1964  
 Vision, 135, 522, 655, 961, 1033, 1222,  
 1428, 2035, 2313  
 3D Reconstruction, 441, 1865  
 Biological Vision, 99, 108, 369,  
 1267, 1696  
 Image Coding, 82, 576, 1509  
 Image Segmentation, 655, 1580,  
 1865  
 Machine Vision Applications, 37,  
 306, 1865  
 Motion and Tracking, 55, 333,  
 441, 549  
 Natural Scene Statistics, 369, 423,  
 629, 646, 1033, 2295, 2340  
 Object Recognition, 135, 522,  
 531, 558, 655, 961, 1051,  
 1114, 1168, 1222, 1339, 1482,  
 1589, 1615, 1928  
 Visual Features, 531, 558, 629,  
 1195, 2295  
 Visual Perception, 369, 629, 961,  
 1222, 1267, 1777  
 Visual Processing, 369, 629, 1267



# Author Index

- Abe, Naoki, 1150  
Agarwal, Alekh, 1  
Ailon, Nir, 10  
Allen, Martin, 19  
Alvarez, George, 1955  
Amini, Massih, 28  
Anati, Roy, 37  
Arleo, Angelo, 180  
Arlot, Sylvain, 46  
Arora, Raman, 55  
Aytes Pereira, Jose, 1303
- Bach, Francis, 46, 1132  
Bai, Bing, 64  
Baker, Chris, 1874  
Bard, Nolan, 2026  
Barnard, Kobus, 1615  
Bartels, Andreas, 126  
Bartlett, Peter , 1  
Barto, Andrew, 1015  
Beck, Diane, 270, 2178  
Bejan, Cosmin, 73  
Belkin, Mikhail, 1687  
Ben-Tal, Aharon, 844  
Bengio, Samy, 82, 306  
Bengio, Yoshua, 99, 405  
Berens, Philipp, 90, 620  
Bergsma, Jacob, 2035  
Bergstra, James, 99  
Berkes, Pietro, 108  
Bethge, Matthias, 90, 620, 1195, 1696  
Bhatnagar, Shalabh, 1204, 2187  
Bhattacharyya, Chiranjib, 844  
Bian, Wei, 117  
Bilmes, Jeff, 691, 916, 1803  
Black, Michael, 558  
Blair, Alan, 1937  
Blankertz, Benjamin, 513  
Blaschko, Mathew, 126  
Blei, David, 288, 1714, 1982, 1990  
Blum, Avrim, 1946  
Bo, Liefeng, 135, 1419  
Boben, Marko, 531  
Borgwardt, Karsten, 1660  
Bouchard, Guillaume, 1132  
Bouchard-Côté, Alexandre, 144  
Boutsidis, Christos, 153  
Bouvier, Jake, 162  
Bowling, Michael, 1078, 2026  
Boyd-Graber, Jordan, 288
- Brückner, Michael, 171  
Bradski, Gary, 558  
Brasselet, Romain, 180  
Brefeld, Ulf, 997  
Brigman, Kevin, 1865  
Bush, Keith, 189
- Caetano, Tiberio, 1455, 1491  
Cai, Chenghui, 198  
Campbell, Colin, 2205, 2214  
Campbell, William, 207  
Canny, John, 324  
Caputo, Barbara, 1168  
Carbonetto, Peter, 216  
Carin, Lawrence, 198, 486, 2295  
Caron, Francois, 225  
Castellani, Umberto, 1428  
Cavagnaro, Daniel, 234  
Cayton, Lawrence, 243  
Cecchi, Guillermo, 252  
Cepeda, Nicholas, 1321  
Cevher, Volkan, 261  
Chai, Barry, 270  
Chai, Kian Ming, 279  
Chang, Jonathan, 288  
Chang, Kai-min, 853  
Chang, Yu-Ming, 763  
Chase, Steven, 1105  
Chater, Nick, 727  
Chaudhuri, Kamalika, 297  
Chechik, Gal, 306  
Chen, Haojun, 2295  
Chen, Jianhui, 1812  
Chen, Kewei , 808  
Chen, Wei, 315  
Chen, Xi, 1141  
Chen, Ye, 324  
Chen, Yuanahao, 2313  
Chieu, Hai Leong, 2196  
Chin, Tat-Jun, 333  
Chklovskii, Dmitri, 790  
Cho, Youngmin, 342  
Choi, Arthur, 351  
Choi, Seungjin, 970  
Christmann, Andreas, 1768  
Cléménçon, Stéphan, 360  
Coen-Cagli, Ruben, 369  
Collins, Michael, 1678  
Collobert, Ronan, 64  
Conroy, Bryan, 378

Coquelin, Pierre-Arnaud, 387  
 Cortes, Corinna, 64, 396  
 Coti, Camille, 1723  
 Courville, Aaron, 405  
 Crammer, Koby, 414  
 Cristani, Marco, 1428  
 Cseke, Botond, 1901  
 Culpepper, Benjamin, 423  
 Cuturi, Marco, 432  
  
 D'Aspremont, Alexandre, 432  
 Dai, Guang, 2241  
 Dalalyan, Arnak, 441  
 Dallmeier, Valentin, 468  
 Daniilidis, Kostas, 37  
 Danoczy, Marton, 513  
 Darrell, Trevor, 558, 1042, 1589  
 Darwiche, Adnan, 351  
 Daume, Hal, 1518  
 Davis, Randall, 1401  
 Dayan, Peter, 369, 1464  
 De la Torre, Fernando, 2286  
 Deguest, Romain, 387  
 Dekel, Ofer, 450  
 van den Hengel, Anton, 1651  
 Denk, Winfried, 1865  
 Depecker, Marine, 360  
 Desai, Vijay, 459  
 Dhillon, Inderjit, 1258  
 Diao, Dongcui, 2187  
 Dietz, Laura, 468  
 Doshi-Velez, Finale, 477, 1294  
 Doucet, Arnaud, 225  
 Doya, Kenji, 1312  
 Dredze, Mark, 414  
 Drineas, Petros, 153  
 Du, Lan, 486  
 Duchi, John, 495  
 Dunson, David, 486  
  
 Eck, Douglas, 405  
 Ecker, Alexander, 90  
 Efros, Alyosha, 1222, 1580  
 Evans, Owain, 1874  
  
 Fan, Wei, 585  
 Farias, Vivek, 459, 504  
 Fazli, Siamac, 513  
 Fei-Fei, Li, 270, 2178  
 Fergus, Rob, 522, 1033  
 Ferrari, Vittorio, 1168  
 Fidler, Sanja, 531  
 Figueiras-Vidal, Anibal, 1087  
 Finkel, Leif, 2062  
  
 Fiser, Jozsef, 108  
 Fleisher, Adam, 808  
 Fletcher, Alyson, 540, 1545  
 Fowlkes, Charless, 1482  
 Fox, Emily, 549  
 Frank, Andrew, 826  
 Frank, Michael, 1955  
 Freeman, Bill, 1580, 2313  
 Freund, Yoav, 297  
 Fritz, Mario, 558  
 Fromer, Menachem, 567  
 Fujiwara, Yusuke, 576  
 Fukumizu, Kenji, 673, 1750, 2017  
  
 G, Dinesh, 844  
 Ganchev, Kuzman, 664  
 Ganesh, Arvind, 2080  
 Gao, Jing, 585  
 Gao, Tianshi, 655  
 Garcia, Eric, 594  
 Germain, Pascal, 603  
 Gerrish, Sean, 288  
 Gershman, Samuel, 611, 1714  
 Gerstner, Wulfram, 1741  
 Gerwin, Sebastian, 90, 620, 1195  
 Ghahramani, Zoubin, 1294  
 Ghebreab, Sennay, 629  
 Gibson, Bryan, 2322  
 Girolami, Mark, 2205  
 Globerson, Amir, 567  
 Goldberger, Jacob, 638  
 Goldstein, Rita, 745  
 Golovin, Daniel, 1794  
 Gong, Yihong, 2223  
 Goodfellow, Ian, 646  
 Goodman, Noah, 1874  
 Gorur, Dilan, 1838  
 Gould, Stephen, 655  
 Goutte, Cyril, 28  
 Goyal, Vivek, 1545  
 Grünewälder, Steffen, 1383  
 Graca, Joao, 664  
 Grangier, David, 64  
 Gray, Alexander, 1375, 1527, 1536  
 Gretton, Arthur, 673, 1750, 1847  
 Griffiths, Thomas, 754, 1276, 1669  
 Grozea, Cristian, 513  
 Grzegorzcyk, Marco, 682  
 Guestrin, Carlos, 799  
 Guillory, Andrew, 691  
 Gupta, Maya, 594  
  
 Haffari, Gholamreza, 2008  
 Hamze, Firas, 216

Han, Jiawei, 585  
 Harabagiu, Sanda, 73  
 Harchaoui, Zaid, 673  
 Hasson, Uri, 2107  
 Haxby, James, 378  
 Hazan, Elad, 700, 709  
 Hebert, Martial, 1114  
 Hein, Matthias, 718, 979  
 Heller, Katherine, 727  
 Helmstaedter, Moritz, 1865  
 Hemmer, Pernille, 1785  
 Henaou, Ricardo, 736  
 Hennequin, Guillaume, 1741  
 Henniges, Marc, 1069  
 Heskes, Tom, 1901  
 Hickl, Andrew, 73  
 Hinton, Geoffrey, 1339, 1410, 1607  
 Hoi, Steven Chu-Hong, 2089, 2259  
 Honorio, Jean, 745  
 Horvitz, Eric, 898  
 Hsu, Anne, 754  
 Hsu, Chun-Nan, 763  
 Hsu, Daniel, 297, 772  
 Hu, Bao-gang, 2143  
 Hu, Chonghai, 781  
 Hu, Tao, 790  
 Huang, Hanshen, 763  
 Huang, Jonathan, 799  
 Huang, Kaizhu, 2214  
 Huang, Shuai, 808  
 Husmeier, Dirk, 682  
 Hutter, Marcus, 817  
  
 Ihler, Alexander, 826  
 Ilin, Alexander, 1177  
 Isbell, Charles, 1186  
 Iwata, Tomoharu, 835  
  
 Jagabathula, Srikanth, 504  
 Jagarlapudi, Saketha Nath, 844  
 Jain, Prateek, 1258  
 Jaiswal, Ragesh, 10  
 Jern, Alan, 853, 925, 934  
 Jin, Rong, 862, 1883, 2089, 2125, 2259  
 Johansson, Roland, 180  
 Jojic, Nebojsa, 1428  
 Jones, Matt, 2053  
 Jordan, Michael, 549, 1132, 1276  
 Jung, Kyomin, 871  
 Jylänki, Pasi, 1910  
  
 K.R., Ramakrishnan, 844  
 Kakade, Sham, 772  
 Kalai, Adam, 880  
  
 Kale, Satyen, 700, 709  
 Kamitani, Yukiyasu, 576  
 Kanade, Varun, 880  
 Kao, Yi-hao, 889  
 Kapoor, Ashish, 898  
 Kapralov, Michael, 324  
 Karam, Zahi, 207  
 Karasuyama, Masayuki, 907  
 Karayev, Sergey, 558  
 Kaschube, Matthias, 1195  
 Kawahara, Yoshinobu, 916  
 Keefer, Edward, 2160  
 Kemp, Charles, 853, 925, 934, 943  
 Keriven, Renaud, 441  
 Keshavan, Raghunandan, 952  
 Khan, Emtiyaz, 1285  
 Kim, Gunhee, 961  
 Kim, Jong Kyoung, 970  
 Kim, Junae, 1651  
 Kim, Kwang In, 979  
 Kim, Seyoung, 2151  
 King, Irwin, 2125, 2169  
 King, Matthew, 216  
 Klampfl, Stefan, 988  
 Klein, Dan, 144  
 Kloft, Marius, 997  
 Knowles, David, 1294  
 Koerding, Konrad, 1777  
 Kohli, Pushmeet, 871  
 Kolar, Mladen, 1006, 1732  
 Koller, Daphne, 655, 1051  
 Konidaris, George, 1015  
 Kpotufe, Samory, 1024  
 Krause, Andreas, 1794  
 Krishnan, Dilip, 1033  
 Kulesza, Alex, 414  
 Kulis, Brian, 1042  
 Kumar, M. Pawan, 1051  
 Kumar, Sanjiv, 1060  
 Kwok, James, 781  
  
 Lücke, Jörg, 1069  
 Lacasse, Alexandre, 603  
 Lall, Ashwin, 1892  
 Lamme, Victor, 629  
 Lan, Yanyan, 315  
 Lanckriet, Gert, 1750, 1759  
 Lanctot, Marc, 1078  
 Langford, John, 772, 2331  
 Largman, Yan, 1096  
 Laskov, Pavel, 997  
 Laviolette, Francois, 603  
 Lazaro-Gredilla, Miguel, 1087  
 Lazebnik, Svetlana, 1509

Le, Quoc, 646  
 Lee, Dongryeol, 1527, 1536  
 Lee, Honglak, 1096  
 Lee, Michael, 1785  
 Lee, Wee Sun, 2196  
 Lee, Yuh-Jye, 763  
 Legenstein, Robert, 1105  
 Lengyel, Mate, 1464  
 Leonardis, Ales, 531  
 Leonardo, Anthony, 790  
 Leordeanu, Marius, 1114  
 Leshem, Amir, 638  
 Li, Hang, 315, 2098  
 Li, Jing, 808  
 Li, Shuo-Yen Robert, 1964  
 Li, Wu-Jun, 1123  
 Li, Yuxi, 2232  
 Li, Zhenguo, 1964  
 Liang, Feng, 585  
 Liang, Percy, 1132  
 Liao, Xuejun, 198  
 Lim, John, 1491  
 Lin, Zhouchen, 2268  
 Lindsey, Robert, 1321  
 Liu, Han, 1141  
 Liu, Jun, 808, 1812  
 Liu, Tie-Yan, 315, 2098  
 Liu, Wentai, 2160  
 Lozano, Aurelie, 1150  
 Lu, Hongjing, 1159  
 Luo, Jie, 1168  
 Luttinen, Jaakko, 1177  
 Lyu, Michael, 2125  
  
 Müller, Klaus-Robert, 997  
 Ma, Yi, 2080  
 Ma, Zhi-Ming, 315  
 Maass, Wolfgang, 988, 1105, 1357  
 Mac Dermid, Liam, 1186  
 Macindoe, Owen , 1874  
 Macke, Jakob, 1195  
 Maei, Hamid, 1204  
 Mahoney, Michael, 153  
 Maillard, Odalric, 1213  
 Malisiewicz, Tomasz, 1222  
 Mann, Gideon, 1231  
 Mao, Jianchang, 1883  
 March, William, 1527  
 Marchand, Mario, 603  
 Margaritis, Dimitris, 1240  
 Marlin, Benjamin, 1285  
 Martelli, Catherine, 252  
 Martinot, Jean-Luc, 252  
 McAuley, Julian, 1455  
  
 McCallum, Andrew, 1249, 1973, 2044  
 McDonald, Ryan, 1231  
 Meek, Christopher, 1642  
 Meka, Raghu, 1258  
 Meng, Yicong, 1267  
 Miller, Brent, 1785  
 Miller, Kurt, 1276  
 Mimno, David, 1973  
 Mishra, Nina, 1829  
 Mitchell, Tom, 1410  
 Miyawaki, Yoichi, 576  
 Moallemi, Ciamac, 459  
 Moghaddam, Baback, 1285  
 Mohamed, Shakir, 1294  
 Mohri, Mehryar, 64, 396, 1060, 1231  
 Montanari, Andrea, 952, 1303  
 Monteleoni, Claire, 10  
 Mori, Greg, 2008  
 Morimura, Tetsuro, 1312  
 Movellan, Javier, 2035  
 Mozer, Michael, 1321, 2053  
 Muller, Klaus-Robert, 513  
 Munos, Remi, 387, 1213  
 Murino, Vittorio, 1428  
 Murphy, Kevin, 1285  
 Myung, Jay, 234  
  
 Nadler, Boaz, 1330  
 Nagano, Kiyohito, 916  
 Nagarajan, Srikantan, 2071  
 Nair, Vinod, 1339  
 Negahban, Sahand, 1348  
 Nessler, Bernhard, 1357  
 Ng, Andrew, 646, 1096  
 Norman, Kenneth, 1714  
 Nowak, Rob, 1366  
  
 Obermayer, Klaus, 1383  
 Oh, Sewoong, 952  
 Oja, Erkki, 2169  
 Olshausen, Bruno, 423  
 Onken, Arno, 1383  
 Oostenveld, Robert, 1901  
 Orbanz, Peter, 1392  
 Ortiz, Luis, 745  
 Ouyang, Hua, 1536  
 Ouyang, Tom, 1401  
 OZAKIN, ARKADAS, 1375  
  
 Paillere-Martinot, Marie-Laure , 252  
 Paisley, John, 2295  
 Palatucci, Mark, 1410  
 Pan, Weike, 781  
 Paragios, Nikos, 745

Pashler, Harold, 1321  
 Pavlov, Dmitry, 324  
 Pelillo, Marcello, 1571  
 Peng, Jian, 1419  
 Peng, Yigang, 2080  
 Pereira, Fernando, 82, 664  
 Perina, Alessandro, 1428  
 Perkins, Theodore, 1437  
 Perotte, Adler, 1714  
 Petrik, Marek, 1446  
 Petrov, Slav, 144  
 Petterson, James, 1455, 1500  
 Pfeiffer, Michael, 1357  
 Pfister, Jean-Pascal, 1464  
 Pham, Peter, 1096  
 Pillow, Jonathan, 1473  
 Pineau, Joelle, 189  
 Pirsivash, Hamed, 1482  
 Pitt, Mark, 234  
 Plaze, Marion , 252  
 Poggio, Tomaso , 162  
 Poline, Jean-Baptiste, 252  
 Pomerleau, Dean, 1410  
 Popescu, Florin, 513  
 Precup, Doina, 1204  
  
 Qi, Yanjun, 64  
 Qi, Yuan, 2134  
 Quadrianto, Novi, 1491, 1500  
  
 Raginsky, Maxim, 1509  
 Rai, Piyush, 1518  
 Raj, Bhiksha, 1705  
 Ram, Parikshit, 1527, 1536  
 Ramadge, Peter, 378, 2107  
 Ramanan, Deva, 1482  
 Rangan, Sundeep, 540, 1545  
 Rao, Shankar, 2080  
 Rao, Vinayak, 1554  
 Raskutti, Garvesh, 1563  
 Ravikumar, Pradeep, 1, 1348  
 Reiman, Eric, 808  
 Ren, Lu, 486, 2295  
 Rish, Irina, 252  
 Rogers, Timothy, 2322  
 Rohanimanesh, Khashayar, 2044  
 Rosasco, Lorenzo, 162  
 Rostamizadeh, Afshin, 396  
 Rota Bulò, Samuel, 1571  
 Russell, Bryan, 1580  
 Ruvolo, Paul, 2035  
  
 S, Raman, 844  
 Sadamasa, Kunihiko, 64  
  
 Saenko, Kate, 1589  
 Sahani, Maneesh, 1069  
 Salakhutdinov, Ruslan, 1598, 1607,  
 1821  
 Saligrama, Venkatesh, 2250  
 Samaras, Dimitris, 745  
 Sanborn, Adam, 727  
 Sapiro, Guillermo, 2295  
 Saul, Lawrence, 342  
 Saxe, Andrew, 646  
 Scheffer, Tobias, 171, 468  
 Schlecht, Joseph, 1615  
 Schmidt, Mikkel, 1624  
 Schoelkopf, Bernhard, 1750  
 Scholte, Steven, 629  
 Schultz, Karl, 1249  
 Schuurmans, Dale, 1491, 2232  
 Schwartz, Andrew, 1105  
 Schwartz, Odelia, 369  
 Sederberg, Per, 1714  
 Seeger, Matthias, 1633  
 Sen, Subhabrata, 1946  
 Seung, Sebastian, 1865  
 Shah, Devavrat, 504, 871  
 Shalit, Uri, 306  
 Shani, Guy, 1642  
 Shanian, Sara, 603  
 Sharma, Varun, 306  
 Shashanka, Madhusudana, 1705  
 Shelton, Jacquelyn, 126  
 Shen, Chunhua, 1651  
 Shervashidze, Nino, 1660  
 Shi, Bertram, 1267  
 Shi, Lei, 1669  
 Silberman, Nathan, 1231  
 Silver, David, 1204, 1937  
 Simoncelli, Eero, 1696  
 Singer, Ben, 378  
 Singer, Yoram, 82, 495  
 Singh, Sameer, 1249, 2044  
 Singh-Miller, Natasha, 1678  
 Sinha, Kaushik, 1687  
 Sinz, Fabian, 1696  
 Sivic, Josef, 1580  
 Slivkins, Aleksandrs, 1829  
 Smaragdis, Paris, 1705  
 Smeulders, Arnold, 629  
 Sminchisescu, Cristian, 135  
 Smola, Alex, 1500, 2331  
 Smyth, Padhraic, 826  
 So, Anthony Man-Cho, 1964  
 Socher, Richard, 1714  
 Sollich, Peter, 1723  
 Song, Dawn, 1946

Song, Le, 1006, 1732  
 Sonnenburg, Soeren, 997  
 Spatscheck, Oliver, 1946  
 Spirtes, Peter, 1847  
 Sprekeler, Henning, 1741  
 Srebro, Nathan, 1330  
 Sriperumbudur, Bharath, 673, 1750, 1759  
 Steinke, Florian, 979  
 Steinwart, Ingo, 1768  
 Stevenson, Ian, 1777  
 Steyvers, Mark, 1785  
 Streeter, Matthew, 1794  
 Strelow, Dennis, 82  
 Sturim, Douglas, 207  
 Subramanya, Amarnag, 1803  
 Sudderth, Erik, 549  
 Sukthankar, Rahul, 1114  
 Sun, Liang, 808, 1812  
 Sun, Yizhou, 585  
 Suter, David, 333  
 Sutskever, Ilya, 1821  
 Sutton, Rich, 1204, 2187  
 Swirszcz, Grzegorz, 1150  
 Syed, Umar, 1829  
 Szepesvari, Csaba, 1204, 2187, 2232  
  
 Takeuchi, Ichiro, 907  
 Talwalkar, Ameet, 1060  
 Tao, Dacheng, 117  
 Taskar, Ben, 664  
 Teh, Yee Whye, 1554, 1838  
 Tenenbaum, Joshua, 611, 1821, 1874, 1955  
 Thirion, Bertrand, 252  
 Thyreau, Benjamin, 252  
 Tillman, Robert, 1847  
 Titsworth, Matthew, 73  
 Todorov, Emanuel, 1856  
 Torralba, Antonio, 522, 961, 2313  
 Tsuda, Koji, 916  
 Turaga, Srinivas, 1865  
 Turner, Richard, 1069  
  
 Uchibe, Eiji, 1312  
 Ueda, Naonori, 835  
 Ullman, Tomer, 1874  
 Urry, Matthew, 1723  
 Usunier, Nicolas, 28  
 Uther, William, 1937  
  
 Valizadegan, Hamed, 1883  
 Van Durme, Benjamin, 1892  
 Van Gerven, Marcel, 1901  
  
 Van Roy, Benjamin, 889  
 Vanhatalo, Jarno, 1910  
 Vanpaemel, Wolf, 1919  
 Vayatis, Nicolas, 360  
 Vedaldi, Andrea, 1928  
 Vehtari, Aki, 1910  
 Veness, Joel, 1937  
 Venkataraman, Shobha, 1946  
 Vert, Jean-Philippe, 432  
 Vul, Ed, 611, 1321, 1955  
  
 Wainwright, Martin, 1, 1348, 1563  
 Walker, Dan, 1231  
 Wallach, Hanna, 1973  
 Walther, Dirk, 270, 2178  
 Wang, Chong, 288, 1982, 1990  
 Wang, Hanzi, 333  
 Wang, Huixia Judy, 2277  
 Wang, Lei, 1651  
 Wang, Liwei, 1999  
 Wang, Shaojun, 2008  
 Wang, Shijun, 862  
 Wang, Yang, 2008  
 Wang, Yongmei Michelle, 2277  
 Watanabe, Yusuke, 2017  
 Waugh, Kevin, 1078, 2026  
 Weiden, Matthew, 1159  
 Weiss, Yair, 522, 2340  
 Weston, Jason, 64  
 White, Ben, 108  
 White, Leonard, 1195  
 Whitehill, Jacob, 2035  
 Wick, Michael, 2044  
 Wilder, Matthew, 2053  
 Willsky, Alan, 549  
 Wilson, Robert, 2062  
 Winther, Ole, 736  
 Wipf, David, 2071  
 Wright, John, 2080  
 Wu, Dan, 2196  
 Wu, Lei, 2089  
 Wu, Teresa, 808  
 Wu, Ting-fan, 2035  
 WU, Xiao-Ming, 1964  
  
 Xi, Yongxin, 2107  
 Xia, Fen, 2098  
 Xiang, Zhen, 2107  
 Xiao, Lin, 2116  
 Xing, Eric, 1006, 1732, 2151  
 Xu, Fei, 925  
 Xu, Jinbo, 1419  
 Xu, Ningyi, 2134  
 Xu, Zenglin, 2125, 2169

Yamada, Takeshi, 835  
Yan, Feng, 2134  
Yan, Xiang, 889  
Yang, Shuang-Hong, 2143  
Yang, Xiaolin, 2151  
Yang, Zhi, 2160  
Yang, Zhirong, 2125, 2169  
Yao, Bangpeng, 2178  
Yao, Hengshuai, 2187  
Ye, Jieping, 808, 1812  
Ye, Nan, 2196  
Yeung, Dit-Yan, 1123  
Ying, Yiming, 2205, 2214  
Yoshimoto, Junichiro, 1312  
Yu, Bin, 1348, 1563  
Yu, Jin, 1455  
Yu, Kai, 2223  
Yu, Nenghai, 2089  
Yu, Yao-Liang, 2232  
Yuille, Alan, 1159

Zeller, Andreas, 468  
Zha, Hongyuan, 2143  
Zhang, Ruofei, 1883  
Zhang, Tong, 772, 2223  
Zhang, Zhihua, 1123, 2241  
Zhao, Manqi, 2250  
Zhao, Peilin, 2259  
Zhao, Qi, 2160  
Zheng, Wenming, 2268  
Zhou, Chunxiao, 2277  
Zhou, Feng, 2286  
Zhou, Mingyuan, 2295  
Zhou, Shuheng, 2304  
Zhou, Xueyuan, 1330  
Zhou, Yang, 862  
Zhu, Jianke, 2089, 2125  
Zhu, Long, 2313  
Zhu, Xiaojin, 2322  
Zien, Alexander, 997  
Zilberstein, Shlomo, 19, 1446  
Zinkevich, Martin, 1078, 2331  
Zisserman, Andrew, 1580, 1928  
Zoran, Daniel, 2340