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Dongmian Zou* (dzou@umn.edu), Institute for Mathematics and its Application, Lind Hall 433, University of Minnesota, Minneapolis, MN 55455, and **Gilad Lerman**. *Scattering transform on graphs*.

We construct a convolutional neural network on graphs by generalizing the scattering transform. The construction is based on graph wavelets or graph frames. Any feature generated by such a network is approximately invariant to permutations and stable to graph manipulations. Numerical results show that the graph scattering transform works effectively for classification and community detection problems. (Received August 23, 2018)