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FASTr: A Framework for Nonlinear Optimization

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Filter methods have been introduced as an alternative to penalty functions as a globalization strategy for nonlinear optimization methods. A filter borrows ideas from multi-objective optimization and accepts a trial point whenever the objective or the constraint violation is improved compared to previous iterates.

We present a non-monotone filter method that offers greater freedom at accepting points. The methods are implemented in FASTr, our filter active-set trust-region framework. We present recent numerical experience comparing various globalization strategies, as well as different step-computation techniques.