PSO-ACSC: a large-scale evolutionary algorithm for image matting

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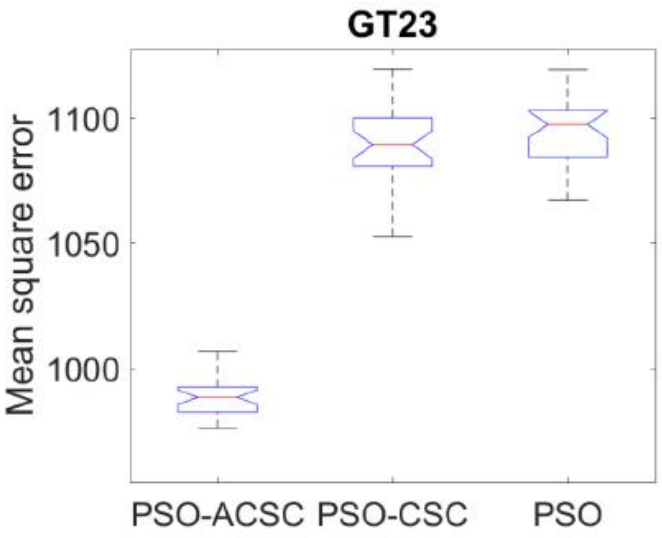
Problems & Ideas

- Problems of large-scale pixel pair optimization in sampling-based image matting
  - Premature convergence problems occurred when using evolutionary algorithm to solve the pixel pair optimization problem that involves a large number of local optima.
- Ideas: adaptively controlling the convergence speed (ACSC)
  - Recombine the individual with the best-so-far solution to improve its competitiveness when the performance of most of the pixel pairs is worse than that of the best-so-far solution.
  - Reset the individuals to avoid premature convergence when the alpha mattes regarding two selected particles are highly similar.

Main Contributions

- **ACSC significantly enhances the performance of PSO**



- **ACSC provides competitive alpha mattes in the comparison of state-of-the-art methods**