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Near Optimal Methods for Minimizing Convex Functions with Lipschitz p-th Derivatives

Alexander Gasnikov GASNIKOV@YANDEX.RU
Moscow Institute of Physics and Technology, Institute for Information Transmission Problems, National Research University Higher School of Economics

Pavel Dvurechensky PAVEL.DVURECHENSKY@GMAIL.COM
Weierstrass Institute for Applied Analysis and Stochastics, Institute for Information Transmission Problems

Eduard Gorbunov EDUARD.GORBUNOV@PHYSTECH.EDU
Moscow Institute of Physics and Technology

Evgeniya Vorontsova VORONTSOVAEA@GMAIL.COM
Grenoble Alpes University & Far Eastern Federal University, Russia

Daniil Selikhanovych SELIHANOVICH.DO@PHYSTECH.EDU
Moscow Institute of Physics and Technology, Institute for Information Transmission Problems

César A. Uribe CAURIBE@MIT.EDU
Massachusetts Institute of Technology

Bo Jiang ISYEBOJIANG@GMAIL.COM
Shanghai University of Finance and Economics

Haoyue Wang HAOYUEWANG14@FUDAN.EDU.CN
Fudan University

Shuzhong Zhang ZHANGS@UMN.EDU
University of Minnesota & The Chinese University of Hong Kong, Shenzhen

Sébastien Bubeck SEBUBECK@MICROSOFT.COM
Microsoft Research

Qijia Jiang QJIANG2@STANFORD.EDU
Stanford University

Yin Tat Lee YINTAT@UW.EDU
University of Washington & Microsoft Research

Yuanzhi Li YUANZHIL@STANFORD.EDU
Stanford University

Aaron Sidford SIDFORD@STANFORD.EDU
Stanford University

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Abstract

In this merged paper, we consider the problem of minimizing a convex function with Lipschitz-continuous p-th order derivatives. Given an oracle which when queried at a point returns the first p-derivatives of the function at that point we provide some methods which compute an ε approximate minimizer in $O\left(\varepsilon^{-\frac{2}{3p+1}}\right)$ iterations. These methods match known lower bounds up to poly-logarithmic factors for constant p.

1. Results

See Gasnikov et al. (2018); Jiang et al. (2018); Bubeck et al. (2018) for details.

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