



Multi-Modal Relational Knowledge Representation Learning



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► Abstract

Nowadays, people are deeply involved in various online web services (e.g., Facebook, Twitter), online shopping sites (e.g., Amazon), smart city applications (e.g., location-based online services and intelligent transportation systems), etc. Those complex systems are usually modeled as multi-modal relational structures associated with heterogeneous data sources. For example, accurate modeling of spatial-temporal data (e.g., crime, abnormal events and traffic flow) is very challenging as it is affected by many complex factors from different views: (i) temporal dynamic context; (ii) complex spatial dependency; (iii) latent semantic relations. In addition, user's behavioral patterns are often exhibited with multi-typed (e.g., browse, add-to-cart, purchase) and multi-resolution (e.g., daily, weekly and seasonal) nature. Thus, developing intelligent solutions to automatically distill useful information for individuals and provide personalized services to them is important. In addition, the abundant heterogeneous information in those systems requires both a domain understanding and large exploratory search space when doing feature engineering activities of customized machine learning models for different purposes. Therefore, developing intelligent solutions to generalize the feature engineering activity through automating the discovery of heterogeneous relational knowledge for various data mining tasks is crucial.

► About the Speaker

Chao Huang is a senior research scientist at the AI Lab of JD Research America in Silicon Valley. Before that, he obtained Ph.D. degree from the Computing Science and Engineering Department under the supervision of Prof. Nitesh V. Chawla, at University of Notre Dame in United States. His current research interests mainly focus on data mining, deep learning and multi-modal knowledge representation with their applications to spatial-temporal data mining, recommender systems and computational behavior modeling. He has published over 40 research papers in refereed venues on the research fields of data mining (KDD, ICDE, WSDM, ICDM), information retrieval (WWW, SIGIR, CIKM), artificial intelligence (AAAI, IJCAI), and human-cyber-physical systems (Infocom, IPSN). His first-authored paper has been awarded as the Best Paper Candidate in WWW'19. Furthermore, He has served as the PC member for top conferences including ICLR, KDD, WWW, SIGIR, AAAI, IJCAI, WSDM, CIKM, ICDM etc., and the regular reviewer for journals including TKDE, TKDD, TOIS, TNNLS, TOC, TIST etc. He has been awarded as ACM WSDM'20 conference outstanding reviewer. His developed machine learning frameworks have been i) successfully deployed on various large-scale AI and Big Data-driven platforms in practical scenarios; ii) covered by several media press.

