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Accelerated Optimization for Machine Learning

First-Order Algorithms

Springer

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Contents

Acronyms

AAAI	Association for the Advancement of Artificial Intelligence
AACD	Asynchronous Accelerated Coordinate Descent
AAGD	Asynchronous Accelerated Gradient Descent
AASCD	Asynchronous Accelerated Stochastic Coordinate Descent
AC-AGD	Almost Convex Accelerated Gradient Descent
Acc-ADMM	Accelerated Alternating Direction Method of Multiplier
Acc-SADMM	Accelerated Stochastic Alternating Direction Method of Multiplier
Acc-SDCA	Accelerated Stochastic Dual Coordinate Ascent
ADMM	Alternating Direction Method of Multiplier
AGD	Accelerated Gradient Descent
APG	Accelerated Proximal Gradient
ASCD	Accelerated Stochastic Coordinate Descent
ASGD	Asynchronous Stochastic Gradient Descent
ASVRG	Asynchronous Stochastic Variance Reduced Gradient
DSCAD	Distributed Stochastic Communication Accelerated Dual
ERM	Empirical Risk Minimization
EXTRA	EXact firsT-ordeR Algorithm
GIST	General Iterative Shrinkage and Thresholding
IC	Individually Convex
IFO	Incremental First-order Oracle
INC	Individually Nonconvex
iPiano	Inertial Proximal Algorithms for Nonconvex Optimization
IQC	Integral Quadratic Constraint
KKT	Karush–Kuhn–Tucker
KŁ	Kurdyka–Łojasiewicz
LASSO	Least Absolute Shrinkage and Selection Operator
LMI	Linear Matrix Inequality
MISO	Minimization by Incremental Surrogate Optimization
NC	Negative Curvature/Nonconvex
NCD	Negative Curvature Descent
PCA	Principal Component Analysis

PG	Proximal Gradient
SAG	Stochastic Average Gradient
SAGD	Stochastic Accelerated Gradient Descent
SCD	Stochastic Coordinate Descent
SDCA	Stochastic Dual Coordinate Ascent
SGD	Stochastic Gradient Descent
SPIDER	Stochastic Path-Integrated Differential Estimator
SVD	Singular Value Decomposition
SVM	Support Vector Machine
SVRG	Stochastic Variance Reduced Gradient
SVT	Singular Value Thresholding
VR	Variance Reduction