1145-90-1850   **Stephanie Ann Allen*** (`sallen7@math.umd.edu`), 6817 Pineway, University Park, MD 20782.
Working in Reverse: Inverse Optimization Methods in Pyomo. Preliminary report.

In a traditional constrained optimization framework, we aim to find the vector of decisions $\mathbf{x}^*$ such that an objective function $f(\mathbf{x})$ is minimized and such that $\mathbf{x}^* \in S$, with S defined by the intersection of a collection of constraints. However, it may be challenging to determine the appropriate parameter values for the objective function $f(\mathbf{x})$, making it valuable to use information about the solution to the model at a specific time point to estimate these unknown parameters. This process is known as inverse optimization. Although great progress has been made in this field over the last two decades, few software packages exist that implement methods associated with inverse optimization. Our research focuses on designing a model class for inverse optimization using the open source Python Optimization Modeling Objects (Pyomo) software package. We present preliminary results of this research, implementing methods presented by Ahuja & Orlin (2001) and Zhang et al. (2011) for linear and basic nonlinear cases, respectively. (Received September 24, 2018)

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