==========Keynote Talks==========

1, TITLE: Do Simpler Models Exist and How Can We Find Them?
https://doi.org/10.1145/3292500.3330823
AUTHORS: Cynthia Rudin
HIGHLIGHT: In this talk, I present an easy calculation to check for the possibility of a simpler model.

2, TITLE: The Unreasonable Effectiveness, and Difficulty, of Data in Healthcare
https://doi.org/10.1145/3292500.3330645
AUTHORS: Peter Lee
HIGHLIGHT: This talk illustrates what is possible in healthcare technology, and details key challenges that currently prevent this from becoming a reality.

==========Research Track Papers==========

3, TITLE: A Free Energy Based Approach for Distance Metric Learning
https://doi.org/10.1145/3292500.3330975
AUTHORS: Sho Inaba, Carl T. Fakhry, Rahul V. Kulkarni, Kourosh Zarringhalam
HIGHLIGHT: We present a reformulation of the distance metric learning problem as a penalized optimization problem, with a penalty term corresponding to the von Neumann entropy of the distance metric.

4, TITLE: A Hierarchical Career-Path-Aware Neural Network for Job Mobility Prediction
https://doi.org/10.1145/3292500.3330969
AUTHORS: Qingxin Meng, Hengshu Zhu, Keli Xiao, Le Zhang, Hui Xiong
HIGHLIGHT: To this end, in this paper, we propose a hierarchical career-path-aware neural network for learning individual-level job mobility.

5, TITLE: A Memory-Efficient Sketch Method for Estimating High Similarities in Streaming Sets
https://doi.org/10.1145/3292500.3330825
AUTHORS: Pinghui Wang, Yiyan Qi, Yuanming Zhang, Qiaozhu Zhai, Chenxu Wang, John C.S. Lui, Xiaohong Guan
HIGHLIGHT: To solve this problem, we design a memory efficient sketch method, MaxLogHash, to accurately estimate Jaccard similarities in streaming sets.

6, TITLE: A Minimax Game for Instance based Selective Transfer Learning
https://doi.org/10.1145/3292500.3330841
AUTHORS: Bo Wang, Minghui Qiu, Xisen Wang, Yaliang Li, Yu Gong, Xiaoyi Zeng, Jun Huang, Bo Zheng, Deng Cai, Jingren Zhou
HIGHLIGHT: To bridge this gap, we propose a general Minimax Game based model for selective Transfer Learning (MGTL).

7, TITLE: A Multiscale Scan Statistic for Adaptive Submatrix Localization
https://doi.org/10.1145/3292500.3330916
AUTHORS: Yuchao Liu, Ery Arias-Castro
HIGHLIGHT: We consider the problem of localizing a submatrix with larger-than-usual entry values inside a data matrix, without the prior knowledge of the submatrix size.

8, TITLE: A Permutation Approach to Assess Confounding in Machine Learning Applications for Digital Health
https://doi.org/10.1145/3292500.3330903
AUTHORS: Elias Chaibub Neto, Abhishek Pratap, Thanneer M. Perumal, Meghasyam Tummalacherla, Brian M. Bot, Lara Mangravite, Larsson Omberg
HIGHLIGHT: Here, instead of proposing a new method to control for confounding, we develop novel permutation based statistical tools to detect and quantify the influence of observed confounders, and estimate the unconfounded performance of the learner.

9, TITLE: A Representation Learning Framework for Property Graphs
https://doi.org/10.1145/3292500.3330948
AUTHORS: Yifan Hou, Hongzhi Chen, Changji Li, James Cheng, Ming-Chang Yang
HIGHLIGHT: We propose PGE, a graph representation learning framework that incorporates both node and edge properties into the graph embedding procedure.

10, TITLE: Adaptive Deep Models for Incremental Learning: Considering Capacity Scalability and Sustainability

https://doi.org/10.1145/3292500.3330865
AUTHORS: Yang Yang, Da-Wei Zhou, De-Chuan Zhan, Hui Xiong, Yuan Jiang
HIGHLIGHT: To this end, in this paper, we develop an incremental adaptive deep model (IADM) for dealing with the above two capacity challenges in real-world incremental data scenarios.

11, TITLE: Adaptive Graph Guided Disambiguation for Partial Label Learning
https://doi.org/10.1145/3292500.3330840
AUTHORS: Deng-Bao Wang, Li Li, Min-Ling Zhang
HIGHLIGHT: To this end, we proposed a novel approach for partial label learning based on adaptive graph guided disambiguation (PL-AGGD).

12, TITLE: Adaptive Unsupervised Feature Selection on Attributed Networks
https://doi.org/10.1145/3292500.3330856
AUTHORS: Jundong Li, Ruocheng Guo, Chenghao Liu, Huan Liu
HIGHLIGHT: Motivated by the sociology findings, in this work, we investigate how to harness the tie strength information embedded on the network structure to facilitate the selection of relevant nodal attributes.

13, TITLE: Adaptive-Halting Policy Network for Early Classification
https://doi.org/10.1145/3292500.3330974
AUTHORS: Thomas Hartvigsen, Cansu Sen, Xiangnan Kong, Elke Rundensteiner
HIGHLIGHT: We design an early classification model, called EARLIEST, which tackles this multi-objective optimization problem, jointly learning (1) to classify time series and (2) at which timestep to halt and generate this prediction.

14, TITLE: ADMM for Efficient Deep Learning with Global Convergence
https://doi.org/10.1145/3292500.3330936
AUTHORS: Junxiang Wang, Fuxun Yu, Xiang Chen, Liang Zhao
HIGHLIGHT: In this paper, we propose a novel optimization framework for deep learning via ADMM (dlADMM) to address these challenges simultaneously.

15, TITLE: Adversarial Learning on Heterogeneous Information Networks
https://doi.org/10.1145/3292500.3330970
AUTHORS: Binbin Hu, Yuan Fang, Chuan Shi
HIGHLIGHT: Inspired by generative adversarial networks (GAN), we develop a novel framework HeGAN for HIN embedding, which trains both a discriminator and a generator in a minimax game.

16, TITLE: Adversarial Substructured Representation Learning for Mobile User Profiling
https://doi.org/10.1145/3292500.3330869
AUTHORS: Pengyang Wang, Yanjie Fu, Hui Xiong, Xiaolin Li
HIGHLIGHT: Specifically, in this paper, we study the problem of mobile users profiling with POI check-in data.

17, TITLE: Adversarial Variational Embedding for Robust Semi-supervised Learning
https://doi.org/10.1145/3292500.3330966
AUTHORS: Xiang Zhang, Lina Yao, Feng Yuan
HIGHLIGHT: To address the aforementioned issues, we propose a novel Adversarial Variational Embedding (AVAE) framework for robust and effective semi-supervised learning to leverage both the advantage of GAN as a high quality generative model and VAE as a posterior distribution learner.

18, TITLE: Adversarially Robust Submodular Maximization under Knapsack Constraints
https://doi.org/10.1145/3292500.3330911
AUTHORS: Dmitrii Avdiukhin, Slobodan Mitrovic, Grigory Yaroslavtsev, Samson Zhou
HIGHLIGHT: We propose the first adversarially robust algorithm for monotone submodular maximization under single and multiple knapsack constraints with scalable implementations in distributed and streaming settings.

19, TITLE: An Visual Dialog Augmented Interactive Recommender System
https://doi.org/10.1145/3292500.3330991
AUTHORS: Tong Yu, Yilin Shen, Hongxia Jin
HIGHLIGHT: In this paper, we propose a novel dialog-based recommender system to interactively recommend a list of items with visual appearance.

20, TITLE: Assessing The Factual Accuracy of Generated Text

https://doi.org/10.1145/3292500.3330955
AUTHORS: Ben Goodrich, Vinay Rao, Peter J. Liu, Mohammad Saleh
HIGHLIGHT: We propose a model-based metric to estimate the factual accuracy of generated text that is complementary to typical scoring schemes like ROUGE (Recall-Oriented Understudy for Gisting Evaluation) and BLEU (Bilingual Evaluation Understudy).
We introduce and release a new large-scale dataset based on Wikipedia and Wikidata to train relation classifiers and end-to-end fact extraction models.

21, TITLE: AtSNE: Efficient and Robust Visualization on GPU through Hierarchical Optimization
https://doi.org/10.1145/3292500.3330834
AUTHORS: Cong Fu, Yonghui Zhang, Deng Cai, Xiang Ren
HIGHLIGHT: To address the aforementioned problems, we propose a novel visualization approach named as Anchor-t-SNE (AtSNE), which provides efficient GPU-based visualization solution for large-scale and high-dimensional data.

22, TITLE: Attribute-Driven Backbone Discovery
https://doi.org/10.1145/3292500.3330934
AUTHORS: Sheng Guan, Hanchao Ma, Yinghui Wu
HIGHLIGHT: This paper introduces a novel class of attributed backbones and detection algorithms in richly attributed networks.

23, TITLE: Auditing Data Provenance in Text-Generation Models
https://doi.org/10.1145/3292500.3330885
AUTHORS: Congzheng Song, Vitaly Shmatikov
HIGHLIGHT: To help enforce data-protection regulations such as GDPR and detect unauthorized uses of personal data, we develop a new model auditing technique that helps users check if their data was used to train a machine learning model.

24, TITLE: Automating Feature Subspace Exploration via Multi-Agent Reinforcement Learning
https://doi.org/10.1145/3292500.3330868
AUTHORS: Kunpeng Liu, Yanjie Fu, Pengfei Wang, Le Wu, Rui Bo, Xiaolin Li
HIGHLIGHT: In this paper, we propose a multi-agent reinforcement learning framework for the feature selection problem.

25, TITLE: AutoNE: Hyperparameter Optimization for Massive Network Embedding
https://doi.org/10.1145/3292500.3330848
AUTHORS: Ke Tu, Jianxin Ma, Peng Cui, Jian Pei, Wenwu Zhu
HIGHLIGHT: In this paper, we propose a novel framework, named AutoNE, to automatically optimize the hyperparameters of a NE algorithm on massive networks.

26, TITLE: Axiomatic Interpretability for Multiclass Additive Models
https://doi.org/10.1145/3292500.3330898
AUTHORS: Xuezhou Zhang, Sarah Tan, Paul Koch, Yin Lou, Urszula Chajewska, Rich Caruana
HIGHLIGHT: Axiomatic Interpretability for Multiclass Additive Models

27, TITLE: Beyond Personalization: Social Content Recommendation for Creator Equality and Consumer Satisfaction
https://doi.org/10.1145/3292500.3330965
AUTHORS: Wenyi Xiao, Huan Zhao, Haojie Pan, Yangqiu Song, Vincent W. Zheng, Qiang Yang
HIGHLIGHT: In this paper, we propose a model called Social Explorative Attention Network (SEAN) for content recommendation.

28, TITLE: Certifiable Robustness and Robust Training for Graph Convolutional Networks
https://doi.org/10.1145/3292500.3330905
AUTHORS: Daniel Z?gner, Stephan G?nnemann
HIGHLIGHT: We propose the first method for certifiable (non-)robustness of graph convolutional networks with respect to perturbations of the node attributes.

29, TITLE: Cluster-GCN: An Efficient Algorithm for Training Deep and Large Graph Convolutional Networks
https://doi.org/10.1145/3292500.3330925
AUTHORS: Wei-Lin Chiang, Xuanqing Liu, Si Si, Yang Li, Samy Bengio, Cho-Jui Hsieh
HIGHLIGHT: In this paper, we propose Cluster-GCN, a novel GCN algorithm that is suitable for SGD-based training by exploiting the graph clustering structure.
To test the scalability of our algorithm, we create a new Amazon2M data with 2 million nodes and 61 million edges which is more than 5 times larger than the previous largest publicly available dataset (Reddit).

30, TITLE: Clustering without Over-Representation
https://doi.org/10.1145/3292500.3330987
AUTHORS: Sara Ahmadian, Alessandro Epasto, Ravi Kumar, Mohammad Mahdian
HIGHLIGHT: In this paper we consider clustering problems in which each point is endowed with a color.

31, TITLE: Conditional Random Field Enhanced Graph Convolutional Neural Networks
https://doi.org/10.1145/3292500.3330888
AUTHORS: Hongchang Gao, Jian Pei, Heng Huang
HIGHLIGHT: To address this issue, we propose a novel CRF layer for graph convolutional neural networks to encourage similar nodes to have similar hidden features.

32, TITLE: Contextual Fact Ranking and Its Applications in Table Synthesis and Compression
https://doi.org/10.1145/3292500.3330980
AUTHORS: Silu Huang, Jialu Liu, Flip Korn, Xuezhi Wang, You Wu, Dale Markowitz, Cong Yu
HIGHLIGHT: In particular, we develop pointwise and pair-wise ranking models, using textual and statistical information for the given entities and context derived from their sources.

33, TITLE: Contrastive Antichains in Hierarchies
https://doi.org/10.1145/3292500.3330954
AUTHORS: Anes Bendimerad, Jefrey Lijffijt, Marc Plantevit, C?line Robardet, Tijl De Bie
HIGHLIGHT: In the present paper, we attempt to characterize such concepts in terms of so-called contrastive antichains: particular kinds of subsets of their attributes and their values.

34, TITLE: Co-Prediction of Multiple Transportation Demands Based on Deep Spatio-Temporal Neural Network
https://doi.org/10.1145/3292500.3330887
AUTHORS: Junchen Ye, Leilei Sun, Bowen Du, Yanjie Fu, Xinran Tong, Hui Xiong
HIGHLIGHT: Along this line, this paper provides a novel Co-prediction method based on Spatio-Temporal neural Network, namely, CoST-Net.

35, TITLE: Coresets for Minimum Enclosing Balls over Sliding Windows
https://doi.org/10.1145/3292500.3330826
AUTHORS: Yanhao Wang, Yuchen Li, Kian-Lee Tan
HIGHLIGHT: This paper investigates the problem of maintaining a coreset to preserve the minimum enclosing ball (MEB) for a sliding window of points that are continuously updated in a data stream.

36, TITLE: CoSTCo: A Neural Tensor Completion Model for Sparse Tensors
https://doi.org/10.1145/3292500.3330881
AUTHORS: Hanpeng Liu, Yaguang Li, Michael Tsang, Yan Liu
HIGHLIGHT: We propose a novel convolutional neural network (CNN) based model, named CoSTCo (Convolutional Sparse Tensor Completion).

37, TITLE: Coupled Variational Recurrent Collaborative Filtering
https://doi.org/10.1145/3292500.3330940
AUTHORS: Qingquan Song, Shiyu Chang, Xia Hu
HIGHLIGHT: To bridge the gap, in this paper, we propose a Coupled Variational Recurrent Collaborative Filtering (CVRCF) framework based on the idea of Deep Bayesian Learning to handle the streaming recommendation problem.

38, TITLE: DAML: Dual Attention Mutual Learning between Ratings and Reviews for Item Recommendation
https://doi.org/10.1145/3292500.3330906
AUTHORS: Donghua Liu, Jing Li, Bo Du, Jun Chang, Rong Gao
HIGHLIGHT: Therefore, we propose a novel d ual a ttention m utual l earning between ratings and reviews for item recommendation, named DAML.

39, TITLE: Deep Anomaly Detection with Deviation Networks
https://doi.org/10.1145/3292500.3330871
AUTHORS: Guansong Pang, Chunhua Shen, Anton van den Hengel
HIGHLIGHT: This paper introduces a novel anomaly detection framework and its instantiation to address these problems.

40, TITLE: Deep Landscape Forecasting for Real-time Bidding Advertising
https://doi.org/10.1145/3292500.3330870
AUTHORS: Kan Ren, Jiarui Qin, Lei Zheng, Zhengyu Yang, Weinan Zhang, Yong Yu
HIGHLIGHT: In order to capture more sophisticated yet flexible patterns at fine-grained level of the data, we propose a Deep Landscape Forecasting (DLF) model which combines deep learning for probability distribution forecasting and survival analysis for censorship handling.

41, TITLE: Deep Mixture Point Processes: Spatio-temporal Event Prediction with Rich Contextual Information
https://doi.org/10.1145/3292500.3330937
AUTHORS: Maya Okawa, Tomoharu Iwata, Takeshi Kurashima, Yusuke Tanaka, Hiroyuki Toda, Naonori Ueda
HIGHLIGHT: In this paper, we propose DMPP (Deep Mixture Point Processes), a point process model for predicting spatio-temporal events with the use of rich contextual information; a key advance is its incorporation of the heterogeneous and high-dimensional context available in image and text data.

42, TITLE: DeepGBM: A Deep Learning Framework Distilled by GBDT for Online Prediction Tasks
https://doi.org/10.1145/3292500.3330858
AUTHORS: Guolin Ke, Zhenhui Xu, Jia Zhang, Jiang Bian, Tie-Yan Liu
HIGHLIGHT: In this paper, we propose a new learning framework, DeepGBM, which integrates the advantages of the both NN and GBDT by using two corresponding NN components: (1) CatNN, focusing on handling sparse categorical features.

43, TITLE: dEFEND: Explainable Fake News Detection
https://doi.org/10.1145/3292500.3330935
AUTHORS: Kai Shu, Limeng Cui, Suhang Wang, Dongwon Lee, Huan Liu
HIGHLIGHT: In this paper, therefore, we study the explainable detection of fake news.

44, TITLE: DEMO-Net: Degree-specific Graph Neural Networks for Node and Graph Classification
https://doi.org/10.1145/3292500.3330950
AUTHORS: Jun Wu, Jingrui He, Jiejun Xu
HIGHLIGHT: To address these problems, we propose a generic degree-specific graph neural network named DEMO-Net motivated by Weisfeiler-Lehman graph isomorphism test that recursively identifies 1-hop neighborhood structures.

45, TITLE: Disambiguation Enabled Linear Discriminant Analysis for Partial Label Dimensionality Reduction
https://doi.org/10.1145/3292500.3330901
AUTHORS: Jing-Han Wu, Min-Ling Zhang
HIGHLIGHT: In this paper, the first attempt towards partial label dimensionality reduction is investigated by endowing the popular linear discriminant analysis (LDA) techniques with the ability of dealing with partial label training examples.

46, TITLE: Discovering Unexpected Local Nonlinear Interactions in Scientific Black-box Models
https://doi.org/10.1145/3292500.3330886
AUTHORS: Michael Doron, Idan Segev, Dafna Shahaf
HIGHLIGHT: In this work, we present HINT (Hessian INTerestingness) -- a new algorithm that can automatically and systematically explore black-box models and highlight local nonlinear interactions in the input-output space of the model.

47, TITLE: Dual Averaging Method for Online Graph-structured Sparsity
https://doi.org/10.1145/3292500.3330915
AUTHORS: Baojian Zhou, Feng Chen, Yiming Ying
HIGHLIGHT: To address these limitations, in this paper we propose a new algorithm for graph-structured sparsity constraint problems under online setting, which we call GraphDA.

48, TITLE: Dual Sequential Prediction Models Linking Sequential Recommendation and Information Dissemination
https://doi.org/10.1145/3292500.3330959
AUTHORS: Qitian Wu, Yirui Gao, Xiaofeng Gao, Paul Weng, Guihai Chen
HIGHLIGHT: The difference is that the former deals with users' histories of clicked items, while the latter focuses on items' histories of infected users.In this paper, we take a fresh view and propose dual sequential prediction models that unify these two thinking paradigms.

49, TITLE: Dynamic Modeling and Forecasting of Time-evolving Data Streams
https://doi.org/10.1145/3292500.3330947
AUTHORS: Yasuko Matsubara, Yasushi Sakurai
HIGHLIGHT: We present an intuitive model, namely OrbitMap, which provides a good summary of time-series evolution in streams.

50, TITLE: Dynamical Origins of Distribution Functions
https://doi.org/10.1145/3292500.3330842
AUTHORS: Chengxi Zang, Peng Cui, Wenwu Zhu, Fei Wang
HIGHLIGHT: In this paper, we try to model these time-evolving phenomena by a dynamic system and the data sets observed at different time stamps are probability distribution functions generated by such a dynamic system.

51, TITLE: EdMot: An Edge Enhancement Approach for Motif-aware Community Detection
https://doi.org/10.1145/3292500.3330882
AUTHORS: Pei-Zhen Li, Ling Huang, Chang-Dong Wang, Jian-Huang Lai
HIGHLIGHT: To address the above fragmentation issue, we propose an Edge enhancement approach for Motif-aware community detection (EdMot).

52, TITLE: Effective and Efficient Reuse of Past Travel Behavior for Route Recommendation
https://doi.org/10.1145/3292500.3330835
AUTHORS: Lisi Chen, Shuo Shang, Christian S. Jensen, Bin Yao, Zhiwei Zhang, Ling Shao
HIGHLIGHT: To this end, we propose a novel parallel split-and-combine approach to enable route search by locations (RSL-Psc).

53, TITLE: Effective and Efficient Sports Play Retrieval with Deep Representation Learning
https://doi.org/10.1145/3292500.3330927
AUTHORS: Zheng Wang, Cheng Long, Gao Cong, Ce Ju
HIGHLIGHT: To this end, we propose a deep learning approach to learn the representations of sports plays, called play2vec, which is robust against noise and takes only linear time to compute the similarity between two sports plays.

54, TITLE: Efficient and Effective Express via Contextual Cooperative Reinforcement Learning
https://doi.org/10.1145/3292500.3330968
AUTHORS: Yexin Li, Yu Zheng, Qiang Yang
HIGHLIGHT: Considering this problem, we propose a reinforcement learning based framework to learn a courier management policy.

55, TITLE: Efficient Global String Kernel with Random Features: Beyond Counting Substructures
https://doi.org/10.1145/3292500.3330923
AUTHORS: Lingfei Wu, Ian En-Hsu Yen, Siyu Huo, Liang Zhao, Kun Xu, Liang Ma, Shouling Ji, Charu Aggarwal
HIGHLIGHT: In this paper, we present a new class of global string kernels that aims to (i) discover global properties hidden in the strings through global alignments, (ii) maintain positive-definiteness of the kernel, without introducing a diagonal dominant kernel matrix, and (iii) have a training cost linear with respect to not only the length of the string but also the number of training string samples.

56, TITLE: Efficient Maximum Clique Computation over Large Sparse Graphs
https://doi.org/10.1145/3292500.3330986
AUTHORS: Lijun Chang
HIGHLIGHT: In this paper, we design an algorithm MC-BRB which transforms an instance of MCC-Sparse to instances of k-clique finding over dense subgraphs (KCF-Dense) that can be computed by the existing MCC-Dense solvers.

57, TITLE: Empowering A* Search Algorithms with Neural Networks for Personalized Route Recommendation
https://doi.org/10.1145/3292500.3330824
AUTHORS: Jingyuan Wang, Ning Wu, Wayne Xin Zhao, Fanzhang Peng, Xin Lin
HIGHLIGHT: To address these issues, we propose using neural networks to automatically learn the cost functions of a classic heuristic algorithm, namely A* algorithm, for the PRR task.

58, TITLE: Enhancing Collaborative Filtering with Generative Augmentation
https://doi.org/10.1145/3292500.3330873
AUTHORS: Qinyong Wang, Hongzhi Yin, Hao Wang, Quoc Viet Hung Nguyen, Zi Huang, Lizhen Cui
HIGHLIGHT: In light of these challenges, we propose a generic and effective CF model called AugCF that supports a wide variety of recommendation tasks.

59, TITLE: Enhancing Domain Word Embedding via Latent Semantic Imputation
https://doi.org/10.1145/3292500.3330926
AUTHORS: Shibo Yao, Dantong Yu, Keli Xiao

HIGHLIGHT: We present a novel method named Latent Semantic Imputation (LSI) to transfer external knowledge into semantic space for enhancing word embedding.

60, TITLE: Environment Reconstruction with Hidden Confounders for Reinforcement Learning based Recommendation
https://doi.org/10.1145/3292500.3330933
AUTHORS: Wenjie Shang, Yang Yu, Qingyang Li, Zhiwei Qin, Yiping Meng, Jieping Ye
HIGHLIGHT: In this paper, by treating the hidden confounder as a hidden policy, we propose a deconfounded multi-agent environment reconstruction (DEMER) approach in order to learn the environment together with the hidden confounder.

61, TITLE: EpiDeep: Exploiting Embeddings for Epidemic Forecasting
https://doi.org/10.1145/3292500.3330917
AUTHORS: Bijaya Adhikari, Xinfeng Xu, Naren Ramakrishnan, B. Aditya Prakash
HIGHLIGHT: We propose EpiDeep, a novel deep neural network approach for epidemic forecasting which tackles all of these issues by learning meaningful representations of incidence curves in a continuous feature space and accurately predicting future incidences, peak intensity, peak time, and onset of the upcoming season.

62, TITLE: Estimating Graphlet Statistics via Lifting
https://doi.org/10.1145/3292500.3330995
AUTHORS: Kirill Paramonov, Dmitry Shemetov, James Sharpnack
HIGHLIGHT: We introduce a framework for estimating the graphlet count---the number of occurrences of a small subgraph motif (e.g. a wedge or a triangle) in the network.

63, TITLE: Estimating Node Importance in Knowledge Graphs Using Graph Neural Networks
https://doi.org/10.1145/3292500.3330855
AUTHORS: Namyong Park, Andrey Kan, Xin Luna Dong, Tong Zhao, Christos Faloutsos
HIGHLIGHT: In this paper, we present GENI, a method for tackling the problem of estimating node importance in KGs, which enables several downstream applications such as item recommendation and resource allocation.

64, TITLE: ET-Lasso: A New Efficient Tuning of Lasso-type Regularization for High-Dimensional Data
https://doi.org/10.1145/3292500.3330910
AUTHORS: Songshan Yang, Jiawei Wen, Xiang Zhan, Daniel Kifer
HIGHLIGHT: Motivated by these ideas, we propose a new method using pseudo-features to obtain an ideal tuning parameter.

65, TITLE: Exact-K Recommendation via Maximal Clique Optimization
https://doi.org/10.1145/3292500.3330832
AUTHORS: Yu Gong, Yu Zhu, Lu Duan, Qingwen Liu, Ziyu Guan, Fei Sun, Wenwu Ou, Kenny Q. Zhu
HIGHLIGHT: To tackle this specific combinatorial optimization problem which is NP-hard, we propose Graph Attention Networks (GAttN) with a Multi-head Self-attention encoder and a decoder with attention mechanism.

66, TITLE: Exploiting Cognitive Structure for Adaptive Learning
https://doi.org/10.1145/3292500.3330922
AUTHORS: Qi Liu, Shiwei Tong, Chuanren Liu, Hongke Zhao, Enhong Chen, Haiping Ma, Shijin Wang
HIGHLIGHT: To fully exploit the multifaceted cognitive structure for learning path recommendation, we propose a Cognitive Structure Enhanced framework for Adaptive Learning, named CSEAL.

67, TITLE: Factorization Bandits for Online Influence Maximization
https://doi.org/10.1145/3292500.3330874
AUTHORS: Qingyun Wu, Zhige Li, Huazheng Wang, Wei Chen, Hongning Wang
HIGHLIGHT: In this paper, we study the problem of online influence maximization in social networks.

68, TITLE: Fast and Accurate Anomaly Detection in Dynamic Graphs with a Two-Pronged Approach
https://doi.org/10.1145/3292500.3330946
AUTHORS: Minji Yoon, Bryan Hooi, Kijung Shin, Christos Faloutsos
HIGHLIGHT: In this work, we propose AnomRank, an online algorithm for anomaly detection in dynamic graphs.

69, TITLE: Fast Approximation of Empirical Entropy via Subsampling
https://doi.org/10.1145/3292500.3330938
AUTHORS: Chi Wang, Bailu Ding
HIGHLIGHT: We develop algorithms to progressively subsample the dataset and return correct answers with high probability.

70, TITLE: Fates of Microscopic Social Ecosystems: Keep Alive or Dead?
https://doi.org/10.1145/3292500.3330827
AUTHORS: Haoyang Li, Peng Cui, Chengxi Zang, Tianyang Zhang, Wenwu Zhu, Yishi Lin
HIGHLIGHT: In this paper, rather than studying social ecosystems at the population level, we analyze the fates of different microscopic social ecosystems, namely the final states of their collective activity dynamics in a real-world online social media with detailed individual level records for the first time.

71, TITLE: Fighting Opinion Control in Social Networks via Link Recommendation
https://doi.org/10.1145/3292500.3330960
AUTHORS: Victor Amelkin, Ambuj K. Singh
HIGHLIGHT: In this work, we assume that the adversary aims to maliciously change the network's average opinion by altering the opinions of some unknown users. We, then, state an NP-hard problem of disabling such opinion control attempts via strategically altering the network's users' eigencentralities by recommending a limited number of links to the users.

72, TITLE: Figuring out the User in a Few Steps: Bayesian Multifidelity Active Search with Cokriging
https://doi.org/10.1145/3292500.3330893
AUTHORS: Nikita Klyuchnikov, Davide Mottin, Georgia Koutrika, Emmanuel M?ller, Panagiotis Karras
HIGHLIGHT: In this paper, we propose MF-ASC, a novel active search mechanism that performs well with minimal user input.

73, TITLE: Focused Context Balancing for Robust Offline Policy Evaluation
https://doi.org/10.1145/3292500.3330852
AUTHORS: Hao Zou, Kun Kuang, Boqi Chen, Peixuan Chen, Peng Cui
HIGHLIGHT: In this paper, we propose a non-parametric method, named Focused Context Balancing (FCB) algorithm, to learn sample weights for context balancing, so that the distribution shift induced by the past policy and new policy can be eliminated respectively.

74, TITLE: GCN-MF: Disease-Gene Association Identification By Graph Convolutional Networks and Matrix Factorization
https://doi.org/10.1145/3292500.3330912
AUTHORS: Peng Han, Peng Yang, Peilin Zhao, Shuo Shang, Yong Liu, Jiayu Zhou, Xin Gao, Panos Kalnis
HIGHLIGHT: In this paper, we propose a new framework for disease-gene association task by combining Graph Convolutional Network (GCN) and matrix factorization, named GCN-MF.

75, TITLE: Gradient-based Hierarchical Clustering using Continuous Representations of Trees in Hyperbolic Space
https://doi.org/10.1145/3292500.3330997
AUTHORS: Nicholas Monath, Manzil Zaheer, Daniel Silva, Andrew McCallum, Amr Ahmed
HIGHLIGHT: In this paper, we present an approach for hierarchical clustering that searches over continuous representations of trees in hyperbolic space by running gradient descent.

76, TITLE: Graph Convolutional Networks with EigenPooling
https://doi.org/10.1145/3292500.3330982
AUTHORS: Yao Ma, Suhang Wang, Charu C. Aggarwal, Jiliang Tang
HIGHLIGHT: In this paper, we introduce a pooling operator $\pooling$ based on graph Fourier transform, which can utilize the node features and local structures during the pooling process.

77, TITLE: Graph Recurrent Networks With Attributed Random Walks
https://doi.org/10.1145/3292500.3330941
AUTHORS: Xiao Huang, Qingquan Song, Yuening Li, Xia Hu
HIGHLIGHT: To bridge the gap, we explore to perform joint random walks on attributed networks, and utilize them to boost the deep node representation learning.

78, TITLE: Graph Representation Learning via Hard and Channel-Wise Attention Networks
https://doi.org/10.1145/3292500.3330897
AUTHORS: Hongyang Gao, Shuiwang Ji
HIGHLIGHT: In this work, we propose novel hard graph attention operator~(hGAO) and channel-wise graph attention operator~(cGAO).

79, TITLE: Graph Transformation Policy Network for Chemical Reaction Prediction
https://doi.org/10.1145/3292500.3330958

AUTHORS: Kien Do, Truyen Tran, Svetha Venkatesh
HIGHLIGHT: To this end, we propose Graph Transformation Policy Network (GTPN) - a novel generic method that combines the strengths of graph neural networks and reinforcement learning to learn reactions directly from data with minimal chemical knowledge.

80, TITLE: Graph-based Semi-Supervised & Active Learning for Edge Flows
https://doi.org/10.1145/3292500.3330872
AUTHORS: Junteng Jia, Michael T. Schaub, Santiago Segarra, Austin R. Benson
HIGHLIGHT: We present a graph-based semi-supervised learning (SSL) method for learning edge flows defined on a graph.

81, TITLE: GroupINN: Grouping-based Interpretable Neural Network for Classification of Limited, Noisy Brain Data
https://doi.org/10.1145/3292500.3330921
AUTHORS: Yujun Yan, Jiong Zhu, Marlena Duda, Eric Solarz, Chandra Sripada, Danai Koutra
HIGHLIGHT: In this work focusing on fMRI-derived brain graphs, a modality that partially handles some challenges of fMRI data, we propose a grouping-based interpretable neural network model, GroupINN, that effectively classifies cognitive performance with 85% fewer model parameters than baseline deep models, while also identifying the most predictive brain subnetworks within several task-specific contexts.

82, TITLE: HATS: A Hierarchical Sequence-Attention Framework for Inductive Set-of-Sets Embeddings
https://doi.org/10.1145/3292500.3330876
AUTHORS: Changping Meng, Jiasen Yang, Bruno Ribeiro, Jennifer Neville
HIGHLIGHT: In this work, we develop a deep neural network framework to learn inductive SoS embeddings that are invariant to SoS permutations.

83, TITLE: Heterogeneous Graph Neural Network
https://doi.org/10.1145/3292500.3330961
AUTHORS: Chuxu Zhang, Dongjin Song, Chao Huang, Ananthram Swami, Nitesh V. Chawla
HIGHLIGHT: In this paper, we propose HetGNN, a heterogeneous graph neural network model, to resolve this issue.

84, TITLE: Hidden Markov Contour Tree: A Spatial Structured Model for Hydrological Applications
https://doi.org/10.1145/3292500.3330878
AUTHORS: Zhe Jiang, Arpan Man Sainju
HIGHLIGHT: To fill the gap, this paper proposes a novel spatial structured model called hidden Markov contour tree (HMCT), which generalizes the traditional hidden Markov model from a total order sequence to a partial order polytree.

85, TITLE: Hidden POI Ranking with Spatial Crowdsourcing
https://doi.org/10.1145/3292500.3330844
AUTHORS: Yue Cui, Liwei Deng, Yan Zhao, Bin Yao, Vincent W. Zheng, Kai Zheng
HIGHLIGHT: In this work, we investigate how to eliminate the hidden feature of H-POIs by enhancing conventional crowdsourced ranking aggregation framework with heterogeneous (i.e., H-POI and Popular Point of Interest (P-POI)) pairwise tasks.

86, TITLE: Hierarchical Gating Networks for Sequential Recommendation
https://doi.org/10.1145/3292500.3330984
AUTHORS: Chen Ma, Peng Kang, Xue Liu
HIGHLIGHT: To cope with these challenges, we propose a hierarchical gating network (HGN), integrated with the Bayesian Personalized Ranking (BPR) to capture both the long-term and short-term user interests.

87, TITLE: Hierarchical Multi-Task Word Embedding Learning for Synonym Prediction
https://doi.org/10.1145/3292500.3330914
AUTHORS: Hongliang Fei, Shulong Tan, Ping Li
HIGHLIGHT: In this paper, we focus on medical domain and propose an automatic way to accelerate the process of medical synonymy resource development for Chinese, including both formal entities from healthcare professionals and noisy descriptions from end-users.
Furthermore, we create a large medical text corpus in Chinese that includes annotations for entities, descriptions and synonymous pairs for future research in this direction.

88, TITLE: Hypothesis Generation From Text Based On Co-Evolution Of Biomedical Concepts
https://doi.org/10.1145/3292500.3330977
AUTHORS: Kishlay Jha, Guangxu Xun, Yaqing Wang, Aidong Zhang
HIGHLIGHT: To answer these questions, in this study, we present a novel HG framework that unearths the latent associations between concepts by modeling their co-evolution across complementary sources of information.

89, TITLE: Identifiability of Cause and Effect using Regularized Regression
https://doi.org/10.1145/3292500.3330854
AUTHORS: Alexander Marx, Jilles Vreeken
HIGHLIGHT: In this paper we show under which general conditions we can identify cause from effect by simply choosing the direction with the best regression score.

90, TITLE: Improving the Quality of Explanations with Local Embedding Perturbations
https://doi.org/10.1145/3292500.3330930
AUTHORS: Yunzhe Jia, James Bailey, Kotagiri Ramamohanarao, Christopher Leckie, Michael E. Houle
HIGHLIGHT: To assess quality of generated neighborhoods, we propose a local intrinsic dimensionality (LID) based locality constraint.

91, TITLE: Incorporating Interpretability into Latent Factor Models via Fast Influence Analysis
https://doi.org/10.1145/3292500.3330857
AUTHORS: Weiyu Cheng, Yanyan Shen, Linpeng Huang, Yanmin Zhu
HIGHLIGHT: Inspired by this, we propose a novel explanation method named FIA (Fast Influence Analysis) to understand the prediction of trained LFMs by tracing back to the training data with influence functions.

92, TITLE: Individualized Indicator for All: Stock-wise Technical Indicator Optimization with Stock Embedding
https://doi.org/10.1145/3292500.3330833
AUTHORS: Zhige Li, Derek Yang, Li Zhao, Jiang Bian, Tao Qin, Tie-Yan Liu
HIGHLIGHT: To address this problem, in this paper, we design a Technical Trading Indicator Optimization(TTIO) framework that manages to optimize the original technical indicator by leveraging stock-wise properties.

93, TITLE: Interpretable and Steerable Sequence Learning via Prototypes
https://doi.org/10.1145/3292500.3330908
AUTHORS: Yao Ming, Panpan Xu, Huamin Qu, Liu Ren
HIGHLIGHT: We propose ProSeNet, an interpretable and steerable deep sequence model with natural explanations derived from case-based reasoning.

94, TITLE: Interview Choice Reveals Your Preference on the Market: To Improve Job-Resume Matching through Profiling Memories
https://doi.org/10.1145/3292500.3330963
AUTHORS: Rui Yan, Ran Le, Yang Song, Tao Zhang, Xiangliang Zhang, Dongyan Zhao
HIGHLIGHT: To this end, in this paper, we propose a novel matching network with preference modeled.

95, TITLE: Investigating Cognitive Effects in Session-level Search User Satisfaction
https://doi.org/10.1145/3292500.3330981
AUTHORS: Mengyang Liu, Jiaxin Mao, Yiqun Liu, Min Zhang, Shaoping Ma
HIGHLIGHT: In this paper, we collect a dataset through a laboratory study in which users need to complete some complex search tasks. With the help of hierarchical linear models (HLM), we try to reveal how user's query-level and session-level satisfaction are affected by different cognitive effects.

96, TITLE: Is a Single Vector Enough?: Exploring Node Polysemy for Network Embedding
https://doi.org/10.1145/3292500.3330967
AUTHORS: Ninghao Liu, Qiaoyu Tan, Yuening Li, Hongxia Yang, Jingren Zhou, Xia Hu
HIGHLIGHT: In this paper, we propose a polysemous embedding approach for modeling multiple facets of nodes, as motivated by the phenomenon of word polysemy in language modeling.

97, TITLE: Isolation Set-Kernel and Its Application to Multi-Instance Learning
https://doi.org/10.1145/3292500.3330830
AUTHORS: Bi-Cun Xu, Kai Ming Ting, Zhi-Hua Zhou
HIGHLIGHT: We introduce Isolation Set-Kernel which is solely dependent on data distribution, requiring neither class information nor explicit learning.

98, TITLE: KGAT: Knowledge Graph Attention Network for Recommendation
https://doi.org/10.1145/3292500.3330989
AUTHORS: Xiang Wang, Xiangnan He, Yixin Cao, Meng Liu, Tat-Seng Chua

HIGHLIGHT: In this work, we investigate the utility of knowledge graph (KG), which breaks down the independent interaction assumption by linking items with their attributes.
We release the codes and datasets at https://github.com/xiangwang1223/knowledge_graph_attention_network.

99, TITLE: K-Multiple-Means: A Multiple-Means Clustering Method with Specified K Clusters
https://doi.org/10.1145/3292500.3330846
AUTHORS: Feiping Nie, Cheng-Long Wang, Xuelong Li
HIGHLIGHT: In this paper, we make an extension of K-means for the clustering of multiple means.

100, TITLE: Knowledge-aware Graph Neural Networks with Label Smoothness Regularization for Recommender Systems
https://doi.org/10.1145/3292500.3330836
AUTHORS: Hongwei Wang, Fuzheng Zhang, Mengdi Zhang, Jure Leskovec, Miao Zhao, Wenjie Li, Zhongyuan Wang
HIGHLIGHT: Here we propose Knowledge-aware Graph Neural Networks with Label Smoothness regularization (KGNN-LS) to provide better recommendations.

101, TITLE: ?Opt: Learn to Regularize Recommender Models in Finer Levels
https://doi.org/10.1145/3292500.3330880
AUTHORS: Yihong Chen, Bei Chen, Xiangnan He, Chen Gao, Yong Li, Jian-Guang Lou, Yue Wang
HIGHLIGHT: In this paper, we propose a hyperparameter optimization method, lambdaOpt, which automatically and adaptively enforces regularization during training.

102, TITLE: Latent Network Summarization: Bridging Network Embedding and Summarization
https://doi.org/10.1145/3292500.3330992
AUTHORS: Di Jin, Ryan A. Rossi, Eunyee Koh, Sungchul Kim, Anup Rao, Danai Koutra
HIGHLIGHT: We propose Multi-LENS, an inductive multi-level latent network summarization approach that leverages a set of relational operators and relational functions (compositions of operators) to capture the structure of egonets and higher-order subgraphs, respectively.

103, TITLE: Learning Class-Conditional GANs with Active Sampling
https://doi.org/10.1145/3292500.3330883
AUTHORS: Ming-Kun Xie, Sheng-Jun Huang
HIGHLIGHT: In this paper, we propose an active sampling method to reduce the labeling cost for effectively training the class-conditional GANs.

104, TITLE: Learning Dynamic Context Graphs for Predicting Social Events
https://doi.org/10.1145/3292500.3330919
AUTHORS: Songgaojun Deng, Huzefa Rangwala, Yue Ning
HIGHLIGHT: In this paper, we study graph representations in modeling social events to identify dynamic properties of event contexts as social indicators.

105, TITLE: Learning from Incomplete and Inaccurate Supervision
https://doi.org/10.1145/3292500.3330902
AUTHORS: Zhen-Yu Zhang, Peng Zhao, Yuan Jiang, Zhi-Hua Zhou
HIGHLIGHT: In this paper, we consider the problem of learning from incomplete and inaccurate supervision, where only a limited subset of training data is labeled but potentially with noise.

106, TITLE: Learning Interpretable Metric between Graphs: Convex Formulation and Computation with Graph Mining
https://doi.org/10.1145/3292500.3330845
AUTHORS: Tomoki Yoshida, Ichiro Takeuchi, Masayuki Karasuyama
HIGHLIGHT: We propose a novel supervised metric learning method for a subgraph-based distance, called interpretable graph metric learning (IGML).

107, TITLE: Learning Network-to-Network Model for Content-rich Network Embedding
https://doi.org/10.1145/3292500.3330924
AUTHORS: Zhicheng He, Jie Liu, Na Li, Yalou Huang
HIGHLIGHT: In this paper, we consider the representation learning problem for content-rich networks whose nodes are associated with rich content information.

108, TITLE: Link Prediction with Signed Latent Factors in Signed Social Networks
https://doi.org/10.1145/3292500.3330850

AUTHORS: Pinghua Xu, Wenbin Hu, Jia Wu, Bo Du
HIGHLIGHT: Hence, in this paper, we propose a s igned l atent f actor (SLF) model that answers both these questions and, additionally, considers four types of relationships: positive, negative, neutral and no relationship at all.

109, TITLE: Log2Intent: Towards Interpretable User Modeling via Recurrent Semantics Memory Unit
https://doi.org/10.1145/3292500.3330889
AUTHORS: Zhiqiang Tao, Sheng Li, Zhaowen Wang, Chen Fang, Longqi Yang, Handong Zhao, Yun Fu
HIGHLIGHT: To address these challenges, we propose a Log2Intent framework for interpretable user modeling in this paper.

110, TITLE: MCNE: An End-to-End Framework for Learning Multiple Conditional Network Representations of Social Network
https://doi.org/10.1145/3292500.3330931
AUTHORS: Hao Wang, Tong Xu, Qi Liu, Defu Lian, Enhong Chen, Dongfang Du, Han Wu, Wen Su
HIGHLIGHT: To that end, in this paper, we propose a novel end-to-end framework named MCNE to learn multiple conditional network representations, so that various preferences for multiple behaviors could be fully captured.

111, TITLE: MeLU: Meta-Learned User Preference Estimator for Cold-Start Recommendation
https://doi.org/10.1145/3292500.3330859
AUTHORS: Hoyeop Lee, Jinbae Im, Seongwon Jang, Hyunsouk Cho, Sehee Chung
HIGHLIGHT: This paper proposes a recommender system to alleviate the cold-start problem that can estimate user preferences based on only a small number of items.

112, TITLE: Mining Algorithm Roadmap in Scientific Publications
https://doi.org/10.1145/3292500.3330913
AUTHORS: Hanwen Zha, Wenhu Chen, Keqian Li, Xifeng Yan
HIGHLIGHT: To accelerate such a process, we first define a new problem called mining algorithm roadmap in scientific publications, and then propose a new weakly supervised method to build the roadmap.

113, TITLE: MinJoin: Efficient Edit Similarity Joins via Local Hash Minima
https://doi.org/10.1145/3292500.3330853
AUTHORS: Haoyu Zhang, Qin Zhang
HIGHLIGHT: We study the problem of computing similarity joins under edit distance on a set of strings.

114, TITLE: Modeling Dwell Time Engagement on Visual Multimedia
https://doi.org/10.1145/3292500.3330973
AUTHORS: Hemank Lamba, Neil Shah
HIGHLIGHT: For instance, how can we model engagement for a specific content or viewer sample, and across multiple samples? Can we model and discover patterns in these interactions, and detect outlying behaviors corresponding to abnormal engagement? In this paper, we study these questions in depth.

115, TITLE: Modeling Extreme Events in Time Series Prediction
https://doi.org/10.1145/3292500.3330896
AUTHORS: Daizong Ding, Mi Zhang, Xudong Pan, Min Yang, Xiangnan He
HIGHLIGHT: In this paper, we explore the central theme of improving the ability of deep learning on modeling extreme events for time series prediction.

116, TITLE: Multiple Relational Attention Network for Multi-task Learning
https://doi.org/10.1145/3292500.3330861
AUTHORS: Jiejie Zhao, Bowen Du, Leilei Sun, Fuzhen Zhuang, Weifeng Lv, Hui Xiong
HIGHLIGHT: Along this line, we propose aMultiple Relational Attention Network (MRAN) framework for multi-task learning, in which three types of relationships are considered.

117, TITLE: Multi-Relational Classification via Bayesian Ranked Non-Linear Embeddings
https://doi.org/10.1145/3292500.3330863
AUTHORS: Ahmed Rashed, Josif Grabocka, Lars Schmidt-Thieme
HIGHLIGHT: In this paper, we aim to overcome these two main drawbacks by proposing a flexible nonlinear latent embedding model (BRNLE) for the classification of multi-relational data.

118, TITLE: Multi-task Recurrent Neural Networks and Higher-order Markov Random Fields for Stock Price Movement Prediction: Multi-task RNN and Higer-order MRFs for Stock Price Classification

https://doi.org/10.1145/3292500.3330983
AUTHORS: Chang Li, Dongjin Song, Dacheng Tao
HIGHLIGHT: Here, we present a multi-task recurrent neural network (RNN) with high-order Markov random fields (MRFs) to predict stock price movement direction.

119, TITLE: Network Density of States
https://doi.org/10.1145/3292500.3330891
AUTHORS: Kun Dong, Austin R. Benson, David Bindel
HIGHLIGHT: In this paper, we delve into the heart of spectral densities of real-world graphs.

120, TITLE: NodeSketch: Highly-Efficient Graph Embeddings via Recursive Sketching
https://doi.org/10.1145/3292500.3330951
AUTHORS: Dingqi Yang, Paolo Rosso, Bin Li, Philippe Cudre-Mauroux
HIGHLIGHT: To address these issues, we propose NodeSketch, a highly-efficient graph embedding technique preserving high-order node proximity via recursive sketching.

121, TITLE: OBOE: Collaborative Filtering for AutoML Model Selection
https://doi.org/10.1145/3292500.3330909
AUTHORS: Chengrun Yang, Yuji Akimoto, Dae Won Kim, Madeleine Udell
HIGHLIGHT: This paper introduces OBOE, a collaborative filtering method for time-constrained model selection and hyperparameter tuning.

122, TITLE: Off-policy Learning for Multiple Loggers
https://doi.org/10.1145/3292500.3330864
AUTHORS: Li He, Long Xia, Wei Zeng, Zhi-Ming Ma, Yihong Zhao, Dawei Yin
HIGHLIGHT: Motivated by this, in this paper, we investigate off-policy learning when the training data coming from multiple historical policies.

123, TITLE: On Dynamic Network Models and Application to Causal Impact
https://doi.org/10.1145/3292500.3330990
AUTHORS: Yu-Chia Chen, Avleen S. Bijral, Juan Lavista Ferres
HIGHLIGHT: In this paper we present a conditional pseudo-likelihood based extension to dynamic SBM that can be efficiently estimated by optimizing a regularized objective.

124, TITLE: Optimizing Impression Counts for Outdoor Advertising
https://doi.org/10.1145/3292500.3330829
AUTHORS: Yipeng Zhang, Yuchen Li, Zhifeng Bao, Songsong Mo, Ping Zhang
HIGHLIGHT: In this paper we propose and study the problem of optimizing the influence of outdoor advertising (ad) when impression counts are taken into consideration.

125, TITLE: Optimizing Peer Learning in Online Groups with Affinities
https://doi.org/10.1145/3292500.3330945
AUTHORS: Mohammadreza Esfandiari, Dong Wei, Sihem Amer-Yahia, Senjuti Basu Roy
HIGHLIGHT: We propose principled modeling of these problems and investigate theoretical and algorithmic challenges.

126, TITLE: Origin-Destination Matrix Prediction via Graph Convolution: a New Perspective of Passenger Demand Modeling
https://doi.org/10.1145/3292500.3330877
AUTHORS: Yuandong Wang, Hongzhi Yin, Hongxu Chen, Tianyu Wo, Jie Xu, Kai Zheng
HIGHLIGHT: To solve the problem effectively, we propose a unified model, Grid-Embedding based Multi-task Learning (GEML) which consists of two components focusing on spatial and temporal information respectively.

127, TITLE: Pairwise Comparisons with Flexible Time-Dynamics
https://doi.org/10.1145/3292500.3330831
AUTHORS: Lucas Maystre, Victor Kristof, Matthias Grossglauser
HIGHLIGHT: Inspired by applications in sports where the skill of players or teams competing against each other varies over time, we propose a probabilistic model of pairwise-comparison outcomes that can capture a wide range of time dynamics.

128, TITLE: Paper Matching with Local Fairness Constraints
https://doi.org/10.1145/3292500.3330899

AUTHORS: Ari Kobren, Barna Saha, Andrew McCallum
HIGHLIGHT: In this paper, we propose a novel local fairness formulation of paper matching that directly addresses both of these issues.

129, TITLE: PerDREP: Personalized Drug Effectiveness Prediction from Longitudinal Observational Data
https://doi.org/10.1145/3292500.3330928
AUTHORS: Sanjoy Dey, Ping Zhang, Daby Sow, Kenney Ng
HIGHLIGHT: In this paper, we propose a unified computational framework, called PerDREP, to predict the unique response patterns of each individual patient from EHR data.

130, TITLE: Predicting Dynamic Embedding Trajectory in Temporal Interaction Networks
https://doi.org/10.1145/3292500.3330895
AUTHORS: Srijan Kumar, Xikun Zhang, Jure Leskovec
HIGHLIGHT: Here we propose JODIE, a coupled recurrent neural network model that learns the embedding trajectories of users and items.

131, TITLE: Predicting Path Failure In Time-Evolving Graphs
https://doi.org/10.1145/3292500.3330847
AUTHORS: Jia Li, Zhichao Han, Hong Cheng, Jiao Su, Pengyun Wang, Jianfeng Zhang, Lujia Pan
HIGHLIGHT: In this paper we use a time-evolving graph which consists of a sequence of graph snapshots over time to model many real-world networks.

132, TITLE: PressLight: Learning Max Pressure Control to Coordinate Traffic Signals in Arterial Network
https://doi.org/10.1145/3292500.3330949
AUTHORS: Hua Wei, Chacha Chen, Guanjie Zheng, Kan Wu, Vikash Gayah, Kai Xu, Zhenhui Li
HIGHLIGHT: To avoid the heuristic design of RL elements, we propose to connect RL with recent studies in transportation research. Our method is inspired by the state-of-the-art method max pressure (MP) in the transportation field.

133, TITLE: PrivPy: General and Scalable Privacy-Preserving Data Mining
https://doi.org/10.1145/3292500.3330920
AUTHORS: Yi Li, Wei Xu
HIGHLIGHT: We present multi-party computation (MPC) framework designed for large-scale data mining tasks.

134, TITLE: ProGAN: Network Embedding via Proximity Generative Adversarial Network
https://doi.org/10.1145/3292500.3330866
AUTHORS: Hongchang Gao, Jian Pei, Heng Huang
HIGHLIGHT: To address this problem, in this paper, we propose a novel proximity generative adversarial network (ProGAN) which can generate proximities.

135, TITLE: Quantifying Long Range Dependence in Language and User Behavior to improve RNNs
https://doi.org/10.1145/3292500.3330944
AUTHORS: Francois Belletti, Minmin Chen, Ed H. Chi
HIGHLIGHT: We propose a principled estimation procedure of LRD in sequential datasets based on established LRD theory for real-valued time series and apply it to sequences of symbols with million-item-scale dictionaries.

136, TITLE: QuesNet: A Unified Representation for Heterogeneous Test Questions
https://doi.org/10.1145/3292500.3330900
AUTHORS: Yu Yin, Qi Liu, Zhenya Huang, Enhong Chen, Wei Tong, Shijin Wang, Yu Su
HIGHLIGHT: To this end, in this paper, we propose a novel pre-training method, namely QuesNet, for comprehensively learning question representations.

137, TITLE: Regularized Regression for Hierarchical Forecasting Without Unbiasedness Conditions
https://doi.org/10.1145/3292500.3330976
AUTHORS: Souhaib Ben Taieb, Bonsoo Koo
HIGHLIGHT: We propose a new forecasting method which relaxes these unbiasedness conditions, and seeks the revised forecasts with the best tradeoff between bias and forecast variance.

138, TITLE: Relation Extraction via Domain-aware Transfer Learning
https://doi.org/10.1145/3292500.3330890
AUTHORS: Shimin Di, Yanyan Shen, Lei Chen

HIGHLIGHT: In this paper, we propose a novel approach called, Relation Extraction via Domain-aware Transfer Learning (ReTrans), to extract relation mentions from a given text corpus by exploring the experience from a large amount of existing KBs which may not be closely related to the target relation.

139, TITLE: Representation Learning for Attributed Multiplex Heterogeneous Network
https://doi.org/10.1145/3292500.3330964
AUTHORS: Yukuo Cen, Xu Zou, Jianwei Zhang, Hongxia Yang, Jingren Zhou, Jie Tang
HIGHLIGHT: In this paper, we formalize the problem of embedding learning for the Attributed Multiplex Heterogeneous Network and propose a unified framework to address this problem.

140, TITLE: Retaining Privileged Information for Multi-Task Learning
https://doi.org/10.1145/3292500.3330907
AUTHORS: Fengyi Tang, Cao Xiao, Fei Wang, Jiayu Zhou, Li-wei H. Lehman
HIGHLIGHT: In this work, we present a LUPI formulation that allows privileged information to be retained in a multi-task learning setting.

141, TITLE: Revisiting kd-tree for Nearest Neighbor Search
https://doi.org/10.1145/3292500.3330875
AUTHORS: Parikshit Ram, Kaushik Sinha
HIGHLIGHT: In the article, we build upon randomized-partition trees \citedasgupta2013randomized to propose \kdtree based approximate search schemes with $O(d log d + log n)$ query time for data sets with n points in d dimensions and rigorous theoretical guarantees on the search accuracy.

142, TITLE: Riker: Mining Rich Keyword Representations for Interpretable Product Question Answering
https://doi.org/10.1145/3292500.3330985
AUTHORS: Jie Zhao, Ziyu Guan, Huan Sun
HIGHLIGHT: In this work, we develop a new PQA framework (named Riker) that enjoys the benefits of both interpretability and effectiveness.

143, TITLE: Robust Graph Convolutional Networks Against Adversarial Attacks
https://doi.org/10.1145/3292500.3330851
AUTHORS: Dingyuan Zhu, Ziwei Zhang, Peng Cui, Wenwu Zhu
HIGHLIGHT: To address this problem, we propose Robust GCN (RGCN), a novel model that "fortifies" GCNs against adversarial attacks.

144, TITLE: Robust Task Grouping with Representative Tasks for Clustered Multi-Task Learning
https://doi.org/10.1145/3292500.3330904
AUTHORS: Yaqiang Yao, Jie Cao, Huanhuan Chen
HIGHLIGHT: In this paper, we propose a robust clustered multi-task learning approach that clusters tasks into several groups by learning the representative tasks.

145, TITLE: Scalable Global Alignment Graph Kernel Using Random Features: From Node Embedding to Graph Embedding
https://doi.org/10.1145/3292500.3330918
AUTHORS: Lingfei Wu, Ian En-Hsu Yen, Zhen Zhang, Kun Xu, Liang Zhao, Xi Peng, Yinglong Xia, Charu Aggarwal
HIGHLIGHT: In this paper, we propose a new family of global alignment graph kernels, which take into account the global properties of graphs by using geometric node embeddings and an associated node transportation based on earth mover's distance.

146, TITLE: Scalable Graph Embeddings via Sparse Transpose Proximities
https://doi.org/10.1145/3292500.3330860
AUTHORS: Yuan Yin, Zhewei Wei
HIGHLIGHT: We propose transpose proximity, a unified approach that solves both problems.

147, TITLE: Scalable Hierarchical Clustering with Tree Grafting
https://doi.org/10.1145/3292500.3330929
AUTHORS: Nicholas Monath, Ari Kobren, Akshay Krishnamurthy, Michael R. Glass, Andrew McCallum
HIGHLIGHT: We introduce Grinch, a new algorithm for large-scale, non-greedy hierarchical clustering with general linkage functions that compute arbitrary similarity between two point sets.

148, TITLE: Scaling Multi-Armed Bandit Algorithms

https://doi.org/10.1145/3292500.3330862
AUTHORS: Edouard Fouch?, Junpei Komiyama, Klemens B?hm
HIGHLIGHT: In this paper, we present a variant of the problem, which we call the Scaling MAB (S-MAB): The goal of the decision maker is not only to maximize the cumulative rewards, i.e., choosing the arms with the highest expected reward, but also to decide how many arms to select so that, in expectation, the cost of selecting arms does not exceed the rewards.

149, TITLE: Scaling Multinomial Logistic Regression via Hybrid Parallelism
https://doi.org/10.1145/3292500.3330837
AUTHORS: Parameswaran Raman, Sriram Srinivasan, Shin Matsushima, Xinhua Zhang, Hyokun Yun, S.V.N. Vishwanathan
HIGHLIGHT: To overcome this problem, we propose a reformulation of the original objective that exploits double-separability, an attractive property that naturally leads to hybrid parallelism.

150, TITLE: Separated Trust Regions Policy Optimization Method
https://doi.org/10.1145/3292500.3330892
AUTHORS: Luobao Zou, Zhiwei Zhuang, Yin Cheng, Xuechun Wang, Weidong Zhang
HIGHLIGHT: In this work, we propose a moderate policy update method for reinforcement learning, which encourages the agent to explore more boldly in early episodes but updates the policy more cautious.

151, TITLE: Sequential Anomaly Detection using Inverse Reinforcement Learning
https://doi.org/10.1145/3292500.3330932
AUTHORS: Min-hwan Oh, Garud Iyengar
HIGHLIGHT: We propose an end-to-end framework for sequential anomaly detection using inverse reinforcement learning (IRL), whose objective is to determine the decision-making agent's underlying function which triggers his/her behavior.

152, TITLE: Sets2Sets: Learning from Sequential Sets with Neural Networks
https://doi.org/10.1145/3292500.3330979
AUTHORS: Haoji Hu, Xiangnan He
HIGHLIGHT: In this paper, we formulate this problem as a sequential sets to sequential sets learning problem.

153, TITLE: Sherlock: A Deep Learning Approach to Semantic Data Type Detection
https://doi.org/10.1145/3292500.3330993
AUTHORS: Madelon Hulsebos, Kevin Hu, Michiel Bakker, Emanuel Zgraggen, Arvind Satyanarayan, Tim Kraska, ?agatay Demiralp, C?sar Hidalgo
HIGHLIGHT: We introduce Sherlock, a multi-input deep neural network for detecting semantic types.

154, TITLE: Significance of Patterns in Data Visualisations
https://doi.org/10.1145/3292500.3330994
AUTHORS: Rafael Savvides, Andreas Henelius, Emilia Oikarinen, Kai Puolam?ki
HIGHLIGHT: In this paper we consider the following important problem: when we explore data visually and observe patterns, how can we determine their statistical significance?

155, TITLE: Social Recommendation with Optimal Limited Attention
https://doi.org/10.1145/3292500.3330939
AUTHORS: Xin Wang, Wenwu Zhu, Chenghao Liu
HIGHLIGHT: We address this issue by resorting to the concept of limited attention in social science and combining it with machine learning techniques in an elegant way.

156, TITLE: SPuManTE: Significant Pattern Mining with Unconditional Testing
https://doi.org/10.1145/3292500.3330978
AUTHORS: Leonardo Pellegrina, Matteo Riondato, Fabio Vandin
HIGHLIGHT: We present SPuManTE, an efficient algorithm for mining significant patterns from a transactional dataset.

157, TITLE: Stability and Generalization of Graph Convolutional Neural Networks
https://doi.org/10.1145/3292500.3330956
AUTHORS: Saurabh Verma, Zhi-Li Zhang
HIGHLIGHT: In this paper, we take a first step towards developing a deeper theoretical understanding of GCNN models by analyzing the stability of single-layer GCNN models and deriving their generalization guarantees in a semi-supervised graph learning setting.

158, TITLE: State-Sharing Sparse Hidden Markov Models for Personalized Sequences
https://doi.org/10.1145/3292500.3330828
AUTHORS: Hongzhi Shi, Chao Zhang, Quanming Yao, Yong Li, Funing Sun, Depeng Jin
HIGHLIGHT: We address this challenge by proposing a state-sharing sparse hidden Markov model (S3HMM) that can uncover personalized sequential patterns without suffering from data scarcity.

159, TITLE: Streaming Adaptation of Deep Forecasting Models using Adaptive Recurrent Units
https://doi.org/10.1145/3292500.3330996
AUTHORS: Prathamesh Deshpande, Sunita Sarawagi
HIGHLIGHT: We present ARU, an Adaptive Recurrent Unit for streaming adaptation of deep globally trained time-series forecasting models.

160, TITLE: Streaming Session-based Recommendation
https://doi.org/10.1145/3292500.3330839
AUTHORS: Lei Guo, Hongzhi Yin, Qinyong Wang, Tong Chen, Alexander Zhou, Nguyen Quoc Viet Hung
HIGHLIGHT: In this work, we study SR in a practical streaming scenario, namely Streaming Session-based Recommendation (SSR), which is a more challenging task due to (1) the uncertainty of user behaviors, and (2) the continuous, large-volume, high-velocity nature of the session data.

161, TITLE: SurfCon: Synonym Discovery on Privacy-Aware Clinical Data
https://doi.org/10.1145/3292500.3330894
AUTHORS: Zhen Wang, Xiang Yue, Soheil Moosavinasab, Yungui Huang, Simon Lin, Huan Sun
HIGHLIGHT: In this paper, we study a new setting named synonym discovery on privacy-aware clinical data (i.e., medical terms extracted from the clinical texts and their aggregated co-occurrence counts, without raw clinical texts).

162, TITLE: Tackle Balancing Constraint for Incremental Semi-Supervised Support Vector Learning
https://doi.org/10.1145/3292500.3330962
AUTHORS: Shuyang Yu, Bin Gu, Kunpeng Ning, Haiyan Chen, Jian Pei, Heng Huang
HIGHLIGHT: To fill this gap, in this paper, we propose a new incremental S3VM algorithm (IL-BCS3VM) based on IL-S3VM which can effectively handle the balancing constraint and directly update the solution of BCS3VM.

163, TITLE: Task-Adversarial Co-Generative Nets
https://doi.org/10.1145/3292500.3330843
AUTHORS: Pei Yang, Qi Tan, Hanghang Tong, Jingrui He
HIGHLIGHT: In this paper, we propose Task-Adversarial co-Generative Nets (TAGN) for learning from multiple tasks.

164, TITLE: Tensorized Determinantal Point Processes for Recommendation
https://doi.org/10.1145/3292500.3330952
AUTHORS: Romain Warlop, J?r?mie Mary, Mike Gartrell
HIGHLIGHT: We present an enhanced DPP model that is specialized for the task of basket completion, the tensorized DPP.

165, TITLE: Testing Dynamic Incentive Compatibility in Display Ad Auctions
https://doi.org/10.1145/3292500.3330943
AUTHORS: Yuan Deng, Sebastien Lahaie
HIGHLIGHT: Motivated by this concern, this paper takes the perspective of a single advertiser and develops statistical tests to confirm whether an underlying auction mechanism is dynamically incentive compatible (IC), so that truthful bidding in each individual auction and across time is an optimal strategy.

166, TITLE: The Impact of Person-Organization Fit on Talent Management: A Structure-Aware Convolutional Neural Network Approach
https://doi.org/10.1145/3292500.3330849
AUTHORS: Ying Sun, Fuzhen Zhuang, Hengshu Zhu, Xin Song, Qing He, Hui Xiong
HIGHLIGHT: To this end, in this paper, we propose a novel data-driven neural network approach for dynamically modeling the compatibility in P-O fit and its meaningful relationships with two critical issues in talent management, namely talent turnover and job performance.

167, TITLE: The Role of: A Novel Scientific Knowledge Graph Representation and Construction Model
https://doi.org/10.1145/3292500.3330942
AUTHORS: Tianwen Jiang, Tong Zhao, Bing Qin, Ting Liu, Nitesh V. Chawla, Meng Jiang
HIGHLIGHT: In this work, we propose a novel representation of SciKG, which has three layers.

168, TITLE: Three-Dimensional Stable Matching Problem for Spatial Crowdsourcing Platforms
https://doi.org/10.1145/3292500.3330879
AUTHORS: Boyang Li, Yurong Cheng, Ye Yuan, Guoren Wang, Lei Chen
HIGHLIGHT: Thus, in this paper, we propose a 3-Dimensional Stable Spatial Matching(3D-SSM) for the 3D matching problem innew SC services.

169, TITLE: Time Critic Policy Gradient Methods for Traffic Signal Control in Complex and Congested Scenarios
https://doi.org/10.1145/3292500.3330988
AUTHORS: Stefano Giovanni Rizzo, Giovanna Vantini, Sanjay Chawla
HIGHLIGHT: This paper addresses the traffic light control problem in a complex scenario, such as a signalized roundabout with heavy traffic volumes, with the aim of maximizing throughput and avoiding traffic jams.

170, TITLE: Towards Robust and Discriminative Sequential Data Learning: When and How to Perform Adversarial Training?
https://doi.org/10.1145/3292500.3330957
AUTHORS: Xiaowei Jia, Sheng Li, Handong Zhao, Sungchul Kim, Vipin Kumar
HIGHLIGHT: To this end, we develop a novel adversarial training approach for sequential data classification by investigating when and how to perturb a sequence for an effective data augmentation.

171, TITLE: Training and Meta-Training Binary Neural Networks with Quantum Computing
https://doi.org/10.1145/3292500.3330953
AUTHORS: Abdulah Fawaz, Paul Klein, Sebastien Piat, Simone Severini, Peter Mountney
HIGHLIGHT: We show that the complete loss function landscape of a neural network can be represented as the quantum state output by a quantum computer.

172, TITLE: TUBE: Embedding Behavior Outcomes for Predicting Success
https://doi.org/10.1145/3292500.3330867
AUTHORS: Daheng Wang, Tianwen Jiang, Nitesh V. Chawla, Meng Jiang
HIGHLIGHT: In this work, we define a measurement of behavior outcomes, which forms a test tube-shaped region to represent "success", in a vector space.

173, TITLE: Uncovering Pattern Formation of Information Flow
https://doi.org/10.1145/3292500.3330971
AUTHORS: Chengxi Zang, Peng Cui, Chaoming Song, Wenwu Zhu, Fei Wang
HIGHLIGHT: In this paper, by exploring 432 million information flow patterns extracted from a large-scale online social media dataset, we uncover a wide range of complex geometric patterns characterized by a three-dimensional metric space.

174, TITLE: Unifying Inter-region Autocorrelation and Intra-region Structures for Spatial Embedding via Collective Adversarial Learning
https://doi.org/10.1145/3292500.3330972
AUTHORS: Yunchao Zhang, Yanjie Fu, Pengyang Wang, Xiaolin Li, Yu Zheng
HIGHLIGHT: Along these lines, we develop an unsupervised Collective Graph-regularized dual-Adversarial Learning (CGAL) framework for multi-view graph representation learning and also a Graph-regularized dual-Adversarial Learning (GAL) framework for single-view graph representation learning.

175, TITLE: Universal Representation Learning of Knowledge Bases by Jointly Embedding Instances and Ontological Concepts
https://doi.org/10.1145/3292500.3330838
AUTHORS: Junheng Hao, Muhao Chen, Wenchao Yu, Yizhou Sun, Wei Wang
HIGHLIGHT: In this paper, we propose a novel two-view KG embedding model, JOIE, with the goal to produce better knowledge embedding and enable new applications that rely on multi-view knowledge.

176, TITLE: Urban Traffic Prediction from Spatio-Temporal Data Using Deep Meta Learning
https://doi.org/10.1145/3292500.3330884
AUTHORS: Zheyi Pan, Yuxuan Liang, Weifeng Wang, Yong Yu, Yu Zheng, Junbo Zhang
HIGHLIGHT: To tackle these challenges, we proposed a deep-meta-learning based model, entitled ST-MetaNet, to collectively predict traffic in all location at once.