

Subdifferentiation of the Infimal Convolution and Minimal Time Problems

By: [Hantoute, A](#) (Hantoute, Abderrahim)^[1]; [Zakaryan, T](#) (Zakaryan, Taron)^[2]

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Abstract

We investigate in the Banach setting (not necessarily reflexive) first-order variations of the infimal convolution of fairly general functions. We characterize different subdifferentials and differentiability concepts of this infimal convolution by means of the corresponding subdifferentials and differentiability concepts, respectively, of data functions, at points where the infimal convolution is attained, well-posed, or strongly attained. Next, we apply these results to study the (sub)differentiability of minimal time functions associated with constant dynamics satisfying appropriate interiority conditions.

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Author Information

Reprint Address:

Universidad de Chile Univ Chile, Ctr Math Modeling, Santiago, Chile.

Corresponding Address: Hantoute, A (corresponding author)

+ Univ Chile, Ctr Math Modeling, Santiago, Chile.

Addresses:

+ [1] Univ Chile, Ctr Math Modeling, Santiago, Chile

[2] Univ Paris Nanterre, 200 Av Republ, F-92000 Nanterre, France

E-mail Addresses: ahantoute@dim.uchile.cl; taronzakaryan@gmail.com

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