Multi-Scale Analysis of Data Based on Graph Wavelets: ADHD-200 Sample

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ABSTRACT

Graph wavelets are proven useful and efficient to deal with graph-like structured data [1,2]. We consider resting state functional MRI data of 216 Attention Deficit Hyperacticity Disorder (ADHD) patients and normal controls obtained from New York University [3]. From the data, a graph, or a network, is generated where its nodes represent individuals and edges are given by a proper similarity measure. We construct the scaling functions and wavelets on the graph and show that these functions at different scales retrieve meaningful information of the data at different levels.

REFERENCES

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2. Hammond, D.K., Vandergheynst, P., Gribonval, R.,"Wavelets on graphs via spectral graph theory", *Appl. Comput. Harmon. Analysis*, Vol. 30, 2011, pp. 129-150.
3. ADHD-200 sample: *http://fcon_1000.projects.nitrc.org/indi/adhd200/*