On piecewise smooth optimization and algebraic inclusion solving

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Lipschitzian objectives have discontinuous gradients whose outer semicontinuous hull must contain the zero vector at local minima. We will present an optimization method that converges to stationary points satisfying second order necessary optimality conditions. We hope to extend this method to the nonsymmetric case of solving algebraic inclusions, which arise for example through the discretization of dynamical systems with discontinuous right hand sides. At this level of nonsmoothness numerical results are still restricted to problems of moderate size.