
Global inversion of nonsmooth mappings using pseudo-Jacobian matrices

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We study the global inversion of a continuous nonsmooth mapping $f : \mathbb{R}^n \rightarrow \mathbb{R}^n$, which may be non-locally Lipschitz. To this end, we use the notion of pseudo-Jacobian map associated to f , introduced by Jeyakumar and Luc, and we consider a related index of regularity for f . We obtain a characterization of global inversion in terms of its index of regularity. Furthermore, we prove that the Hadamard integral condition has a natural counterpart in this setting, providing a sufficient condition for global invertibility.

Joint work with Jesús A. Jaramillo and Luis Sánchez-González.