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Knowledge Group: Economics, Politics and Decision Sciences

Research Domains: Digital Transformation

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Biography

Articles in Scholarly Journals

Finding global minima via kernel approximations

RUDI, A., U. MARTEAU-FEREY, F. BACH, "Finding global minima via kernel approximations", Mathematical Programming, 2025, vol. 209, pp. 703-784

Optimal Estimation of Smooth Transport Maps with Kernel SoS

VACHER, A., B. MUZELLEC, F. BACH, F.-X. VIALARD, A. RUDI, "Optimal Estimation of Smooth Transport Maps with Kernel SoS", SIAM Journal on Mathematics of Data Science, 2024, vol. 6, no. 2, pp. 311-342

Approximation of optimization problems with constraints through kernel Sum-of-Squares

AUBIN-FRANKOWSKI, P.-C., A. RUDI, "Approximation of optimization problems with constraints through kernel Sum-of-Squares", Optimization, 2024, pp. 1-26

Second Order Conditions to Decompose Smooth Functions as Sums of Squares

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Exponential Convergence of Sum-of-Squares Hierarchies for Trigonometric Polynomials

BACH, F., A. RUDI, "Exponential Convergence of Sum-of-Squares Hierarchies for Trigonometric Polynomials", Siam Journal on Optimization, 2023, vol. 33, no. 3, pp. 2137-2159

Vector-Valued Least-Squares Regression under Output Regularity Assumptions

BROGAT-MOTTE, L., A. RUDI, C. BROUARD, J. ROUSU, F. D'ALCHÉ-BUC, "Vector-Valued Least-Squares Regression under Output Regularity Assumptions", Journal of Machine Learning Research, 2022, vol. 23, no. 344, pp. 1-50

Faster Kriging: Facing High-Dimensional Simulators

LU, X., A. RUDI, E. BORGONOVO, L. ROSASCO, "Faster Kriging: Facing High-Dimensional Simulators", Operations Research, 2020, vol. 68, no. 1, pp. 233-249

Optimal rates for spectral algorithms with least-squares regression over Hilbert spaces

LIN, J., A. RUDI, L. ROSASCO, V. CEVHER, "Optimal rates for spectral algorithms with least-squares regression over Hilbert spaces", Applied and Computational Harmonic Analysis, 2020, vol. 48, no. 3, pp. 868-890

A General Framework for Consistent Structured Prediction with Implicit Loss Embeddings

CILIBERTO, C., A. RUDI, L. ROSASCO, "A General Framework for Consistent Structured Prediction with Implicit Loss Embeddings", Journal of Machine Learning Research, 2020, vol. 21, no. 98, pp. 1-67

Approximating Hamiltonian dynamics with the Nyström method

RUDI, A., L. WOSSNIG, C. CILIBERTO, A. ROCCHETTO, M. PONTIL, S. SEVERINI, "Approximating Hamiltonian dynamics with the Nyström method", Quantum, 2020, vol. 4, pp. 234

Statistical limits of supervised quantum learning

CILIBERTO, C., A. ROCCHETTO, A. RUDI, L. WOSSNIG, "Statistical limits of supervised quantum learning", Physical Review A, 2020, vol. 102, no. 4

Regularized Kernel Algorithms for Support Estimation

RUDI, A., E. DE VITO, A. VERRI, F. ODONE, "Regularized Kernel Algorithms for Support Estimation", Frontiers in Applied Mathematics and Statistics, 2017, vol. 3, pp. 23

Geometrical and computational aspects of Spectral Support Estimation for novelty detection

RUDI, A., F. ODONE, E. DE VITO, "Geometrical and computational aspects of Spectral Support Estimation for novelty detection", Pattern Recognition Letters, 2014, vol. 36, pp. 107-116

Proceedings/Presentations

Efficient Sampling of Stochastic Differential Equations with Positive Semi-Definite Models

RAJ, A., U. SIMSEKLI, A. RUDI, "Efficient Sampling of Stochastic Differential Equations with Positive Semi-Definite Models" in Advances in Neural Information Processing Systems 36 (NeurIPS 2023) -the Thirty-Seventh Annual Conference on Neural Information Processing Systems - December 10-16, 2023, New Orléans, United States of America

GloptiNets: Scalable Non-Convex Optimization with Certificates

BEUGNOT, G., J. MAIRAL, A. RUDI, "GloptiNets: Scalable Non-Convex Optimization with Certificates" in Advances in Neural Information Processing Systems 36 (NeurIPS 2023) -the Thirty-Seventh Annual Conference on Neural Information Processing Systems - December 10-16, 2023, New Orléans, United States of America

Sampling from Arbitrary Functions via PSD Models

MARTEAU-FEREY, U., F. BACH, A. RUDI, "Sampling from Arbitrary Functions via PSD Models" in Proceedings of Machine Learning Research, Volume 151: International Conference on Artificial Intelligence and Statistics, A Virtual Conference - March 28-30, 2022

On the Consistency of Max-Margin Losses

NOWAK-VILA, A., A. RUDI, F. BACH, "On the Consistency of Max-Margin Losses" in Proceedings of Machine Learning Research, Volume 151: International Conference on Artificial Intelligence and Statistics, A Virtual Conference - March 28-30, 2022

Infinite-Dimensional Sums-of-Squares for Optimal Control

BERTHIER, E., J. CARPENTIER, A. RUDI, F. BACH, "Infinite-Dimensional Sums-of-Squares for Optimal Control" in Proceedings of the 61st IEEE Conference on Decision and Control - Dec. 6-9, 2022, Cancún, Mexico

On the Benefits of Large Learning Rates for Kernel Methods

BEUGNOT, G., A. RUDI, J. MAIRAL, "On the Benefits of Large Learning Rates for Kernel Methods" in Proceedings of Machine Learning Research, Volume 178: Conference on Learning Theory, July 2-5, 2022, London, Great Britain

Non-Convex Optimization with Certificates and Fast Rates Through Kernel Sums of Squares

WOODWORTH, B., F. BACH, A. RUDI, "Non-Convex Optimization with Certificates and Fast Rates Through Kernel Sums of Squares" in Proceedings of Machine Learning Research, Volume 178: Conference on Learning Theory, July 2-5, 2022, London, Great Britain

Measuring dissimilarity with diffeomorphism invariance

CANTELOBRE, T., C. CILIBERTO, A. RUDI, B. GUEDJ, "Measuring dissimilarity with diffeomorphism invariance" in Proceedings of Machine Learning Research, Volume 162: International Conference on Machine Learning, July 17-23, 2022, Baltimore, Maryland, United States of America

Nyström Kernel Mean Embeddings

CHATALIC, A., N. SCHREUDER, L. ROSASCO, A. RUDI, "Nyström Kernel Mean Embeddings" in Proceedings of Machine Learning Research, Volume 162: International Conference on Machine Learning, July 17-23, 2022, Baltimore, Maryland, United States of America

Active Labeling: Streaming Stochastic Gradients

CABANNES, V., F. BACH, V. PERCHET, A. RUDI, "Active Labeling: Streaming Stochastic Gradients" in NeurIPS 2022 - The Thirty-Sixth Annual Conference on Neural Information Processing Systems, Nov. 28-Dec. 9, 2022, New Orléans, United States of America

Fast Rates for Structured Prediction

CABANNES, V., F. BACH, A. RUDI, "Fast Rates for Structured Prediction" in Proceedings of Machine Learning Research, Volume 134: Conference on Learning Theory, August 15-19, 2021, Boulder, Colorado, United States of America

A Dimension-free Computational Upper-bound for Smooth Optimal Transport Estimation

VACHER, A., B. MUZELLEC, A. RUDI, F. BACH, F.-X. VIALARD, "A Dimension-free Computational Upper-bound for Smooth Optimal Transport Estimation" in Proceedings of Machine Learning Research, Volume 134: Conference on Learning Theory, August 15-19, 2021, Boulder, Colorado, United States of America

Disambiguation of Weak Supervision leading to Exponential Convergence rates

CABANNES, V., F. BACH, A. RUDI, "Disambiguation of Weak Supervision leading to Exponential Convergence rates" in Proceedings of Machine Learning Research, Volume 139: International Conference on Machine Learning, July 18-24, 2021, Virtual Conference

Mixability made efficient: Fast online multiclass logistic regression

JÉZÉQUEL, R., P. GAILLARD, A. RUDI, "Mixability made efficient: Fast online multiclass logistic regression" in NeurIPS 2021 · Thirty-Fifth Annual Conference on Neural Information Processing Systems, December 6-14, 2021, Virtual Conference

Overcoming the curse of dimensionality with Laplacian regularization in semi-supervised learning

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PSD Representations for Effective Probability Models

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Beyond Tikhonov: faster learning with self-concordant losses, via iterative regularization

BEUGNOT, G., A. RUDI, J. MAIRAL, "Beyond Tikhonov: faster learning with self-concordant losses, via iterative regularization" in NeurIPS 2021 · Thirty-Fifth Annual Conference on Neural Information Processing Systems, December 6-14, 2021, Virtual Conference

Max-margin is dead, long live max-margin!

NOWAK-VILA, A., A. RUDI, F. BACH, "Max-margin is dead, long live max-margin!" in The Thirty-Eighth International Conference on Machine Learning - July 18-24, 2021, Virtual Conference

Statistical Estimation of the Poincaré constant and Application to Sampling Multimodal Distributions

PILLAUD-VIVIEN, L., F. BACH, T. LELIÈVRE, A. RUDI, G. STOLTZ, "Statistical Estimation of the Poincaré constant and Application to Sampling Multimodal Distributions" in Proceedings of Machine Learning Research, Volume 108: International Conference on Artificial Intelligence and Statistics, August 26-28, 2020, Online

Gain with no Pain: Efficiency of Kernel-PCA by Nyström Sampling

STERGE, N., B. SRIPERUMBUDUR, L. ROSASCO, A. RUDI, G. STOLTZ, "Gain with no Pain: Efficiency of Kernel-PCA by Nyström Sampling" in Proceedings of Machine Learning Research, Volume 108: International Conference on Artificial Intelligence and Statistics, August 26-28, 2020, Online

Efficient improper learning for online logistic regression

JÉZÉQUEL, R., P. GAILLARD, A. RUDI, "Efficient improper learning for online logistic regression" in Proceedings of Machine Learning Research, Volume 125: Conference on Learning Theory, July 9-12, 2020, Online

Structured Prediction with Partial Labelling through the Infimum Loss

CABANNES, V., A. RUDI, F. BACH, "Structured Prediction with Partial Labelling through the Infimum Loss" in Proceedings of Machine Learning Research, Volume 119: International Conference on Machine Learning, July 13-18, 2020, Virtual

Consistent Structured Prediction with Max-Min Margin Markov Networks

NOWAK-VILA, A., F. BACH, A. RUDI, "Consistent Structured Prediction with Max-Min Margin Markov Networks" in Proceedings of Machine Learning Research, Volume 119: International Conference on Machine Learning, July 13-18, 2020, Virtual

Kernel Methods Through the Roof: Handling Billions of Points Efficiently

MEANTI, G., L. CARRATINO, L. ROSASCO, A. RUDI, "Kernel Methods Through the Roof: Handling Billions of Points Efficiently" in NeurIPS 2020 · Thirty-Fourth Annual Conference on Neural Information Processing Systems, Dec. 6-12, 2020, Virtual-Only Conference

Non-parametric Models for Non-negative Functions

MARTEAU-FEREY, U., F. BACH, A. RUDI, "Non-parametric Models for Non-negative Functions" in NeurIPS 2020 · Thirty-Fourth Annual Conference on Neural Information Processing Systems, Dec. 6-12, 2020, Virtual-Only Conference

Sharp Analysis of Learning with Discrete Losses

NOWAK-VILA, A., A. RUDI, F. BACH, "Sharp Analysis of Learning with Discrete Losses" in Proceedings of Machine Learning Research, Volume 89: The 22nd International Conference on Artificial Intelligence and Statistics, April 16-18, 2019, Naha, Okinawa, Japan

Beyond Least-Squares: Fast Rates for Regularized Empirical Risk Minimization through Self-Concordance

MARTEAU-FEREY, U., D. OSTROVSKII, A. RUDI, F. BACH, "Beyond Least-Squares: Fast Rates for Regularized Empirical Risk Minimization through Self-Concordance" in Proceedings of Machine Learning Research, Volume 99: Conference on Learning Theory, June 25-28, 2019, Phoenix, United States of America

Affine Invariant Covariance Estimation for Heavy-Tailed Distributions

OSTROVSKII, D., A. RUDI, "Affine Invariant Covariance Estimation for Heavy-Tailed Distributions" in Proceedings of Machine Learning Research, Volume 99: Conference on Learning Theory, June 25-28, 2019, Phoenix, United States of America

Massively scalable Sinkhorn distances via the Nyström method

ALTSCHULER, J., F. BACH, A. RUDI, J. NILES-WEED, "Massively scalable Sinkhorn distances via the Nyström method" in Advances in Neural Information Processing Systems 32 (NeurIPS 2019), Dec. 8-14, 2019, Vancouver, Canada

Localized Structured Prediction

CILIBERTO, C., F. BACH, A. RUDI, "Localized Structured Prediction" in Advances in Neural Information Processing Systems 32 (NeurIPS 2019), Dec. 8-14, 2019, Vancouver, Canada

Globally Convergent Newton Methods for Ill-conditioned Generalized Self-concordant Losses

MARTEAU-FEREY, U., F. BACH, A. RUDI, "Globally Convergent Newton Methods for Ill-conditioned Generalized Self-concordant Losses" in Advances in Neural Information Processing Systems 32 (NeurIPS 2019), Dec. 8-14, 2019, Vancouver, Canada

Efficient online learning with kernels for adversarial large scale problems

JÉZÉQUEL, R., A. RUDI, P. GAILLARD, "Efficient online learning with kernels for adversarial large scale problems" in Advances in Neural Information Processing Systems 32 (NeurIPS 2019), Dec. 8-14, 2019, Vancouver, Canada

Exponential Convergence of Testing Error for Stochastic Gradient Methods

PILLAUD-VIVIEN, L., A. RUDI, F. BACH, "Exponential Convergence of Testing Error for Stochastic Gradient Methods" in Proceedings of Machine Learning Research, Volume 75: Conference On Learning Theory, July 6-9, 2018, Stockholm, Sweden

Manifold Structured Prediction

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On Fast Leverage Score Sampling and Optimal Learning

RUDI, A., D. CALANDRIELLO, L. CARRATINO, L. ROSASCO, "On Fast Leverage Score Sampling and Optimal Learning" in Advances in Neural Information Processing Systems 31 (NeurIPS 2018), Dec. 2-8, 2018, Montréal, Canada

Differential Properties of Sinkhorn Approximation for Learning with Wasserstein Distance

LUISE, G., A. RUDI, M. PONTIL, C. CILIBERTO, "Differential Properties of Sinkhorn Approximation for Learning with Wasserstein Distance" in Advances in Neural Information Processing Systems 31 (NeurIPS 2018), Dec. 2-8, 2018, Montréal, Canada

Statistical Optimality of Stochastic Gradient Descent on Hard Learning Problems through Multiple Passes

PILLAUD-VIVIEN, L., A. RUDI, F. BACH, "Statistical Optimality of Stochastic Gradient Descent on Hard Learning Problems through Multiple Passes" in Advances in Neural Information Processing Systems 31 (NeurIPS 2018), Dec. 2-8, 2018, Montréal, Canada

Learning with SGD and Random Features

CARRATINO, L., A. RUDI, L. ROSASCO, "Learning with SGD and Random Features" in Advances in Neural Information Processing Systems 31 (NeurIPS 2018), Dec. 2-8, 2018, Montréal, Canada

Consistent Multitask Learning with Nonlinear Output Relations

CILIBERTO, C., A. RUDI, L. ROSASCO, M. PONTIL, "Consistent Multitask Learning with Nonlinear Output Relations" in Advances in Neural Information Processing Systems 30 (NIPS 2017), Dec. 4-9, 2017, Long Beach, CA, United States of America

Generalization Properties of Learning with Random Features

RUDI, A., L. ROSASCO, "Generalization Properties of Learning with Random Features" in Advances in Neural Information Processing Systems 30 (NIPS 2017), Dec. 4-9, 2017, Long Beach, CA, United States of America

FALKON: An Optimal Large Scale Kernel Method

RUDI, A., L. CARRATINO, L. ROSASCO, "FALKON: An Optimal Large Scale Kernel Method" in Advances in Neural Information Processing Systems 30 (NIPS 2017), Dec. 4-9, 2017, Long Beach, CA, United States of America

NYTRO: When Subsampling Meets Early Stopping

CAMORIANO, R., T. ANGLES, A. RUDI, L. ROSASCO, "NYTRO: When Subsampling Meets Early Stopping" in Proceedings of Machine Learning Research, Volume 51: International Conference on Artificial Intelligence and Statistics, May 9-11, 2016, Cadiz, Spain

A Consistent Regularization Approach for Structured Prediction

CILIBERTO, C., L. ROSASCO, A. RUDI, "A Consistent Regularization Approach for Structured Prediction" in Advances in Neural Information Processing Systems 29 (NIPS 2016), Dec. 5-10, 2016, Barcelona, Spain

Less is More: Nyström Computational Regularization

RUDI, A., R. CAMORIANO, L. ROSASCO, "Less is More: Nyström Computational Regularization" in Advances in Neural Information Processing Systems 28 (NIPS 2015), Dec. 7-10, 2015, Montréal, Canada

On the Sample Complexity of Subspace Learning

RUDI, A., G. D. CANAS, L. ROSASCO, "On the Sample Complexity of Subspace Learning" in Advances in Neural Information Processing Systems 26 (NIPS 2013), Dec. 5-8, 2013, Lake Tahoe, Nevada, United States of America

A general method for the point of regard estimation in 3D space

PIRRI, F., M. PIZZOLI, A. RUDI, "A general method for the point of regard estimation in 3D space" in 2011 IEEE Conference on Computer Vision and Pattern Recognition (CVPR), June 20-25, 2011, Colorado Springs, United States of America