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Gilad Lerman* (lerman@umn.edu), 127 Vincent Hall 206 Church St. SE, Minneapolis, MN 55455, and **Yunpeng Shi** (shixx517@umn.edu), 127 Vincent Hall 206 Church St. SE, Minneapolis, MN 55455. *Robust Synchronization via Cycle Consistency Inference*. Preliminary report.

We propose a strategy for improving the existing methods for solving synchronization problems that arise from various computer vision tasks. Our strategy identifies severely corrupted relative measurements based on cycle consistency information. We provide exact recovery guarantees as the ratio of corrupted cycles per edge is sufficiently small. We further guarantee linear convergence of the proposed iterative solution. We also establish stability of the proposed algorithm to sub-Gaussian noise. (Received September 14, 2019)