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Mostafa Rahmani and **George Atia*** (george.atia@ucf.edu), Orlando, FL 32816. *Robust Principal Component Analysis Through Coherence Pursuit.*

We present a fast and powerful algorithm for robust Principal Component Analysis (PCA) termed Coherence Pursuit (CoP). Adopting a global view of a data point, CoP differentiates between an outlier and an inlier based on their total mutual coherence with the rest of the data. We establish theoretical performance guarantees for CoP under both unstructured and structured outlier models. CoP is the first robust PCA algorithm that is simultaneously fast, provably robust to both unstructured and structured outliers, and can tolerate a large number of unstructured outliers. (Received July 30, 2017)