

Optimization and Equilibrium Seminar

Speaker: Professor Maicon Marques Alves, Department of Mathematics, Federal University of Santa Catarina in Florianópolis (Brazil)

Title: Variants of the A-HPE and large-step A-HPE algorithms for strongly convex problems with applications to accelerated high-order tensor methods.

Abstract: For solving strongly convex optimization problems, we propose and study the global convergence of variants of the A-HPE and large-step A-HPE algorithms of Monteiro and Svaiter. We prove linear and the superlinear $\mathcal{O}\left(k^{\frac{1}{p+1}}, -k^{\frac{1}{p+1}}\right)$ global rates for the proposed variants of the A-HPE and large-step A-HPE methods, respectively. The parameter $p \geq 2$ appears in the (high-order) large-step condition of the new large-step A-HPE algorithm. We apply our results to high-order tensor methods, obtaining a new inexact (relative- error) tensor method for (smooth) strongly convex optimization with iteration complexity $\mathcal{O}\left(k^{\frac{1}{p+1}}, -k^{\frac{1}{p+1}}\right)$. In particular, for $p=2$, we obtain an inexact Newton-proximal algorithm with fast global $\mathcal{O}\left(k^{\frac{1}{3}}, -k^{\frac{1}{3}}\right)$ convergence rate.

Date: Wednesday, November 17, 2021 at 10:00 am (Chilean time)

link: <https://meet.google.com/xmu-cvfn-qkp>

Major information on the this and previous seminars may be found at:

<https://eventos.cmm.uchile.cl/optimseminar/seminars>