

Graph Embedding from Theory to Applications

Irwin King, FIEEE, DMacM
Department of Computer Science & Engineering
The Chinese University of Hong Kong
<http://irwinking.com>



Abstract

Graph embedding refers to the problem of projecting the elements in a graph, including nodes, edges, substructures, or the whole graph, to a low-dimensional space while preserving the graph's structural information. Graph embedding is an essential technique for analyzing various types of large-scale networks such as social networks, traffic networks, semantic networks, etc. To cope with the growing scale and diversifying structure of modern networks, researchers have proposed novel methods for graph embedding for feature engineering. In this talk, we present the recent advances and future directions in the theoretical development graph embedding and introduce some common applications for social network analysis, such as node classification, link prediction, community detection, and social recommendation.

Bio

Prof. Irwin King is the Chair and Professor of Computer Science & Engineering at The Chinese University of Hong Kong. His research interests include machine learning, social computing, AI, web intelligence, data mining, and multimedia information processing. In these research areas, he has over 350 technical publications in journals and conferences. He is an Associate Editor of the Journal of Neural Networks (NN). He is an IEEE Fellow, an ACM Distinguished Member, and a Fellow of Hong Kong Institute of Engineers (HKIE). He has served as the President of the International Neural Network Society (INNS), General Co-chair of The WebConf 2020, ICONIP 2020, WSDM 2011, RecSys 2013, ACML 2015, and in various capacities in a number of top conferences and societies such as WWW, NIPS, ICML, IJCAI, AAAI, APNNS, etc. He is the recipient of the ACM CIKM2019 Test of Time Award, the ACM SIGIR 2020 Test of Time Award, and 2020 APNNS Outstanding Achievement Award for his contributions made in social computing with machine learning. In early 2010 while on leave with AT&T Labs Research, San Francisco, he taught classes as a Visiting Professor at UC Berkeley. He received his B.Sc. degree in Engineering and Applied Science from California Institute of Technology (Caltech), Pasadena and his M.Sc. and Ph.D. degree in Computer Science from the University of Southern California (USC), Los Angeles.