A GENERAL FORM OF LINEAR PROGRAMMING

$$\underset{x}{Maximize}\ z = \sum_{j=1}^{n} c_j x_j$$

$$Subject\ to\ y_i = \sum_{j=1}^{n} a_{ij} x_j \quad (i = 1, 2, \ldots, m)$$

$$l_j \le x_j \le u_j \quad \text{for } j = 1, \ldots, n;$$

$$b_i^l \le y_i \le b_i^u \quad \text{for } i = 1, \ldots, m$$

Very large problems (e.g., 1,000,000 rows by 10,000,000 columns) can be solved if the matrix {aij} is sparse. But not all problems are sparse. retroLP solves dense problems quickly. The graph shows running time of a standard implementation versus retroLP as a function of problem density. retroLP can also be easily modified to run on a cluster of workstations.

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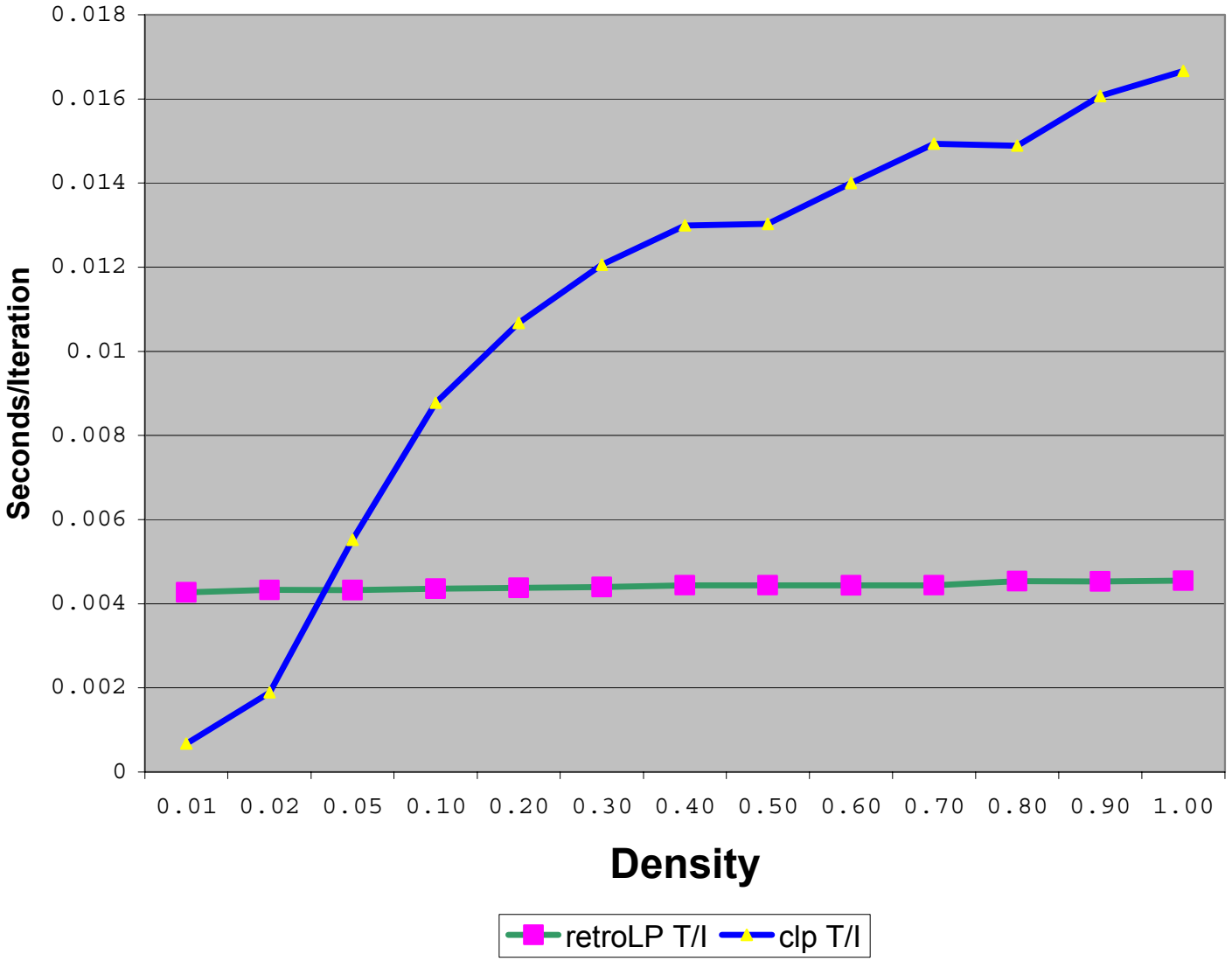
see http://cis.poly.edu/rvslyke/ for more details.

Time per Iteration for Steepest Edge



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