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Machine Learning on Graphs

Graphs, though omnipresent, had shied away from being in Machine Learning domain, in the past.

The reason is, they are different. They are unstructured. Unlike popular tabular (fixed rows and columns) and images (fixed length, width, and channels) data, graphs have variable number of nodes and edges, making them unsuitable as an input to Machine Learning (ML) algorithms. ML needs fixed-dimensioned-vectorized-features. Now, various approaches are getting devised to embed/vectorize graphs as well.

Say, for images, a window (convolution, filter) of fixed size runs over the image, condenses information in a fixed size format to be sent forward for ML. Now in graphs, as each node can have different number of neighbors, a special way of convolution has been devised to condense surround/neighbor's information. Such, condensed/vectored information of nodes then goes on to build overall graph information (vectors, features, embeddings).
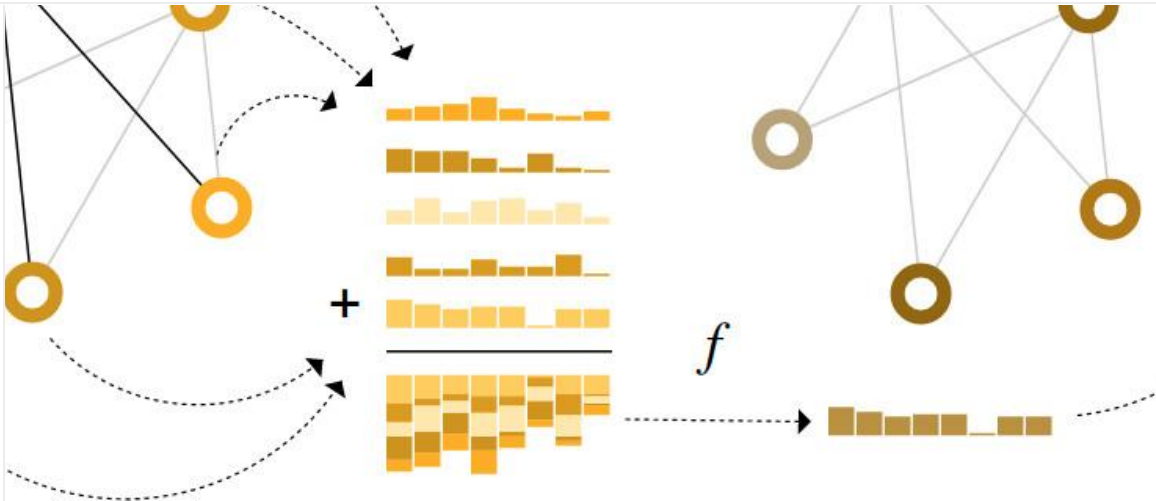
Following articles, at a wonderful site called 'distill.pub', explain Graphs and Convolutions on them.

Intro: https://lnkd.in/dWXuqBjM
Convolutions: https://lnkd.in/dR8-v8BH

Benjamin Sanchez Lengeling Emily Reif Adam Pearce Alex Wiltschko Ameya Daigavane Balaraman Ravindran Gaurav Aggarwal

#machinlearning #graphs #neuralnetwork #deeplearning #neuralnetworks #machinelearning #data #graphneuralnetwors #gnns #ml #ai #gcn #graphconvoutin Christopher Olah

A Gentle Introduction to Graph Neural Networks

distill.pub • 38 min read

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Srinivas Chillara • 1st   11mo •••
Managing Partner at SwanSpeed Consulting

Interesting. Though personally this isn't my area and hence I maynot follow further, even I could make out something from the summary. Thanks.

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Ajit Jadhav • 1st   11mo •••
World Rank # 5 on the MNIST benchmark problem.

Thanks for sharing

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