1, TITLE: ActiveRemediation: The Search for Lead Pipes in Flint, Michigan
https://doi.org/10.1145/3219819.3219896
AUTHORS:	Jacob Abernethy, Alex Chojnacki, Arya Farahi, Eric Schwartz, Jared Webb
HIGHLIGHT:	Alongside these statistical and machine learning approaches, we describe our interactions with government officials in recommending homes for both inspection and replacement, with a focus on the statistical model that adapts to incoming information.

2, TITLE: Deploying Machine Learning Models for Public Policy: A Framework
https://doi.org/10.1145/3219819.3219911
AUTHORS:	Klaus Ackermann, Joe Walsh, Adolfo De Un?nue, Hareem Naveed, Andrea Navarrete Rivera, Sun-Joo Lee, Jason Bennett, Michael Defoe, Crystal Cody,
HIGHLIGHT:	In this case study, we describe our implementation of a machine learning early intervention system (EIS) for police officers in the Charlotte-Mecklenburg (North Carolina) and Metropolitan Nashville (Tennessee) Police Departments.

3, TITLE: Online Parameter Selection for Web-based Ranking Problems
https://doi.org/10.1145/3219819.3219847
AUTHORS:	Deepak Agarwal, Kinjal Basu, Souvik Ghosh, Ying Xuan, Yang Yang, Liang Zhang
HIGHLIGHT:	We provide a novel framework to do so and illustrate its efficacy in the context of LinkedIn Feed.

4, TITLE: Predicting Estimated Time of Arrival for Commercial Flights
https://doi.org/10.1145/3219819.3219874
AUTHORS:	Samet Ayhan, Pablo Costas, Hanan Samet
HIGHLIGHT:	In this paper, we present a novel ETA Prediction System for commercial flights.

5, TITLE: Interpretable Representation Learning for Healthcare via Capturing Disease Progression through Time
https://doi.org/10.1145/3219819.3219904
AUTHORS:	Tian Bai, Shanshan Zhang, Brian L. Egleston, Slobodan Vucetic
HIGHLIGHT:	Based on the observation that different patient conditions have different temporal progression patterns, in this paper we propose a novel interpretable deep learning model, called Timeline.

6, TITLE: Scalable Query N-Gram Embedding for Improving Matching and Relevance in Sponsored Search
https://doi.org/10.1145/3219819.3219897
AUTHORS:	Xiao Bai, Erik Ordentlich, Yuanyuan Zhang, Andy Feng, Adwait Ratnaparkhi, Reena Somvanshi, Aldi Tjahjadi
HIGHLIGHT:	In this work, we propose a novel embedding of queries and ads in sponsored search.

7, TITLE: Buy It Again: Modeling Repeat Purchase Recommendations
https://doi.org/10.1145/3219819.3219891
AUTHORS:	Rahul Bhagat, Srevatsan Muralidharan, Alex Lobzhanidze, Shankar Vishwanath
HIGHLIGHT:	In this paper, we present the approach we developed for modeling repeat purchase recommendations.

8, TITLE: Rosetta: Large Scale System for Text Detection and Recognition in Images
https://doi.org/10.1145/3219819.3219861
AUTHORS:	Fedor Borisyuk, Albert Gordo, Viswanath Sivakumar
HIGHLIGHT:	In this paper we present a deployed, scalable optical character recognition (OCR) system, which we call Rosetta , designed to process images uploaded daily at Facebook scale.

9, TITLE: Product Characterisation towards Personalisation: Learning Attributes from Unstructured Data to Recommend Fashion Products
https://doi.org/10.1145/3219819.3219888
AUTHORS:	?ngelo Cardoso, Fabio Daolio, Sa?l Vargas
HIGHLIGHT:	We describe a solution to tackle a common set of challenges in e-commerce, which arise from the fact that new products are continually being added to the catalogue.

10, TITLE:	Rotation-blended CNNs on a New Open Dataset for Tropical Cyclone Image-to-intensity Regression
https://doi.org/10.1145/3219819.3219926
AUTHORS:	Boyo Chen, Buo-Fu Chen, Hsuan-Tien Lin
HIGHLIGHT:	In this work, we release a such a benchmark dataset, which is a new open dataset collected from satellite remote sensing, for the TC-image-to-intensity estimation task.

11, TITLE:	Distributed Collaborative Hashing and Its Applications in Ant Financial

https://doi.org/10.1145/3219819.3219844
AUTHORS: Chaochao Chen, Ziqi Liu, Peilin Zhao, Longfei Li, Jun Zhou, Xiaolong Li
HIGHLIGHT: In this paper, we propose a D istributed C ollaborative H ashing (DCH) model which can significantly improve both efficiencies.

12, TITLE: MIX: Multi-Channel Information Crossing for Text Matching
https://doi.org/10.1145/3219819.3219928
AUTHORS: Haolan Chen, Fred X. Han, Di Niu, Dong Liu, Kunfeng Lai, Chenglin Wu, Yu Xu
HIGHLIGHT: In this paper, we present the design of Multi-Channel Information Crossing , a multi-channel convolutional neural network model for text matching, with additional attention mechanisms from sentence and text semantics.

13, TITLE: How LinkedIn Economic Graph Bonds Information and Product: Applications in LinkedIn Salary
https://doi.org/10.1145/3219819.3219921
AUTHORS: Xi Chen, Yiqun Liu, Liang Zhang, Krishnaram Kenthapadi
HIGHLIGHT: We propose a two-step framework that utilizes a novel, semantic representation of companies (Company2vec) and a Bayesian statistical model to address this problem.

14, TITLE: Scalable Optimization for Embedding Highly-Dynamic and Recency-Sensitive Data
https://doi.org/10.1145/3219819.3219898
AUTHORS: Xumin Chen, Peng Cui, Lingling Yi, Shiqiang Yang
HIGHLIGHT: In this paper, we propose a novel optimization method named Diffused Stochastic Gradient Descent for such highly-dynamic and recency-sensitive data.

15, TITLE: Q&R: A Two-Stage Approach toward Interactive Recommendation
https://doi.org/10.1145/3219819.3219894
AUTHORS: Konstantina Christakopoulou, Alex Beutel, Rui Li, Sagar Jain, Ed H. Chi
HIGHLIGHT: We describe our proposed system Q&R, i.e., Question & Recommendation, and the surrogate tasks we utilize to bootstrap data for training our models.

16, TITLE: Detection of Apathy in Alzheimer Patients by Analysing Visual Scanning Behaviour with RNNs
https://doi.org/10.1145/3219819.3219908
AUTHORS: Jonathan Chung, Sarah A. Chau, Nathan Herrmann, Krista L. Lanct?t, Moshe Eizenman
HIGHLIGHT: In this study, visual scanning behaviours (VSBs) on emotional and non-emotional stimuli were used to detect apathy in patients with AD.

17, TITLE: Assessing Candidate Preference through Web Browsing History
https://doi.org/10.1145/3219819.3219884
AUTHORS: Giovanni Comarela, Ramakrishnan Durairajan, Paul Barford, Dino Christenson, Mark Crovella
HIGHLIGHT: We propose the use of Web browsing history as a new indicator of candidate preference among the electorate, one that has potential to overcome a number of the drawbacks of election polls.

18, TITLE: Pangloss: Fast Entity Linking in Noisy Text Environments
https://doi.org/10.1145/3219819.3219899
AUTHORS: Michael Conover, Matthew Hayes, Scott Blackburn, Pete Skomoroch, Sam Shah
HIGHLIGHT: This paper presents Pangloss, a production system for entity disambiguation on noisy text.

19, TITLE: State Space Models for Forecasting Water Quality Variables: An Application in Aquaculture Prawn Farming
https://doi.org/10.1145/3219819.3219841
AUTHORS: Joel Janek Dabrowski, Ashfaqur Rahman, Andrew George, Stuart Arnold, John McCulloch
HIGHLIGHT: A novel approach to deterministic modelling of diurnal water quality parameters in aquaculture prawn ponds is presented.

20, TITLE: Automated Audience Segmentation Using Reputation Signals
https://doi.org/10.1145/3219819.3219923
AUTHORS: Maria Daltayanni, Ali Dasdan, Luca de Alfaro
HIGHLIGHT: In this paper we study how demand-side platforms (DSPs) can leverage the data they collect (demographic and behavioral) in order to learn reputation signals about end user convertibility and advertisement (ad) quality.

21, TITLE: SHIELD: Fast, Practical Defense and Vaccination for Deep Learning using JPEG Compression
https://doi.org/10.1145/3219819.3219910

AUTHORS: Nilaksh Das, Madhuri Shanbhogue, Shang-Tse Chen, Fred Hohman, Siwei Li, Li Chen, Michael E. Kounavis, Duen Horng Chau
HIGHLIGHT: We conducted extensive, large-scale experiments using the ImageNet dataset, and show that our approaches eliminate up to 98% of gray-box attacks delivered by strong adversarial techniques such as Carlini-Wagner's L2 attack and DeepFool.

22, TITLE: Adaptive Paywall Mechanism for Digital News Media
https://doi.org/10.1145/3219819.3219892
AUTHORS: Heidar Davoudi, Aijun An, Morteza Zihayat, Gordon Edall
HIGHLIGHT: In this paper, we propose an adaptive paywall mechanism to balance the benefit of showing an article against that of displaying the paywall (i.e., terminating the session).

23, TITLE: Tax Fraud Detection for Under-Reporting Declarations Using an Unsupervised Machine Learning Approach
https://doi.org/10.1145/3219819.3219878
AUTHORS: Daniel de Roux, Boris Perez, Andr?s Moreno, Maria del Pilar Villamil, C?sar Figueroa
HIGHLIGHT: Tax Fraud Detection for Under-Reporting Declarations Using an Unsupervised Machine Learning Approach

24, TITLE: Automatic Discovery of Tactics in Spatio-Temporal Soccer Match Data
https://doi.org/10.1145/3219819.3219832
AUTHORS: Tom Decroos, Jan Van Haaren, Jesse Davis
HIGHLIGHT: We describe a data-driven approach for identifying patterns of movement that account for both spatial and temporal information which represent potential offensive tactics.

25, TITLE: Applying the Delta Method in Metric Analytics: A Practical Guide with Novel Ideas
https://doi.org/10.1145/3219819.3219919
AUTHORS: Alex Deng, Ulf Knoblich, Jiannan Lu
HIGHLIGHT: Under the setting of big data, the majority of such metrics approximately follow normal distributions, opening up potential opportunities to model them directly without extra model assumptions and solve big data problems via closed-form formulas using distributed algorithms at a fraction of the cost of simulation-based procedures like bootstrap.

26, TITLE: Releasing eHealth Analytics into the Wild: Lessons Learnt from the SPHERE Project
https://doi.org/10.1145/3219819.3219883
AUTHORS: Tom Diethe, Mike Holmes, Meelis Kull, Miquel Perello Nieto, Kacper Sokol, Hao Song, Emma Tonkin, Niall Twomey, Peter Flach
HIGHLIGHT: We describe, from a data-science perspective, our experience of taking the system out of the laboratory into more than thirty homes in Bristol, UK.

27, TITLE: Gotcha - Sly Malware!: Scorpion A Metagraph2vec Based Malware Detection System
https://doi.org/10.1145/3219819.3219862
AUTHORS: Yujie Fan, Shifu Hou, Yiming Zhang, Yanfang Ye, Melih Abdulhayoglu
HIGHLIGHT: To address this challenge, based on the built meta-graph schemes, we propose a new HIN embedding model metagraph2vec on the first attempt to learn the low-dimensional representations for the nodes in HIN, where both the HIN structures and semantics are maximally preserved for malware detection.

28, TITLE: Towards Knowledge Discovery from the Vatican Secret Archives. In Codice Ratio - Episode 1: Machine Transcription of the Manuscripts.
https://doi.org/10.1145/3219819.3219879
AUTHORS: Donatella Firmani, Marco Maiorino, Paolo Merialdo, Elena Nieddu
HIGHLIGHT: In this paper, we present our efforts to develop a system to support the transcription of medieval manuscripts.

29, TITLE: Device Graphing by Example
https://doi.org/10.1145/3219819.3219852
AUTHORS: Keith Funkhouser, Matthew Malloy, Enis Ceyhun Alp, Phillip Poon, Paul Barford
HIGHLIGHT: In this paper, we demonstrate how measurement, tracking, and other internet entities can associate multiple identifiers with a single device or user after coarse associations, e.g .

30, TITLE: Near Real-time Optimization of Activity-based Notifications
https://doi.org/10.1145/3219819.3219880
AUTHORS: Yan Gao, Viral Gupta, Jinyun Yan, Changji Shi, Zhongen Tao, PJ Xiao, Curtis Wang, Shipeng Yu, Romer Rosales,
HIGHLIGHT: Near Real-time Optimization of Activity-based Notifications

31, TITLE: Accelerating Large-Scale Data Analysis by Offloading to High-Performance Computing Libraries using Alchemist
https://doi.org/10.1145/3219819.3219927
AUTHORS: Alex Gittens, Kai Rothauge, Shusen Wang, Michael W. Mahoney, Lisa Gerhardt, Prabhat, Jey Kottalam, Michael Ringenburg, Kristyn Maschhoff
HIGHLIGHT: Apache Spark is a popular system aimed at the analysis of large data sets, but recent studies have shown that certain computations---in particular, many linear algebra computations that are the basis for solving common machine learning problems---are significantly slower in Spark than when done using libraries written in a high-performance computing framework such as the Message-Passing Interface (MPI).

32, TITLE: Using Rule-Based Labels for Weak Supervised Learning: A ChemNet for Transferable Chemical Property Prediction
https://doi.org/10.1145/3219819.3219838
AUTHORS: Garrett B. Goh, Charles Siegel, Abhinav Vishnu, Nathan Hodas
HIGHLIGHT: In this work, we develop an approach of using rule-based knowledge for training ChemNet, a transferable and generalizable deep neural network for chemical property prediction that learns in a weak-supervised manner from large unlabeled chemical databases.

33, TITLE: Real-time Personalization using Embeddings for Search Ranking at Airbnb
https://doi.org/10.1145/3219819.3219885
AUTHORS: Mihajlo Grbovic, Haibin Cheng
HIGHLIGHT: In this paper we describe Listing and User Embedding techniques we developed and deployed for purposes of Real-time Personalization in Search Ranking and Similar Listing Recommendations, two channels that drive 99% of conversions.

34, TITLE: Exploring Student Check-In Behavior for Improved Point-of-Interest Prediction
https://doi.org/10.1145/3219819.3219902
AUTHORS: Mengyue Hang, Ian Pytlarz, Jennifer Neville
HIGHLIGHT: In this work, we present an analysis of education "check-in" data using WiFi access logs collected at Purdue University.

35, TITLE: Accelerating Prototype-Based Drug Discovery using Conditional Diversity Networks
https://doi.org/10.1145/3219819.3219882
AUTHORS: Shahar Harel, Kira Radinsky
HIGHLIGHT: In this work, we develop an algorithmic unsupervised-approach that automatically generates potential drug molecules given a prototype drug.

36, TITLE: Detecting Vehicle Illegal Parking Events using Sharing Bikes' Trajectories
https://doi.org/10.1145/3219819.3219887
AUTHORS: Tianfu He, Jie Bao, Ruiyuan Li, Sijie Ruan, Yanhua Li, Chao Tian, Yu Zheng
HIGHLIGHT: Two main components are employed to mine the trajectories in our system: 1)~trajectory pre-processing, which filters outlier GPS points, performs map-matching and builds indexes for bike trajectories; and 2)~illegal parking detection, which models the normal trajectories, extracts features from the evaluation trajectories and utilizes a distribution test-based method to discover the illegal parking events.

37, TITLE: Multimodal Sentiment Analysis To Explore the Structure of Emotions
https://doi.org/10.1145/3219819.3219853
AUTHORS: Anthony Hu, Seth Flaxman
HIGHLIGHT: We propose a novel approach to multimodal sentiment analysis using deep neural networks combining visual analysis and natural language processing.

38, TITLE: Web-Scale Responsive Visual Search at Bing
https://doi.org/10.1145/3219819.3219843
AUTHORS: Houdong Hu, Yan Wang, Linjun Yang, Pavel Komlev, Li Huang, Xi (Stephen) Chen, Jiapei Huang, Ye Wu, Meenaz Merchant,
HIGHLIGHT: In this paper, we introduce a web-scale general visual search system deployed in Microsoft Bing.

39, TITLE: Reinforcement Learning to Rank in E-Commerce Search Engine: Formalization, Analysis, and Application
https://doi.org/10.1145/3219819.3219846
AUTHORS: Yujing Hu, Qing Da, Anxiang Zeng, Yang Yu, Yinghui Xu

HIGHLIGHT: For better utilizing the correlation between different ranking steps, in this paper, we propose to use reinforcement learning (RL) to learn an optimal ranking policy which maximizes the expected accumulative rewards in a search session.

40, TITLE: Towards Station-Level Demand Prediction for Effective Rebalancing in Bike-Sharing Systems
https://doi.org/10.1145/3219819.3219873
AUTHORS: Pierre Hulot, Daniel Aloise, Sanjay Dominik Jena
HIGHLIGHT: In this paper, we focus on predicting the hourly demand for demand rentals and returns at each station of the system.

41, TITLE: Detecting Spacecraft Anomalies Using LSTMs and Nonparametric Dynamic Thresholding
https://doi.org/10.1145/3219819.3219845
AUTHORS: Kyle Hundman, Valentino Constantinou, Christopher Laporte, Ian Colwell, Tom Soderstrom
HIGHLIGHT: We demonstrate the effectiveness of Long Short-Term Memory (LSTMs) networks, a type of Recurrent Neural Network (RNN), in overcoming these issues using expert-labeled telemetry anomaly data from the Soil Moisture Active Passive (SMAP) satellite and the Mars Science Laboratory (MSL) rover, Curiosity.

42, TITLE: WattHome: A Data-driven Approach for Energy Efficiency Analytics at City-scale
https://doi.org/10.1145/3219819.3219825
AUTHORS: Srinivasan Iyengar, Stephen Lee, David Irwin, Prashant Shenoy, Benjamin Weil
HIGHLIGHT: In this paper, we present WattHome, a data-driven approach to identify the least energy efficient buildings from a large population of buildings in a city or a region.

43, TITLE: Explaining Aviation Safety Incidents Using Deep Temporal Multiple Instance Learning
https://doi.org/10.1145/3219819.3219871
AUTHORS: Vijay Manikandan Janakiraman
HIGHLIGHT: In this work, we propose a precursor mining algorithm that identifies events in the multidimensional time series that are correlated with the safety incident.

44, TITLE: Optimal Allocation of Real-Time-Bidding and Direct Campaigns
https://doi.org/10.1145/3219819.3219877
AUTHORS: Gr?goire Jauvion, Nicolas Grislain
HIGHLIGHT: In this paper, we consider the problem of optimizing the revenue a web publisher gets through real-time bidding (i.e. from ads sold in real-time auctions) and direct (i.e. from ads sold through contracts agreed in advance).

45, TITLE: Optimization of a SSP's Header Bidding Strategy using Thompson Sampling
https://doi.org/10.1145/3219819.3219917
AUTHORS: Gr?goire Jauvion, Nicolas Grislain, Pascal Dkengne Sielenou, Aur?lien Garivier, S?bastien Gerchinovitz
HIGHLIGHT: In this paper, we consider an SSP competing with other SSPs for ad spaces.

46, TITLE: Resolving Abstract Anaphora Implicitly in Conversational Assistants using a Hierarchically stacked RNN
https://doi.org/10.1145/3219819.3219915
AUTHORS: Prerna Khurana, Puneet Agarwal, Gautam Shroff, Lovekesh Vig
HIGHLIGHT: In this paper, we propose a novel solution which uses hierarchical neural network, comprising of BiLSTM layer and a maxpool layer that is hierarchically stacked to first obtain a representation of each user utterance and then to obtain a representation for sequence of utterances.

47, TITLE: Autotune: A Derivative-free Optimization Framework for Hyperparameter Tuning
https://doi.org/10.1145/3219819.3219837
AUTHORS: Patrick Koch, Oleg Golovidov, Steven Gardner, Brett Wujek, Joshua Griffin, Yan Xu
HIGHLIGHT: In this paper we present an automated parallel derivative-free optimization framework called Autotune , which combines a number of specialized sampling and search methods that are very effective in tuning machine learning models despite these challenges.

48, TITLE: Dynamic Recommendations for Sequential Hiring Decisions in Online Labor Markets
https://doi.org/10.1145/3219819.3219881
AUTHORS: Marios Kokkodis
HIGHLIGHT: In this work, we address this issue by proposing a framework for recommending contractors who are likely to get hired and successfully complete the task at hand.

49, TITLE: PrePeP: A Tool for the Identification and Characterization of Pan Assay Interference Compounds
https://doi.org/10.1145/3219819.3219849
AUTHORS: Maksim Koptelov, Albrecht Zimmermann, Pascal Bonnet, Ronan Bureau, Bruno Cr?milleux
HIGHLIGHT: In the paper, we discuss the different aspects that are involved in developing a functional tool: systematically deriving structural descriptors, addressing the extreme imbalance of the data, offering visual information that pharmacological chemists are familiar with.

50, TITLE: Using Machine Learning to Assess the Risk of and Prevent Water Main Breaks
https://doi.org/10.1145/3219819.3219835
AUTHORS: Avishek Kumar, Syed Ali Asad Rizvi, Benjamin Brooks, R. Ali Vanderveld, Kevin H. Wilson, Chad Kenney, Sam Edelstein, Adria Finch, Andrew Maxwell,
HIGHLIGHT: We built a Machine Learning system to assess the risk of a water mains breaking.

51, TITLE: Collaborative Deep Metric Learning for Video Understanding
https://doi.org/10.1145/3219819.3219856
AUTHORS: Joonseok Lee, Sami Abu-El-Haija, Balakrishnan Varadarajan, Apostol (Paul) Natsev
HIGHLIGHT: Towards that, we propose a deep network that embeds videos using their audio-visual content, onto a metric space which preserves video-to-video relationships.

52, TITLE: Winner's Curse: Bias Estimation for Total Effects of Features in Online Controlled Experiments
https://doi.org/10.1145/3219819.3219905
AUTHORS: Minyong R. Lee, Milan Shen
HIGHLIGHT: In this paper, we investigate a statistical selection bias in this process and propose a correction method of getting an unbiased estimator.

53, TITLE: Rare Query Expansion Through Generative Adversarial Networks in Search Advertising
https://doi.org/10.1145/3219819.3219850
AUTHORS: Mu-Chu Lee, Bin Gao, Ruofei Zhang
HIGHLIGHT: We trained the proposed model in the clicked query-keyword pair dataset from a commercial search advertising system.

54, TITLE: TATC: Predicting Alzheimer's Disease with Actigraphy Data
https://doi.org/10.1145/3219819.3219831
AUTHORS: Jia Li, Yu Rong, Helen Meng, Zhihui Lu, Timothy Kwok, Hong Cheng
HIGHLIGHT: In this work, we present our novel solution named time-aware TICC and CNN (TATC), for predicting AD from actigraphy data.

55, TITLE: E-tail Product Return Prediction via Hypergraph-based Local Graph Cut
https://doi.org/10.1145/3219819.3219829
AUTHORS: Jianbo Li, Jingrui He, Yada Zhu
HIGHLIGHT: E-tail Product Return Prediction via Hypergraph-based Local Graph Cut

56, TITLE: A Data-Driven Three-Layer Algorithm for Split Delivery Vehicle Routing Problem with 3D Container Loading Constraint
https://doi.org/10.1145/3219819.3219872
AUTHORS: Xijun Li, Mingxuan Yuan, Di Chen, Jianguo Yao, Jia Zeng
HIGHLIGHT: Our solution employs a novel data-driven three-layer search algorithm (DTSA), which we designed to improve both the efficiency and effectiveness of traditional meta-heuristic approaches, through learning from data and from simulation.

57, TITLE: Deep Sequence Learning with Auxiliary Information for Traffic Prediction
https://doi.org/10.1145/3219819.3219895
AUTHORS: Binbing Liao, Jingqing Zhang, Chao Wu, Douglas McIlwraith, Tong Chen, Shengwen Yang, Yike Guo, Fei Wu
HIGHLIGHT: In this paper, we intend to improve traffic prediction by appropriate integration of three kinds of implicit but essential factors encoded in auxiliary information.

58, TITLE: BigIN4: Instant, Interactive Insight Identification for Multi-Dimensional Big Data
https://doi.org/10.1145/3219819.3219867
AUTHORS: Qingwei Lin, Weichen Ke, Jian-Guang Lou, Hongyu Zhang, Kaixin Sui, Yong Xu, Ziyi Zhou, Bo Qiao, Dongmei Zhang
HIGHLIGHT: In this paper, we present BigIN4, a system for instant, interactive identification of insights from multi-dimensional big data.

59, TITLE: Lessons Learned from Developing and Deploying a Large-Scale Employer Name Normalization System for Online Recruitment
https://doi.org/10.1145/3219819.3219842
AUTHORS: Qiaoling Liu, Josh Chao, Thomas Mahoney, Alan Chern, Chris Min, Faizan Javed, Valentin Jijkoun
HIGHLIGHT: In this paper, we describe the CompanyDepot system developed at CareerBuilder, which uses machine learning techniques to address these challenges.

60, TITLE: Where Will Dockless Shared Bikes be Stacked?: --- Parking Hotspots Detection in a New City
https://doi.org/10.1145/3219819.3219920
AUTHORS: Zhaoyang Liu, Yanyan Shen, Yanmin Zhu
HIGHLIGHT: We propose to measure road hotness by bike density with the help of the Kernal Density Estimation.

61, TITLE: Next-Step Suggestions for Modern Interactive Data Analysis Platforms
https://doi.org/10.1145/3219819.3219848
AUTHORS: Tova Milo, Amit Somech
HIGHLIGHT: To that end we present REACT, a recommender system designed for modern IDA platforms.

62, TITLE: COTA: Improving the Speed and Accuracy of Customer Support through Ranking and Deep Networks
https://doi.org/10.1145/3219819.3219851
AUTHORS: Piero Molino, Huaixiu Zheng, Yi-Chia Wang
HIGHLIGHT: This paper proposes COTA, a system to improve speed and reliability of customer support for end users through automated ticket classification and answers selection for support representatives.

63, TITLE: Perceive Your Users in Depth: Learning Universal User Representations from Multiple E-commerce Tasks
https://doi.org/10.1145/3219819.3219828
AUTHORS: Yabo Ni, Dan Ou, Shichen Liu, Xiang Li, Wenwu Ou, Anxiang Zeng, Luo Si
HIGHLIGHT: Perceive Your Users in Depth: Learning Universal User Representations from Multiple E-commerce Tasks

64, TITLE: Fatigue Prediction in Outdoor Runners Via Machine Learning and Sensor Fusion
https://doi.org/10.1145/3219819.3219864
AUTHORS: Tim Op De Be?ck, Wannes Meert, Kurt Sch?tte, Benedicte Vanwanseele, Jesse Davis
HIGHLIGHT: In this paper, we explore whether we can use machine learning to predict the rating of perceived exertion (RPE), a validated subjective measure of fatigue, from inertial sensor data of individuals running outdoors.
We collected a longitudinal dataset of runners, and demonstrate that machine learning can be used to learn accurate models for predicting RPE.

65, TITLE: Infrastructure Quality Assessment in Africa using Satellite Imagery and Deep Learning
https://doi.org/10.1145/3219819.3219924
AUTHORS: Barak Oshri, Annie Hu, Peter Adelson, Xiao Chen, Pascaline Dupas, Jeremy Weinstein, Marshall Burke, David Lobell, Stefano Ermon
HIGHLIGHT: To this end, we investigate the use of widely available remote sensing data for the prediction of infrastructure quality in Africa.

66, TITLE: An Extensible Event Extraction System With Cross-Media Event Resolution
https://doi.org/10.1145/3219819.3219827
AUTHORS: Fabio Petroni, Natraj Raman, Tim Nugent, Armineh Nourbakhsh, ?arko Panic, Sameena Shah, Jochen L. Leidner
HIGHLIGHT: Here, we describe a large-scale automated system for extracting natural disasters and critical events from both newswire text and social media.

67, TITLE: Multi-Task Learning with Neural Networks for Voice Query Understanding on an Entertainment Platform
https://doi.org/10.1145/3219819.3219870
AUTHORS: Jinfeng Rao, Ferhan Ture, Jimmy Lin
HIGHLIGHT: We present a novel multi-task neural architecture that jointly learns to accomplish all three tasks.

68, TITLE: Du-Parking: Spatio-Temporal Big Data Tells You Realtime Parking Availability
https://doi.org/10.1145/3219819.3219876
AUTHORS: Yuecheng Rong, Zhimian Xu, Ruibo Yan, Xu Ma

HIGHLIGHT:　　　In this paper, we estimate the realtime parking availability throughout a city using historical parking availability data reported by a limited number of existing sensors of parking lots and a variety of datasets we observed in the city, such as meteorology, events, map mobility trace data and navigation data from Baidu map, and POIs.

69, TITLE:　　　Improving Box Office Result Predictions for Movies Using Consumer-Centric Models
https://doi.org/10.1145/3219819.3219840
AUTHORS:　　　Rui Paulo Ruhrl?nder, Martin Boissier, Matthias Uflacker
HIGHLIGHT:　　　We use individual recommendations and user-based forecast models in a system that forecasts revenue and additionally provides actionable insights for industry professionals.

70, TITLE:　　　A Scalable Solution for Rule-Based Part-of-Speech Tagging on Novel Hardware Accelerators
https://doi.org/10.1145/3219819.3219889
AUTHORS:　　　Elaheh Sadredini, Deyuan Guo, Chunkun Bo, Reza Rahimi, Kevin Skadron, Hongning Wang
HIGHLIGHT:　　　In this paper, we leverage two hardware accelerators, the Automata Processor (AP) and Field Programmable Gate Arrays (FPGA), to accelerate rule-based POS tagging by converting rules to regular expressions and exploiting the highly-parallel regular-expressionmatching ability of these accelerators.

71, TITLE:　　　Career Transitions and Trajectories: A Case Study in Computing
https://doi.org/10.1145/3219819.3219863
AUTHORS:　　　Tara Safavi, Maryam Davoodi, Danai Koutra
HIGHLIGHT:　　　Career Transitions and Trajectories: A Case Study in Computing

72, TITLE:　　　Active Deep Learning to Tune Down the Noise in Labels
https://doi.org/10.1145/3219819.3219914
AUTHORS:　　　Karan Samel, Xu Miao
HIGHLIGHT:　　　The introduction of the Deep Neural Networks (DNNs) significantly reduces the efforts of feature engineering so that supervised learning becomes even more automated.

73, TITLE:　　　Managing Computer-Assisted Detection System Based on Transfer Learning with Negative Transfer Inhibition
https://doi.org/10.1145/3219819.3219868
AUTHORS:　　　Issei Sato, Yukihiro Nomura, Shouhei Hanaoka, Soichiro Miki, Naoto Hayashi, Osamu Abe, Yoshitaka Masutani
HIGHLIGHT:　　　In this paper, we focus on transfer learning without sharing training data due to the need to protect personal information in each institution.

74, TITLE:　　　Dynamic Pricing under Competition on Online Marketplaces: A Data-Driven Approach
https://doi.org/10.1145/3219819.3219833
AUTHORS:　　　Rainer Schlosser, Martin Boissier
HIGHLIGHT:　　　We analyze stochastic dynamic pricing models in competitive markets with multiple offer dimensions, such as price, quality, and rating.

75, TITLE:　　　Detection of Paroxysmal Atrial Fibrillation using Attention-based Bidirectional Recurrent Neural Networks
https://doi.org/10.1145/3219819.3219912
AUTHORS:　　　Supreeth P. Shashikumar, Amit J. Shah, Gari D. Clifford, Shamim Nemati
HIGHLIGHT:　　　In this work, we present an attention based deep learning framework for detection of paroxysmal AF episodes from a sequence of windows.

76, TITLE:　　　StepDeep: A Novel Spatial-temporal Mobility Event Prediction Framework based on Deep Neural Network
https://doi.org/10.1145/3219819.3219931
AUTHORS:　　　Bilong Shen, Xiaodan Liang, Yufeng Ouyang, Miaofeng Liu, Weimin Zheng, Kathleen M. Carley
HIGHLIGHT:　　　In this work, we propose a Spatial-Temporal mobility Event Prediction framework based on Deep neural network (StepDeep) for simultaneously taking into account all correlated spatial and temporal mobility patterns.

77, TITLE:　　　Anatomy of a Privacy-Safe Large-Scale Information Extraction System Over Email
https://doi.org/10.1145/3219819.3219901
AUTHORS:　　　Ying Sheng, Sandeep Tata, James B. Wendt, Jing Xie, Qi Zhao, Marc Najork
HIGHLIGHT:　　　This paper presents Juicer, a system for extracting information from email that is serving over a billion Gmail users daily.

78, TITLE:　　　Audience Size Forecasting: Fast and Smart Budget Planning for Media Buyers

https://doi.org/10.1145/3219819.3219893
AUTHORS: Yeming Shi, Claudia Perlich, Rod Hook, Wickus Martin, Melinda Han Williams, Justin Moynihan, Patrick McCarthy, Peter Lenz, Reka Daniel-Weiner,
HIGHLIGHT: In this paper, we provide a way to estimate campaign impressions given the campaign criteria.

79, TITLE: PittGrub: A Frustration-Free System to Reduce Food Waste by Notifying Hungry College Students
https://doi.org/10.1145/3219819.3219836
AUTHORS: Mark Silvis, Anthony Sicilia, Alexandros Labrinidis
HIGHLIGHT: In this paper, we introduce PittGrub, a notification system to intelligently select users to invite to events that have leftover food.

80, TITLE: A Dynamic Pipeline for Spatio-Temporal Fire Risk Prediction
https://doi.org/10.1145/3219819.3219913
AUTHORS: Bhavkaran Singh Walia, Qianyi Hu, Jeffrey Chen, Fangyan Chen, Jessica Lee, Nathan Kuo, Palak Narang, Jason Batts, Geoffrey Arnold,
HIGHLIGHT: Here, we have developed a predictive risk framework for all 20,636 commercial properties in Pittsburgh, based on time-varying data from a variety of municipal agencies.

81, TITLE: Corpus Conversion Service: A Machine Learning Platform to Ingest Documents at Scale
https://doi.org/10.1145/3219819.3219834
AUTHORS: Peter W J Staar, Michele Dolfi, Christoph Auer, Costas Bekas
HIGHLIGHT: In this paper, we present a modular, cloud-based platform to ingest documents at scale.

82, TITLE: Estimating Glaucomatous Visual Sensitivity from Retinal Thickness with Pattern-Based Regularization and Visualization
https://doi.org/10.1145/3219819.3219866
AUTHORS: Hiroki Sugiura, Taichi Kiwaki, Siamak Yousefi, Hiroshi Murata, Ryo Asaoka, Kenji Yamanishi
HIGHLIGHT: Thus, we propose a new methodology for estimating VF from RT in glaucomatous eyes.

83, TITLE: Identify Susceptible Locations in Medical Records via Adversarial Attacks on Deep Predictive Models
https://doi.org/10.1145/3219819.3219909
AUTHORS: Mengying Sun, Fengyi Tang, Jinfeng Yi, Fei Wang, Jiayu Zhou
HIGHLIGHT: In this paper, we propose an efficient and effective framework that learns a time-preferential minimum attack targeting the LSTM model with EHR inputs, and we leverage this attack strategy to screen medical records of patients and identify susceptible events and measurements.

84, TITLE: Learning Tasks for Multitask Learning: Heterogenous Patient Populations in the ICU
https://doi.org/10.1145/3219819.3219930
AUTHORS: Harini Suresh, Jen J. Gong, John V. Guttag
HIGHLIGHT: In this work, we present a two-step framework to 1) learn relevant patient subgroups, and 2) predict an outcome for separate patient populations in a multi-task framework, where each population is a separate task.

85, TITLE: NGUARD: A Game Bot Detection Framework for NetEase MMORPGs
https://doi.org/10.1145/3219819.3219925
AUTHORS: Jianrong Tao, Jiarong Xu, Linxia Gong, Yifu Li, Changjie Fan, Zhou Zhao
HIGHLIGHT: To deal with the fast-changing nature of game bots, we here proposed a generalized game bot detection framework for MMORPGs termed NGUARD, denoting NetEase Games' Guard.

86, TITLE: A Real-time Framework for Detecting Efficiency Regressions in a Globally Distributed Codebase
https://doi.org/10.1145/3219819.3219858
AUTHORS: Martin Valdez-Vivas, Caner Gocmen, Andrii Korotkov, Ethan Fang, Kapil Goenka, Sherry Chen
HIGHLIGHT: This paper describes the end-to-end regression detection system designed and used at Facebook.

87, TITLE: Inferring Metapopulation Propagation Network for Intra-city Epidemic Control and Prevention
https://doi.org/10.1145/3219819.3219865
AUTHORS: Jingyuan Wang, Xiaojian Wang, Junjie Wu
HIGHLIGHT: In this paper, we argue that the intra-city epidemic propagation should be modeled on a metapopulation base, and propose a two-step method for this purpose.

88, TITLE: Billion-scale Commodity Embedding for E-commerce Recommendation in Alibaba

https://doi.org/10.1145/3219819.3219869
AUTHORS: Jizhe Wang, Pipei Huang, Huan Zhao, Zhibo Zhang, Binqiang Zhao, Dik Lun Lee
HIGHLIGHT: In this paper, we present our technical solutions to address these three challenges.

89, TITLE: EANN: Event Adversarial Neural Networks for Multi-Modal Fake News Detection
https://doi.org/10.1145/3219819.3219903
AUTHORS: Yaqing Wang, Fenglong Ma, Zhiwei Jin, Ye Yuan, Guangxu Xun, Kishlay Jha, Lu Su, Jing Gao
HIGHLIGHT: In order to address this issue, we propose an end-to-end framework named Event Adversarial Neural Network (EANN), which can derive event-invariant features and thus benefit the detection of fake news on newly arrived events.

90, TITLE: Learning to Estimate the Travel Time
https://doi.org/10.1145/3219819.3219900
AUTHORS: Zheng Wang, Kun Fu, Jieping Ye
HIGHLIGHT: This paper presents a novel machine learning solution to predict the vehicle travel time based on floating-car data.

91, TITLE: SDREGION: Fast Spotting of Changing Communities in Biological Networks
https://doi.org/10.1145/3219819.3219854
AUTHORS: Serene W.H. Wong, Chiara Pastrello, Max Kotlyar, Christos Faloutsos, Igor Jurisica
HIGHLIGHT: There are three main contributions to this paper.

92, TITLE: False Discovery Rate Controlled Heterogeneous Treatment Effect Detection for Online Controlled Experiments
https://doi.org/10.1145/3219819.3219860
AUTHORS: Yuxiang Xie, Nanyu Chen, Xiaolin Shi
HIGHLIGHT: In this paper, we propose statistical methods that can systematically and accurately identify Heterogeneous Treatment Effect (HTE) of any user cohort of interest (e.g. mobile device type, country), and determine which factors (e.g. age, gender) of users contribute to the heterogeneity of the treatment effect in an A/B test.

93, TITLE: Mobile Access Record Resolution on Large-Scale Identifier-Linkage Graphs
https://doi.org/10.1145/3219819.3219916
AUTHORS: SHEN Xin, Hongxia Yang, Weizhao Xian, Martin Ester, Jiajun Bu, Zhongyao Wang, Can Wang
HIGHLIGHT: To address these issues, we propose a SParse Identifier-linkage Graph (SPI-Graph) accompanied with the abundant mobile device profiling data to accurately match mobile access records to devices.

94, TITLE: SQR: Balancing Speed, Quality and Risk in Online Experiments
https://doi.org/10.1145/3219819.3219875
AUTHORS: Ya Xu, Weitao Duan, Shaochen Huang
HIGHLIGHT: In this paper, we build up a ramping framework that can effectively balance among Speed, Quality and Risk (SQR).

95, TITLE: Large-Scale Order Dispatch in On-Demand Ride-Hailing Platforms: A Learning and Planning Approach
https://doi.org/10.1145/3219819.3219824
AUTHORS: Zhe Xu, Zhixin Li, Qingwen Guan, Dingshui Zhang, Qiang Li, Junxiao Nan, Chunyang Liu, Wei Bian, Jieping Ye
HIGHLIGHT: We present a novel order dispatch algorithm in large-scale on-demand ride-hailing platforms.

96, TITLE: I Know You'll Be Back: Interpretable New User Clustering and Churn Prediction on a Mobile Social Application
https://doi.org/10.1145/3219819.3219821
AUTHORS: Carl Yang, Xiaolin Shi, Luo Jie, Jiawei Han
HIGHLIGHT: In this paper, by taking the anonymous large-scale real-world data from Snapchat as an example, we develop ClusChurn , a systematic two-step framework for interpretable new user clustering and churn prediction, based on the intuition that proper user clustering can help understand and predict user churn.

97, TITLE: Deep Learning for Practical Image Recognition: Case Study on Kaggle Competitions
https://doi.org/10.1145/3219819.3219907
AUTHORS: Xulei Yang, Zeng Zeng, Sin G. Teo, Li Wang, Vijay Chandrasekhar, Steven Hoi
HIGHLIGHT: In this work, we are making efforts to deal with these challenges through a computational framework by incorporating latest developments in deep learning.

98, TITLE: Customized Regression Model for Airbnb Dynamic Pricing
https://doi.org/10.1145/3219819.3219830
AUTHORS: Peng Ye, Julian Qian, Jieying Chen, Chen-hung Wu, Yitong Zhou, Spencer De Mars, Frank Yang, Li Zhang
HIGHLIGHT: This paper describes the pricing strategy model deployed at Airbnb, an online marketplace for sharing home and experience.

99, TITLE: RapidScorer: Fast Tree Ensemble Evaluation by Maximizing Compactness in Data Level Parallelization
https://doi.org/10.1145/3219819.3219857
AUTHORS: Ting Ye, Hucheng Zhou, Will Y. Zou, Bin Gao, Ruofei Zhang
HIGHLIGHT: In this paper, we present RapidScorer , a novel framework for speeding up the scoring process of industry-scale tree ensemble models, without hurting the quality of scoring results.

100, TITLE: Deep Distributed Fusion Network for Air Quality Prediction
https://doi.org/10.1145/3219819.3219822
AUTHORS: Xiuwen Yi, Junbo Zhang, Zhaoyuan Wang, Tianrui Li, Yu Zheng
HIGHLIGHT: In this paper, we predict the air quality of next 48 hours for each monitoring station, considering air quality data, meteorology data, and weather forecast data.

101, TITLE: Graph Convolutional Neural Networks for Web-Scale Recommender Systems
https://doi.org/10.1145/3219819.3219890
AUTHORS: Rex Ying, Ruining He, Kaifeng Chen, Pong Eksombatchai, William L. Hamilton, Jure Leskovec
HIGHLIGHT: Here we describe a large-scale deep recommendation engine that we developed and deployed at Pinterest.

102, TITLE: Hetero-ConvLSTM: A Deep Learning Approach to Traffic Accident Prediction on Heterogeneous Spatio-Temporal Data
https://doi.org/10.1145/3219819.3219922
AUTHORS: Zhuoning Yuan, Xun Zhou, Tianbao Yang
HIGHLIGHT: In this paper we perform a comprehensive study on the traffic accident prediction problem using the Convolutional Long Short-Term Memory (ConvLSTM) neural network model.

103, TITLE: Visual Search at Alibaba
https://doi.org/10.1145/3219819.3219820
AUTHORS: Yanhao Zhang, Pan Pan, Yun Zheng, Kang Zhao, Yingya Zhang, Xiaofeng Ren, Rong Jin
HIGHLIGHT: This paper introduces the large scale visual search algorithm and system infrastructure at Alibaba.

104, TITLE: Name Disambiguation in AMiner: Clustering, Maintenance, and Human in the Loop.
https://doi.org/10.1145/3219819.3219859
AUTHORS: Yutao Zhang, Fanjin Zhang, Peiran Yao, Jie Tang
HIGHLIGHT: Name Disambiguation in AMiner: Clustering, Maintenance, and Human in the Loop.

105, TITLE: Notification Volume Control and Optimization System at Pinterest
https://doi.org/10.1145/3219819.3219906
AUTHORS: Bo Zhao, Koichiro Narita, Burkay Orten, John Egan
HIGHLIGHT: In this paper, we propose a novel machine learning approach to decide notification volume for each user such that long term user engagement is optimized.

106, TITLE: Deep Reinforcement Learning for Sponsored Search Real-time Bidding
https://doi.org/10.1145/3219819.3219918
AUTHORS: Jun Zhao, Guang Qiu, Ziyu Guan, Wei Zhao, Xiaofei He
HIGHLIGHT: In this paper, we consider the RTB problem in sponsored search auction, named SS-RTB.

107, TITLE: Learning and Transferring IDs Representation in E-commerce
https://doi.org/10.1145/3219819.3219855
AUTHORS: Kui Zhao, Yuechuan Li, Zhaoqian Shuai, Cheng Yang
HIGHLIGHT: In this paper, we propose an embedding based framework to learn and transfer the representation of IDs.

108, TITLE: Recommendations with Negative Feedback via Pairwise Deep Reinforcement Learning
https://doi.org/10.1145/3219819.3219886
AUTHORS: Xiangyu Zhao, Liang Zhang, Zhuoye Ding, Long Xia, Jiliang Tang, Dawei Yin

HIGHLIGHT: In this paper, we propose a novel recommender system with the capability of continuously improving its strategies during the interactions with users.

109, TITLE: OpenTag: Open Attribute Value Extraction from Product Profiles
https://doi.org/10.1145/3219819.3219839
AUTHORS: Guineng Zheng, Subhabrata Mukherjee, Xin Luna Dong, Feifei Li
HIGHLIGHT: We study this problem in the context of product catalogs that often have missing values for many attributes of interest.

110, TITLE: Deep Interest Network for Click-Through Rate Prediction
https://doi.org/10.1145/3219819.3219823
AUTHORS: Guorui Zhou, Xiaoqiang Zhu, Chenru Song, Ying Fan, Han Zhu, Xiao Ma, Yanghui Yan, Junqi Jin, Han Li,
HIGHLIGHT: In this paper, we propose a novel model: Deep Interest Network (DIN) which tackles this challenge by designing a local activation unit to adaptively learn the representation of user interests from historical behaviors with respect to a certain ad.

111, TITLE: Discovering Latent Patterns of Urban Cultural Interactions in WeChat for Modern City Planning
https://doi.org/10.1145/3219819.3219929
AUTHORS: Xiao Zhou, Anastasios Noulas, Cecilia Mascolo, Zhongxiang Zhao
HIGHLIGHT: In this paper, we make use of a large longitudinal dataset of user location check-ins from the online social network WeChat to develop a data-driven framework for cultural planning in the city of Beijing.

112, TITLE: Learning Tree-based Deep Model for Recommender Systems
https://doi.org/10.1145/3219819.3219826
AUTHORS: Han Zhu, Xiang Li, Pengye Zhang, Guozheng Li, Jie He, Han Li, Kun Gai
HIGHLIGHT: In this paper, we focus on the problem of introducing arbitrary advanced models to recommender systems with large corpus.

113, TITLE: Opinion Dynamics with Varying Susceptibility to Persuasion
https://doi.org/10.1145/3219819.3219983
AUTHORS: Rediet Abebe, Jon Kleinberg, David Parkes, Charalampos E. Tsourakakis
HIGHLIGHT: Here, we adopt a popular model for social opinion dynamics, and formalize the opinion maximization and minimization problems where interventions happen at the level of susceptibility.

114, TITLE: A Dual Markov Chain Topic Model for Dynamic Environments
https://doi.org/10.1145/3219819.3219995
AUTHORS: Ayan Acharya, Joydeep Ghosh, Mingyuan Zhou
HIGHLIGHT: This paper introduces the DM-DTM, a dual Markov chain dynamic topic model, for characterizing a corpus that evolves over time.

115, TITLE: Algorithms for Hiring and Outsourcing in the Online Labor Market
https://doi.org/10.1145/3219819.3220056
AUTHORS: Aris Anagnostopoulos, Carlos Castillo, Adriano Fazzone, Stefano Leonardi, Evimaria Terzi
HIGHLIGHT: In this paper, we provide algorithms for outsourcing and hiring workers in a general setting, where workers form a team and contribute different skills to perform a task.

116, TITLE: Scalable k -Means Clustering via Lightweight Coresets
https://doi.org/10.1145/3219819.3219973
AUTHORS: Olivier Bachem, Mario Lucic, Andreas Krause
HIGHLIGHT: We provide a single algorithm to construct lightweight coresets for k -means clustering as well as soft and hard Bregman clustering.

117, TITLE: Discovering Models from Structural and Behavioral Brain Imaging Data
https://doi.org/10.1145/3219819.3220080
AUTHORS: Zilong Bai, Buyue Qian, Ian Davidson
HIGHLIGHT: In this paper we explore finding block models where there is both a structural network and multiple behavioral graphs.

118, TITLE: Optimal Distributed Submodular Optimization via Sketching
https://doi.org/10.1145/3219819.3220081

AUTHORS: MohammadHossein Bateni, Hossein Esfandiari, Vahab Mirrokni
HIGHLIGHT: We present distributed algorithms for several classes of submodular optimization problems such as k-cover, set cover, facility location, and probabilistic coverage.

119, TITLE: Sequences of Sets
https://doi.org/10.1145/3219819.3220100
AUTHORS: Austin R. Benson, Ravi Kumar, Andrew Tomkins
HIGHLIGHT: Sequences of Sets

120, TITLE: Deep Adversarial Learning for Multi-Modality Missing Data Completion
https://doi.org/10.1145/3219819.3219963
AUTHORS: Lei Cai, Zhengyang Wang, Hongyang Gao, Dinggang Shen, Shuiwang Ji
HIGHLIGHT: In this work, we formulate the problem as a conditional image generation task and propose an encoder-decoder deep neural network to tackle this problem.

121, TITLE: Network Connectivity Optimization: Fundamental Limits and Effective Algorithms
https://doi.org/10.1145/3219819.3220019
AUTHORS: Chen Chen, Ruiyue Peng, Lei Ying, Hanghang Tong
HIGHLIGHT: In this paper, we systematically address these two challenges for the network connectivity optimization problem.

122, TITLE: PME: Projected Metric Embedding on Heterogeneous Networks for Link Prediction
https://doi.org/10.1145/3219819.3219986
AUTHORS: Hongxu Chen, Hongzhi Yin, Weiqing Wang, Hao Wang, Quoc Viet Hung Nguyen, Xue Li
HIGHLIGHT: To overcome the heavy skewness of the link distribution w.r.t relations and avoid "over-sampling" or "under-sampling" for each relation, we propose a novel loss-aware adaptive sampling approach for the model optimization.

123, TITLE: Stabilizing Reinforcement Learning in Dynamic Environment with Application to Online Recommendation
https://doi.org/10.1145/3219819.3220122
AUTHORS: Shi-Yong Chen, Yang Yu, Qing Da, Jun Tan, Hai-Kuan Huang, Hai-Hong Tang
HIGHLIGHT: In this paper, we propose two techniques to alleviate the unstable reward estimation problem in dynamic environments, the stratified sampling replay strategy and the approximate regretted reward, which address the problem from the sample aspect and the reward aspect, respectively.

124, TITLE: Quantifying and Minimizing Risk of Conflict in Social Networks
https://doi.org/10.1145/3219819.3220074
AUTHORS: Xi Chen, Jefrey Lijffijt, Tijl De Bie
HIGHLIGHT: Controversy, disagreement, conflict, polarization and opinion divergence in social networks have been the subject of much recent research.

125, TITLE: Spectral Clustering of Large-scale Data by Directly Solving Normalized Cut
https://doi.org/10.1145/3219819.3220039
AUTHORS: Xiaojun Chen, Weijun Hong, Feiping Nie, Dan He, Min Yang, Joshua Zhexue Huang
HIGHLIGHT: In this paper, we propose a new optimization algorithm, namely Direct Normalized Cut (DNC), to directly optimize the normalized cut model.

126, TITLE: Learning-to-Ask: Knowledge Acquisition via 20 Questions
https://doi.org/10.1145/3219819.3220047
AUTHORS: Yihong Chen, Bei Chen, Xuguang Duan, Jian-Guang Lou, Yue Wang, Wenwu Zhu, Yong Cao
HIGHLIGHT: In this paper, we study 20 Questions, an online interactive game where each question-response pair corresponds to a fact of the target entity, to acquire highly accurate knowledge effectively with nearly zero labor cost.

127, TITLE: Voxel Deconvolutional Networks for 3D Brain Image Labeling
https://doi.org/10.1145/3219819.3219974
AUTHORS: Yongjun Chen, Hongyang Gao, Lei Cai, Min Shi, Dinggang Shen, Shuiwang Ji
HIGHLIGHT: In this work, we propose the voxel deconvolutional layer (VoxelDCL) to solve the checkerboard artifact problem of deconvolutional layers in 3D space.

128, TITLE: Local Latent Space Models for Top-N Recommendation
https://doi.org/10.1145/3219819.3220112

AUTHORS: Evangelia Christakopoulou, George Karypis
HIGHLIGHT: To explicitly capture this, we consider models in which there are some latent factors that capture the shared aspects and some user subset specific latent factors that capture the set of aspects that the different subsets of users care about.

129, TITLE: Exact and Consistent Interpretation for Piecewise Linear Neural Networks: A Closed Form Solution
https://doi.org/10.1145/3219819.3220063
AUTHORS: Lingyang Chu, Xia Hu, Juhua Hu, Lanjun Wang, Jian Pei
HIGHLIGHT: In this paper, we propose an elegant closed form solution named $OpenBox$ to compute exact and consistent interpretations for the family of Piecewise Linear Neural Networks (PLNN).

130, TITLE: Identifying Sources and Sinks in the Presence of Multiple Agents with Gaussian Process Vector Calculus
https://doi.org/10.1145/3219819.3220065
AUTHORS: Adam D. Cobb, Richard Everett, Andrew Markham, Stephen J. Roberts
HIGHLIGHT: To overcome the limitations of these inflexible models, we present GP-LAPLACE, a technique for locating sources and sinks from trajectories in time-varying fields.

131, TITLE: Approximating the Spectrum of a Graph
https://doi.org/10.1145/3219819.3220119
AUTHORS: David Cohen-Steiner, Weihao Kong, Christian Sohler, Gregory Valiant
HIGHLIGHT: We present a sublinear time algorithm that, given the ability to query a random node in the graph and select a random neighbor of a given node, computes a succinct representation of an approximation $\widetilde lambda = (\widetilde lambda\_1,\dots,\widetilde lambda\_|V|)$, such that $\|\widetilde lambda - lambda\|\_1 le e |V|$.

132, TITLE: D2K: Scalable Community Detection in Massive Networks via Small-Diameter k-Plexes
https://doi.org/10.1145/3219819.3220093
AUTHORS: Alessio Conte, Tiziano De Matteis, Daniele De Sensi, Roberto Grossi, Andrea Marino, Luca Versari
HIGHLIGHT: Our goal is to detect large communities in today's real-world graphs which can have hundreds of millions of edges.

133, TITLE: Node Similarity with q -Grams for Real-World Labeled Networks
https://doi.org/10.1145/3219819.3220085
AUTHORS: Alessio Conte, Gaspare Ferraro, Roberto Grossi, Andrea Marino, Kunihiko Sadakane, Takeaki Uno
HIGHLIGHT: We describe nSimGram, a suite of fast algorithms for node similarity with q-grams, based on a novel blend of color coding, probabilistic counting, sketches, and string algorithms, where the universe of elements to sample is exponential.

134, TITLE: An Empirical Evaluation of Sketching for Numerical Linear Algebra
https://doi.org/10.1145/3219819.3220098
AUTHORS: Yogesh Dahiya, Dimitris Konomis, David P. Woodruff
HIGHLIGHT: We give various implementation techniques to speed up several of these algorithms, and the resulting implementations demonstrate the tradeoffs of such techniques in practice.

135, TITLE: Transfer Learning via Feature Isomorphism Discovery
https://doi.org/10.1145/3219819.3220029
AUTHORS: Shimin Di, Jingshu Peng, Yanyan Shen, Lei Chen
HIGHLIGHT: More specifically, we propose a feature isomorphism approach to discovering common substructures across feature spaces and learning a feature mapping function from the target domain to the source domain.

136, TITLE: Investor-Imitator: A Framework for Trading Knowledge Extraction
https://doi.org/10.1145/3219819.3220113
AUTHORS: Yi Ding, Weiqing Liu, Jiang Bian, Daoqiang Zhang, Tie-Yan Liu
HIGHLIGHT: In this paper, we propose a reinforcement learning driven Investor-Imitator framework to formalize the trading knowledge, by imitating an investor's behavior with a set of logic descriptors.

137, TITLE: Learning Structural Node Embeddings via Diffusion Wavelets
https://doi.org/10.1145/3219819.3220025
AUTHORS: Claire Donnat, Marinka Zitnik, David Hallac, Jure Leskovec
HIGHLIGHT: In this paper, we develop GraphWave, a method that represents each node's network neighborhood via a low-dimensional embedding by leveraging heat wavelet diffusion patterns.

138, TITLE: Demand-Aware Charger Planning for Electric Vehicle Sharing

https://doi.org/10.1145/3219819.3220032
AUTHORS:　　　　Bowen Du, Yongxin Tong, Zimu Zhou, Qian Tao, Wenjun Zhou
HIGHLIGHT:　　　　In this paper, we formulate the \underlineE lectric \underlineV ehicle \underlineC harger \underlineP lanning (EVCP) problem especially for EV-sharing.

139, TITLE:　　　　FASTEN: Fast Sylvester Equation Solver for Graph Mining
https://doi.org/10.1145/3219819.3220002
AUTHORS:　　　　Boxin Du, Hanghang Tong
HIGHLIGHT:　　　　In this paper, we propose a family of Krylov subspace based algorithms (\fasten) to speed up and scale up the computation of Sylvester equation for graph mining.

140, TITLE:　　　　Multi-view Adversarially Learned Inference for Cross-domain Joint Distribution Matching
https://doi.org/10.1145/3219819.3219957
AUTHORS:　　　　Changying Du, Changde Du, Xingyu Xie, Chen Zhang, Hao Wang
HIGHLIGHT:　　　　In this paper, we propose a multi-view adversarially learned inference (ALI) model, termed as MALI, to address these issues.

141, TITLE:　　　　Towards Explanation of DNN-based Prediction with Guided Feature Inversion
https://doi.org/10.1145/3219819.3220099
AUTHORS:　　　　Mengnan Du, Ninghao Liu, Qingquan Song, Xia Hu
HIGHLIGHT:　　　　To bridge the gap, in this paper, we propose to investigate a guided feature inversion framework for taking advantage of the deep architectures towards effective interpretation.

142, TITLE:　　　　BagMinHash - Minwise Hashing Algorithm for Weighted Sets
https://doi.org/10.1145/3219819.3220089
AUTHORS:　　　　Otmar Ertl
HIGHLIGHT:　　　　Applied to the special case of unweighted sets, it represents the first efficient algorithm producing independent signature components.

143, TITLE:　　　　SpotLight: Detecting Anomalies in Streaming Graphs
https://doi.org/10.1145/3219819.3220040
AUTHORS:　　　　Dhivya Eswaran, Christos Faloutsos, Sudipto Guha, Nina Mishra
HIGHLIGHT:　　　　To this end, we propose a randomized sketching-based approach called SpotLight, which guarantees that an anomalous graph is mapped 'far' away from 'normal' instances in the sketch space with high probability for appropriate choice of parameters.

144, TITLE:　　　　Deep Multi-Output Forecasting: Learning to Accurately Predict Blood Glucose Trajectories
https://doi.org/10.1145/3219819.3220102
AUTHORS:　　　　Ian Fox, Lynn Ang, Mamta Jaiswal, Rodica Pop-Busui, Jenna Wiens
HIGHLIGHT:　　　　In light of these challenges, we propose multi-output deep architectures for multi-step forecasting in which we explicitly model the distribution of future values of the signal over a prediction horizon.

145, TITLE:　　　　Scalable Active Learning by Approximated Error Reduction
https://doi.org/10.1145/3219819.3219954
AUTHORS:　　　　Weijie Fu, Meng Wang, Shijie Hao, Xindong Wu
HIGHLIGHT:　　　　To overcome the above issues, this paper proposes a novel query selection criterion called approximated error reduction (AER).

146, TITLE:　　　　Self-Paced Network Embedding
https://doi.org/10.1145/3219819.3220041
AUTHORS:　　　　Hongchang Gao, Heng Huang
HIGHLIGHT:　　　　To address these important problems, in this paper, we propose a novel self-paced network embedding method.

147, TITLE:　　　　Large-Scale Learnable Graph Convolutional Networks
https://doi.org/10.1145/3219819.3219947
AUTHORS:　　　　Hongyang Gao, Zhengyang Wang, Shuiwang Ji
HIGHLIGHT:　　　　To enable model training on large-scale graphs, we propose a sub-graph training method to reduce the excessive memory and computational resource requirements suffered by prior methods on graph convolutions.

148, TITLE:　　　　Route Recommendations for Idle Taxi Drivers: Find Me the Shortest Route to a Customer!

https://doi.org/10.1145/3219819.3220055
AUTHORS: Nandani Garg, Sayan Ranu
HIGHLIGHT: We study the problem of route recommendation to idle taxi drivers such that the distance between the taxi and an anticipated customer request is minimized.

149, TITLE: Semi-Supervised Generative Adversarial Network for Gene Expression Inference
https://doi.org/10.1145/3219819.3220114
AUTHORS: Kamran Ghasedi Dizaji, Xiaoqian Wang, Heng Huang
HIGHLIGHT: In order to address this issue and take advantage of cheap unlabeled data (i.e. landmark genes), we propose a novel semi-supervised deep generative model for target gene expression inference.

150, TITLE: Training Big Random Forests with Little Resources
https://doi.org/10.1145/3219819.3220124
AUTHORS: Fabian Gieseke, Christian Igel
HIGHLIGHT: We propose a simple yet effective framework that allows to efficiently construct ensembles of huge trees for hundreds of millions or even billions of training instances using a cheap desktop computer with commodity hardware.

151, TITLE: When Sentiment Analysis Meets Social Network: A Holistic User Behavior Modeling in Opinionated Data
https://doi.org/10.1145/3219819.3220120
AUTHORS: Lin Gong, Hongning Wang
HIGHLIGHT: Most existing works exploit specific types of behavior signals for user modeling, e.g., opinionated data or network structure; but the dependency among different types of user-generated data is neglected.

152, TITLE: LARC: Learning Activity-Regularized Overlapping Communities Across Time
https://doi.org/10.1145/3219819.3220118
AUTHORS: Alexander Gorovits, Ekta Gujral, Evangelos E. Papalexakis, Petko Bogdanov
HIGHLIGHT: We propose LARC, a general framework for joint learning of the overlapping community structure and the periods of activity of communities, directly from temporal interaction data.

153, TITLE: New Incremental Learning Algorithm for Semi-Supervised Support Vector Machine
https://doi.org/10.1145/3219819.3220092
AUTHORS: Bin Gu, Xiao-Tong Yuan, Songcan Chen, Heng Huang
HIGHLIGHT: To address this challenging problem, in this paper, we propose a new incremental learning algorithm to scale up S3VM (IL-S3VM) based on the path following technique in the framework of Difference of Convex (DC) programming.

154, TITLE: R 2 SDH: Robust Rotated Supervised Discrete Hashing
https://doi.org/10.1145/3219819.3219955
AUTHORS: Jie Gui, Ping Li
HIGHLIGHT: In this paper, we propose a learning-based hashing algorithm called "Robust Rotated Supervised Discrete Hashing" (R 2 SDH), by extending the previous work on "Supervised Discrete Hashing" (SDH).

155, TITLE: Multi-label Learning with Highly Incomplete Data via Collaborative Embedding
https://doi.org/10.1145/3219819.3220038
AUTHORS: Yufei Han, Guolei Sun, Yun Shen, Xiangliang Zhang
HIGHLIGHT: In this work, we attack this problem by proposing a weakly supervised multi-label learning approach, based on the idea of collaborative embedding.

156, TITLE: PCA by Determinant Optimisation has no Spurious Local Optima
https://doi.org/10.1145/3219819.3220069
AUTHORS: Raphael A. Hauser, Armin Eftekhari, Heinrich F. Matzinger
HIGHLIGHT: In this paper, we consider one such interpretation of principal components as the directions that preserve most of the "volume" of the dataset.

157, TITLE: Automated Local Regression Discontinuity Design Discovery
https://doi.org/10.1145/3219819.3219982
AUTHORS: William Herlands, Edward McFowland III, Andrew Gordon Wilson, Daniel B. Neill
HIGHLIGHT: Our method identifies interpretable, localized RDDs in arbitrary dimensional data and can seamlessly compute treatment effects without expert supervision.

158, TITLE: Disturbance Grassmann Kernels for Subspace-Based Learning

https://doi.org/10.1145/3219819.3219959
AUTHORS: Junyuan Hong, Huanhuan Chen, Feng Lin
HIGHLIGHT: In this paper, we focus on subspace-based learning problems, where data elements are linear subspaces instead of vectors.

159, TITLE: Leveraging Meta-path based Context for Top- N Recommendation with A Neural Co-Attention Model
https://doi.org/10.1145/3219819.3219965
AUTHORS: Binbin Hu, Chuan Shi, Wayne Xin Zhao, Philip S. Yu
HIGHLIGHT: To construct the meta-path based context, we propose to use a priority based sampling technique to select high-quality path instances.

160, TITLE: Metric Learning from Probabilistic Labels
https://doi.org/10.1145/3219819.3219976
AUTHORS: Mengdi Huai, Chenglin Miao, Yaliang Li, Qiuling Suo, Lu Su, Aidong Zhang
HIGHLIGHT: To tackle this challenge, in this paper, we study how to effectively learn the distance metric from datasets that contain probabilistic information, and then propose two novel metric learning mechanisms for two types of probabilistic labels, i.e., the instance-wise probabilistic label and the group-wise probabilistic label.

161, TITLE: Generalized Score Functions for Causal Discovery
https://doi.org/10.1145/3219819.3220104
AUTHORS: Biwei Huang, Kun Zhang, Yizhu Lin, Bernhard Sch?lkopf, Clark Glymour
HIGHLIGHT: In this paper, we introduce generalized score functions for causal discovery based on the characterization of general (conditional) independence relationships between random variables, without assuming particular model classes.

162, TITLE: Accurate and Fast Asymmetric Locality-Sensitive Hashing Scheme for Maximum Inner Product Search
https://doi.org/10.1145/3219819.3219971
AUTHORS: Qiang Huang, Guihong Ma, Jianlin Feng, Qiong Fang, Anthony K. H. Tung
HIGHLIGHT: In this paper, we propose a novel Asymmetric LSH scheme based on Homocentric Hypersphere partition (H2-ALSH) for high-dimensional AMIP search.

163, TITLE: Active Feature Acquisition with Supervised Matrix Completion
https://doi.org/10.1145/3219819.3220084
AUTHORS: Sheng-Jun Huang, Miao Xu, Ming-Kun Xie, Masashi Sugiyama, Gang Niu, Songcan Chen
HIGHLIGHT: In this paper, we try to train an effective classification model with least acquisition cost by jointly performing active feature querying and supervised matrix completion.

164, TITLE: Cost-Effective Training of Deep CNNs with Active Model Adaptation
https://doi.org/10.1145/3219819.3220026
AUTHORS: Sheng-Jun Huang, Jia-Wei Zhao, Zhao-Yang Liu
HIGHLIGHT: In this paper, we propose to overcome these challenges by actively adapting a pre-trained model to a new task with less labeled examples.

165, TITLE: Variable Selection and Task Grouping for Multi-Task Learning
https://doi.org/10.1145/3219819.3219992
AUTHORS: Jun-Yong Jeong, Chi-Hyuck Jun
HIGHLIGHT: We consider multi-task learning, which simultaneously learns related prediction tasks, to improve generalization performance.

166, TITLE: Concepts-Bridges: Uncovering Conceptual Bridges Based on Biomedical Concept Evolution
https://doi.org/10.1145/3219819.3220071
AUTHORS: Kishlay Jha, Guangxu Xun, Yaqing Wang, Vishrawas Gopalakrishnan, Aidong Zhang
HIGHLIGHT: To solve this, we propose an effective algorithm that learns precise mapping sensitive to both global and local semantics of the input query.

167, TITLE: A Treatment Engine by Predicting Next-Period Prescriptions
https://doi.org/10.1145/3219819.3220095
AUTHORS: Bo Jin, Haoyu Yang, Leilei Sun, Chuanren Liu, Yue Qu, Jianing Tong
HIGHLIGHT: This paper is aimed at developing a treatment engine, which learns from historical EMR data and provides a patient with next-period prescriptions based on disease conditions, laboratory results, and treatment records of the patient.

168, TITLE: Stable Prediction across Unknown Environments
https://doi.org/10.1145/3219819.3220082
AUTHORS: Kun Kuang, Peng Cui, Susan Athey, Ruoxuan Xiong, Bo Li
HIGHLIGHT: In this paper, we propose a novel Deep Global Balancing Regression (DGBR) algorithm to jointly optimize a deep auto-encoder model for feature selection and a global balancing model for stable prediction across unknown environments.

169, TITLE: Learning Dynamics of Decision Boundaries without Additional Labeled Data
https://doi.org/10.1145/3219819.3219967
AUTHORS: Atsutoshi Kumagai, Tomoharu Iwata
HIGHLIGHT: We propose a method for learning the dynamics of the decision boundary to maintain classification performance without additional labeled data.

170, TITLE: Dual Memory Neural Computer for Asynchronous Two-view Sequential Learning
https://doi.org/10.1145/3219819.3219981
AUTHORS: Hung Le, Truyen Tran, Svetha Venkatesh
HIGHLIGHT: In this paper, we present a new memory augmented neural network that aims to model these complex interactions between two asynchronous sequential views.

171, TITLE: A Distributed Quasi-Newton Algorithm for Empirical Risk Minimization with Nonsmooth Regularization
https://doi.org/10.1145/3219819.3220075
AUTHORS: Ching-pei Lee, Cong Han Lim, Stephen J. Wright
HIGHLIGHT: We propose a communication- and computation-efficient distributed optimization algorithm using second-order information for solving ERM problems with a nonsmooth regularization term.

172, TITLE: Concentrated Differentially Private Gradient Descent with Adaptive per-Iteration Privacy Budget
https://doi.org/10.1145/3219819.3220076
AUTHORS: Jaewoo Lee, Daniel Kifer
HIGHLIGHT: Concentrated Differentially Private Gradient Descent with Adaptive per-Iteration Privacy Budget

173, TITLE: Graph Classification using Structural Attention
https://doi.org/10.1145/3219819.3219980
AUTHORS: John Boaz Lee, Ryan Rossi, Xiangnan Kong
HIGHLIGHT: In this work, we study the problem of attention-based graph classification.

174, TITLE: TruePIE: Discovering Reliable Patterns in Pattern-Based Information Extraction
https://doi.org/10.1145/3219819.3220017
AUTHORS: Qi Li, Meng Jiang, Xikun Zhang, Meng Qu, Timothy P. Hanratty, Jing Gao, Jiawei Han
HIGHLIGHT: In this work, we propose a novel method, called TruePIE, that finds reliable patterns which can extract not only related but also correct information.

175, TITLE: Offline Evaluation of Ranking Policies with Click Models
https://doi.org/10.1145/3219819.3220028
AUTHORS: Shuai Li, Yasin Abbasi-Yadkori, Branislav Kveton, S. Muthukrishnan, Vishwa Vinay, Zheng Wen
HIGHLIGHT: We address this problem by proposing evaluation algorithms for estimating the expected number of clicks on ranked lists from historical logged data.

176, TITLE: Multi-task Representation Learning for Travel Time Estimation
https://doi.org/10.1145/3219819.3220033
AUTHORS: Yaguang Li, Kun Fu, Zheng Wang, Cyrus Shahabi, Jieping Ye, Yan Liu
HIGHLIGHT: In this paper, we propose a MUlti-task Representation learning model for Arrival Time estimation (MURAT).

177, TITLE: An Efficient Two-Layer Mechanism for Privacy-Preserving Truth Discovery
https://doi.org/10.1145/3219819.3219998
AUTHORS: Yaliang Li, Chenglin Miao, Lu Su, Jing Gao, Qi Li, Bolin Ding, Zhan Qin, Kui Ren
HIGHLIGHT: To fill this gap, we propose perturbation-based mechanisms that provide users with privacy guarantees and maintain the accuracy of aggregated answers.

178, TITLE: Learning Adversarial Networks for Semi-Supervised Text Classification via Policy Gradient
https://doi.org/10.1145/3219819.3219956
AUTHORS: Yan Li, Jieping Ye

HIGHLIGHT:	To address the issues of this type of methods, we reformulate the semi-supervised learning as a model-based reinforcement learning problem and propose an adversarial networks based framework.

179, TITLE:	Dynamic Bike Reposition: A Spatio-Temporal Reinforcement Learning Approach
https://doi.org/10.1145/3219819.3220110
AUTHORS:	Yexin Li, Yu Zheng, Qiang Yang
HIGHLIGHT:	We propose a spatio-temporal reinforcement learning based bike reposition model to deal with this problem.

180, TITLE:	Learning from History and Present: Next-item Recommendation via Discriminatively Exploiting User Behaviors
https://doi.org/10.1145/3219819.3220014
AUTHORS:	Zhi Li, Hongke Zhao, Qi Liu, Zhenya Huang, Tao Mei, Enhong Chen
HIGHLIGHT:	In this paper, we propose a novel Behavior-Intensive Neural Network (BINN) for next-item recommendation by incorporating both users' historical stable preferences and present consumption motivations.

181, TITLE:	High-order Proximity Preserving Information Network Hashing
https://doi.org/10.1145/3219819.3220034
AUTHORS:	Defu Lian, Kai Zheng, Vincent W. Zheng, Yong Ge, Longbing Cao, Ivor W. Tsang, Xing Xie
HIGHLIGHT:	Since matrix factorization (MF) unifies and outperforms several well-known embedding methods with high-order proximity preserved, we propose a MF-based \underlineI nformation \underlineN etwork \underlineH ashing (INH-MF) algorithm, to learn binary codes which can preserve high-order proximity.

182, TITLE:	xDeepFM: Combining Explicit and Implicit Feature Interactions for Recommender Systems
https://doi.org/10.1145/3219819.3220023
AUTHORS:	Jianxun Lian, Xiaohuan Zhou, Fuzheng Zhang, Zhongxia Chen, Xing Xie, Guangzhong Sun
HIGHLIGHT:	In this paper, we propose a novel Compressed Interaction Network (CIN), which aims to generate feature interactions in an explicit fashion and at the vector-wise level.

183, TITLE:	Dynamic Embeddings for User Profiling in Twitter
https://doi.org/10.1145/3219819.3220043
AUTHORS:	Shangsong Liang, Xiangliang Zhang, Zhaochun Ren, Evangelos Kanoulas
HIGHLIGHT:	In this paper, we study the problem of dynamic user profiling in Twitter.

184, TITLE:	Efficient Large-Scale Fleet Management via Multi-Agent Deep Reinforcement Learning
https://doi.org/10.1145/3219819.3219993
AUTHORS:	Kaixiang Lin, Renyu Zhao, Zhe Xu, Jiayu Zhou
HIGHLIGHT:	In this paper we propose to tackle the large-scale fleet management problem using reinforcement learning, and propose a contextual multi-agent reinforcement learning framework including two concrete algorithms, namely contextual deep Q-learning and contextual multi-agent actor-critic, to achieve explicit coordination among a large number of agents adaptive to different contexts.

185, TITLE:	Enhancing Predictive Modeling of Nested Spatial Data through Group-Level Feature Disaggregation
https://doi.org/10.1145/3219819.3220091
AUTHORS:	Boyang Liu, Pang-Ning Tan, Jiayu Zhou
HIGHLIGHT:	In this paper, we present a comparative analysis between the two methods to illustrate their strengths and limitations when applied to two-level nested data.

186, TITLE:	Content to Node: Self-Translation Network Embedding
https://doi.org/10.1145/3219819.3219988
AUTHORS:	Jie Liu, Zhicheng He, Lai Wei, Yalou Huang
HIGHLIGHT:	To this end, we propose a novel sequence-to-sequence model based NE framework which is referred to as Self-Translation Network Embedding (STNE) model.

187, TITLE:	Adversarial Detection with Model Interpretation
https://doi.org/10.1145/3219819.3220027
AUTHORS:	Ninghao Liu, Hongxia Yang, Xia Hu
HIGHLIGHT:	To bridge the gap, in this paper, we propose to investigate whether model interpretation could potentially help adversarial detection.

188, TITLE:	On Interpretation of Network Embedding via Taxonomy Induction

https://doi.org/10.1145/3219819.3220001
AUTHORS: Ninghao Liu, Xiao Huang, Jundong Li, Xia Hu
HIGHLIGHT: In this paper, we investigate the interpretation of network embedding, aiming to understand how instances are distributed in embedding space, as well as explore the factors that lead to the embedding results.

189, TITLE: Finding Similar Exercises in Online Education Systems
https://doi.org/10.1145/3219819.3219960
AUTHORS: Qi Liu, Zai Huang, Zhenya Huang, Chuanren Liu, Enhong Chen, Yu Su, Guoping Hu
HIGHLIGHT: To this end, in this paper, we develop a novel Multimodal Attention-based Neural Network (MANN) framework for finding similar exercises in large-scale online education systems by learning a unified semantic representation from the heterogenous data.

190, TITLE: STAMP: Short-Term Attention/Memory Priority Model for Session-based Recommendation
https://doi.org/10.1145/3219819.3219950
AUTHORS: Qiao Liu, Yifu Zeng, Refuoe Mokhosi, Haibin Zhang
HIGHLIGHT: In this study, we argue that a long-term memory model may be insufficient for modeling long sessions that usually contain user interests drift caused by unintended clicks.

191, TITLE: Active Opinion Maximization in Social Networks
https://doi.org/10.1145/3219819.3220061
AUTHORS: Xinyue Liu, Xiangnan Kong, Philip S. Yu
HIGHLIGHT: In this paper, we consider a problem called AcTive Opinion Maximization (ATOM), where the goal is to find a set of seed users to maximize the overall opinion spread toward a target product in a multi-round campaign.

192, TITLE: Efficient Similar Region Search with Deep Metric Learning
https://doi.org/10.1145/3219819.3220031
AUTHORS: Yiding Liu, Kaiqi Zhao, Gao Cong
HIGHLIGHT: To tackle the two challenges, we propose a novel solution equipped by (1) a deep learning approach to learning the similarity that considers both object attributes and the relative locations between objects; and (2) an efficient branch and bound search algorithm for finding top-N similar regions.

193, TITLE: Interactive Paths Embedding for Semantic Proximity Search on Heterogeneous Graphs
https://doi.org/10.1145/3219819.3219953
AUTHORS: Zemin Liu, Vincent W. Zheng, Zhou Zhao, Zhao Li, Hongxia Yang, Minghui Wu, Jing Ying
HIGHLIGHT: In this paper, we introduce a novel concept of interactive paths to model the inter-dependency among multiple paths between a query object and a target object.

194, TITLE: Context-aware Academic Collaborator Recommendation
https://doi.org/10.1145/3219819.3220050
AUTHORS: Zheng Liu, Xing Xie, Lei Chen
HIGHLIGHT: In this work, we propose Context-aware Collaborator Recommendation (CACR), which aims to recommend high-potential new collaborators for people's context-restricted requests.

195, TITLE: R-VQA: Learning Visual Relation Facts with Semantic Attention for Visual Question Answering
https://doi.org/10.1145/3219819.3220036
AUTHORS: Pan Lu, Lei Ji, Wei Zhang, Nan Duan, Ming Zhou, Jianyong Wang
HIGHLIGHT: To better utilize semantic knowledge in images, we propose a novel framework to learn visual relation facts for VQA.
Specifically, we build up a Relation-VQA (R-VQA) dataset based on the Visual Genome dataset via a semantic similarity module, in which each data consists of an image, a corresponding question, a correct answer and a supporting relation fact.

196, TITLE: TINET: Learning Invariant Networks via Knowledge Transfer
https://doi.org/10.1145/3219819.3220003
AUTHORS: Chen Luo, Zhengzhang Chen, Lu-An Tang, Anshumali Shrivastava, Zhichun Li, Haifeng Chen, Jieping Ye
HIGHLIGHT: To avoid the prohibitive time and resource consuming network building process, we propose TINET, a knowledge transfer based model for accelerating invariant network construction.

197, TITLE: Sketched Follow-The-Regularized-Leader for Online Factorization Machine
https://doi.org/10.1145/3219819.3220044
AUTHORS: Luo Luo, Wenpeng Zhang, Zhihua Zhang, Wenwu Zhu, Tong Zhang, Jian Pei
HIGHLIGHT: In this paper, we consider the case that the data samples arrive sequentially.

198, TITLE: Risk Prediction on Electronic Health Records with Prior Medical Knowledge
https://doi.org/10.1145/3219819.3220020
AUTHORS: Fenglong Ma, Jing Gao, Qiuling Suo, Quanzeng You, Jing Zhou, Aidong Zhang
HIGHLIGHT: To tackle this challenge, we propose a novel and general framework called PRIME for risk prediction task, which can successfully incorporate discrete prior medical knowledge into all of the state-of-the-art predictive models using posterior regularization technique.

199, TITLE: Hierarchical Taxonomy Aware Network Embedding
https://doi.org/10.1145/3219819.3220062
AUTHORS: Jianxin Ma, Peng Cui, Xiao Wang, Wenwu Zhu
HIGHLIGHT: In this paper, we propose NetHiex, a NETwork embedding model that captures the latent HIErarchical taXonomy.

200, TITLE: Modeling Task Relationships in Multi-task Learning with Multi-gate Mixture-of-Experts
https://doi.org/10.1145/3219819.3220007
AUTHORS: Jiaqi Ma, Zhe Zhao, Xinyang Yi, Jilin Chen, Lichan Hong, Ed H. Chi
HIGHLIGHT: In this work, we propose a novel multi-task learning approach, Multi-gate Mixture-of-Experts (MMoE), which explicitly learns to model task relationships from data.

201, TITLE: Extremely Fast Decision Tree
https://doi.org/10.1145/3219819.3220005
AUTHORS: Chaitanya Manapragada, Geoffrey I. Webb, Mahsa Salehi
HIGHLIGHT: We introduce a novel incremental decision tree learning algorithm, Hoeffding Anytime Tree, that is statistically more efficient than the current state-of-the-art, Hoeffding Tree.

202, TITLE: xStream: Outlier Detection in Feature-Evolving Data Streams
https://doi.org/10.1145/3219819.3220107
AUTHORS: Emaad Manzoor, Hemank Lamba, Leman Akoglu
HIGHLIGHT: We propose a density-based ensemble outlier detector, called xStream, for this more extreme streaming setting which has the following key properties: (1) it is a constant-space and constant-time (per incoming update) algorithm, (2) it measures outlierness at multiple scales or granularities, it can handle (3 i) high-dimensionality through distance-preserving projections, and (3ii) non-stationarity via $O(1)$-time model updates as the stream progresses.

203, TITLE: Discovering Non-Redundant K-means Clusterings in Optimal Subspaces
https://doi.org/10.1145/3219819.3219945
AUTHORS: Dominik Mautz, Wei Ye, Claudia Plant, Christian B?hm
HIGHLIGHT: In this paper, we follow the approach that different, non-redundant k-means-like clusterings may exist in different, arbitrarily oriented subspaces of the high-dimensional space.

204, TITLE: Classifying and Counting with Recurrent Contexts
https://doi.org/10.1145/3219819.3220059
AUTHORS: Denis Moreira dos Reis, Andr? Maletzke, Diego F. Silva, Gustavo E. A. P. A. Batista
HIGHLIGHT: In this paper, we explore a different set of assumptions without relying on the availability of class labels.

205, TITLE: DILOF: Effective and Memory Efficient Local Outlier Detection in Data Streams
https://doi.org/10.1145/3219819.3220022
AUTHORS: Gyoung S. Na, Donghyun Kim, Hwanjo Yu
HIGHLIGHT: In this paper, we propose a new outlier detection algorithm for data streams, called DILOF that effectively overcomes the limitations.

206, TITLE: Robust Bayesian Kernel Machine via Stein Variational Gradient Descent for Big Data
https://doi.org/10.1145/3219819.3220015
AUTHORS: Khanh Nguyen, Trung Le, Tu Dinh Nguyen, Dinh Phung, Geoffrey I. Webb
HIGHLIGHT: In this paper, we propose a robust Bayesian Kernel Machine (BKM) - a Bayesian kernel machine that exploits the strengths of both the Bayesian modelling and kernel methods.

207, TITLE: Calibrated Multi-Task Learning
https://doi.org/10.1145/3219819.3219951
AUTHORS: Feiping Nie, Zhanxuan Hu, Xuelong Li

HIGHLIGHT:	This paper proposes a novel algorithm, named Non-Convex Calibrated Multi-Task Learning (NC-CMTL), for learning multiple related regression tasks jointly.

208, TITLE:	Multiview Clustering via Adaptively Weighted Procrustes
https://doi.org/10.1145/3219819.3220049
AUTHORS:	Feiping Nie, Lai Tian, Xuelong Li
HIGHLIGHT:	In this paper, we make a multiview extension of the spectral rotation technique raised in single view spectral clustering research.

209, TITLE:	Unlocking the Value of Privacy: Trading Aggregate Statistics over Private Correlated Data
https://doi.org/10.1145/3219819.3220013
AUTHORS:	Chaoyue Niu, Zhenzhe Zheng, Fan Wu, Shaojie Tang, Xiaofeng Gao, Guihai Chen
HIGHLIGHT:	In this paper, we study noisy aggregate statistics trading from the perspective of a data broker in data markets.

210, TITLE:	Learning Representations of Ultrahigh-dimensional Data for Random Distance-based Outlier Detection
https://doi.org/10.1145/3219819.3220042
AUTHORS:	Guansong Pang, Longbing Cao, Ling Chen, Huan Liu
HIGHLIGHT:	Learning expressive low-dimensional representations of ultrahigh-dimensional data, e.g., data with thousands/millions of features, has been a major way to enable learning methods to address the curse of dimensionality.

211, TITLE:	EvoGraph: An Effective and Efficient Graph Upscaling Method for Preserving Graph Properties
https://doi.org/10.1145/3219819.3220123
AUTHORS:	Himchan Park, Min-Soo Kim
HIGHLIGHT:	In this paper, we propose a novel graph upscaling method called EvoGraph that can upscale the original graph with preserving its properties regardless of a scale factor.

212, TITLE:	Explanation Mining: Post Hoc Interpretability of Latent Factor Models for Recommendation Systems
https://doi.org/10.1145/3219819.3220072
AUTHORS:	Georgina Peake, Jun Wang
HIGHLIGHT:	We propose a novel approach for extracting explanations from latent factor recommendation systems by training association rules on the output of a matrix factorisation black-box model.

213, TITLE:	Efficient Mining of the Most Significant Patterns with Permutation Testing
https://doi.org/10.1145/3219819.3219997
AUTHORS:	Leonardo Pellegrina, Fabio Vandin
HIGHLIGHT:	We develop TopKWY, the first algorithm to mine the top-k significant patterns while rigorously controlling the family-wise error rate of the output and provide theoretical evidence of its effectiveness.

214, TITLE:	SUSTain: Scalable Unsupervised Scoring for Tensors and its Application to Phenotyping
https://doi.org/10.1145/3219819.3219999
AUTHORS:	Ioakeim Perros, Evangelos E. Papalexakis, Haesun Park, Richard Vuduc, Xiaowei Yan, Christopher Defilippi, Walter F. Stewart, Jimeng Sun
HIGHLIGHT:	This paper presents a new method, which we call SUSTain, that extends real-valued matrix and tensor factorizations to data where values are integers.

215, TITLE:	Optimizing Cluster-based Randomized Experiments under Monotonicity
https://doi.org/10.1145/3219819.3220067
AUTHORS:	Jean Pouget-Abadie, Vahab Mirrokni, David C. Parkes, Edoardo M. Airoldi
HIGHLIGHT:	In the paper, we introduce a monotonicity condition under which a novel two-stage experimental design allows us to determine which of two cluster-based designs yields the least biased estimator.

216, TITLE:	FAHES: A Robust Disguised Missing Values Detector
https://doi.org/10.1145/3219819.3220109
AUTHORS:	Abdulhakim A. Qahtan, Ahmed Elmagarmid, Raul Castro Fernandez, Mourad Ouzzani, Nan Tang
HIGHLIGHT:	In this paper, we present FAHES, a robust system for detecting DMVs from two angles: DMVs as detectable outliers and as detectable inliers.

217, TITLE:	DeepInf: Social Influence Prediction with Deep Learning
https://doi.org/10.1145/3219819.3220077
AUTHORS:	Jiezhong Qiu, Jian Tang, Hao Ma, Yuxiao Dong, Kuansan Wang, Jie Tang

HIGHLIGHT: DeepInf: Social Influence Prediction with Deep Learning

218, TITLE: Active Search of Connections for Case Building and Combating Human Trafficking
https://doi.org/10.1145/3219819.3220103
AUTHORS: Reihaneh Rabbany, David Bayani, Artur Dubrawski
HIGHLIGHT: We present RedThread, an efficient solution for inferring related and relevant nodes while incorporating the user's feedback to guide the inference.

219, TITLE: MiSoSouP: Mining Interesting Subgroups with Sampling and Pseudodimension
https://doi.org/10.1145/3219819.3219989
AUTHORS: Matteo Riondato, Fabio Vandin
HIGHLIGHT: We present MiSoSouP, a suite of algorithms for extracting high-quality approximations of the most interesting subgroups, according to different interestingness measures, from a random sample of a transactional dataset.

220, TITLE: Parsing to Programs: A Framework for Situated QA
https://doi.org/10.1145/3219819.3219972
AUTHORS: Mrinmaya Sachan, Eric P. Xing
HIGHLIGHT: This paper introduces Parsing to Programs, a framework that combines ideas from parsing and probabilistic programming for situated question answering.
We collect a new dataset of Newtonian physics questions from a number of textbooks and use it to train our system.

221, TITLE: Butterfly Counting in Bipartite Networks
https://doi.org/10.1145/3219819.3220097
AUTHORS: Seyed-Vahid Sanei-Mehri, Ahmet Erdem Sariyuce, Srikanta Tirthapura
HIGHLIGHT: Our main contribution is a suite of randomized algorithms that can quickly approximate the number of butterflies in a graph with a provable guarantee on accuracy.

222, TITLE: Accelerated Equivalence Structure Extraction via Pairwise Incremental Search
https://doi.org/10.1145/3219819.3220011
AUTHORS: Seiya Satoh, Yoshinobu Takahashi, Hiroshi Yamakawa
HIGHLIGHT: In this paper, we propose a new fast method called pairwise incremental search (PIS).

223, TITLE: Recurrent Binary Embedding for GPU-Enabled Exhaustive Retrieval from Billion-Scale Semantic Vectors
https://doi.org/10.1145/3219819.3220018
AUTHORS: Ying Shan, Jian jiao, Jie Zhu, JC Mao
HIGHLIGHT: Building on top of the powerful concept of semantic learning, this paper proposes a Recurrent Binary Embedding (RBE) model that learns compact representations for real-time retrieval.

224, TITLE: HiExpan: Task-Guided Taxonomy Construction by Hierarchical Tree Expansion
https://doi.org/10.1145/3219819.3220115
AUTHORS: Jiaming Shen, Zeqiu Wu, Dongming Lei, Chao Zhang, Xiang Ren, Michelle T. Vanni, Brian M. Sadler, Jiawei Han
HIGHLIGHT: In this paper, we aim to construct a task-guided taxonomy from a domain-specific corpus, and allow users to input a seed taxonomy, serving as the task guidance.

225, TITLE: Easing Embedding Learning by Comprehensive Transcription of Heterogeneous Information Networks
https://doi.org/10.1145/3219819.3220006
AUTHORS: Yu Shi, Qi Zhu, Fang Guo, Chao Zhang, Jiawei Han
HIGHLIGHT: To cope with the challenges in the comprehensive transcription of HINs, we propose the HEER algorithm, which embeds HINs via edge representations that are further coupled with properly-learned heterogeneous metrics.

226, TITLE: Feedback-Guided Anomaly Discovery via Online Optimization
https://doi.org/10.1145/3219819.3220083
AUTHORS: Md Amran Siddiqui, Alan Fern, Thomas G. Dietterich, Ryan Wright, Alec Theriault, David W. Archer
HIGHLIGHT: In this paper, we study how to reduce the analyst's effort by incorporating their feedback about whether the anomalies they investigate are of interest or not.

227, TITLE: Are your data gathered?
https://doi.org/10.1145/3219819.3219994
AUTHORS: Alban Siffer, Pierre-Alain Fouque, Alexandre Termier, Christine Largou?t

HIGHLIGHT: Before such deep investigations, we propose the folding test of unimodality.

228, TITLE: Fairness of Exposure in Rankings
https://doi.org/10.1145/3219819.3220088
AUTHORS: Ashudeep Singh, Thorsten Joachims
HIGHLIGHT: To address these often conflicting responsibilities, we propose a conceptual and computational framework that allows the formulation of fairness constraints on rankings in terms of exposure allocation.

229, TITLE: Deep r -th Root of Rank Supervised Joint Binary Embedding for Multivariate Time Series Retrieval
https://doi.org/10.1145/3219819.3220108
AUTHORS: Dongjin Song, Ning Xia, Wei Cheng, Haifeng Chen, Dacheng Tao
HIGHLIGHT: To cope with this issue, in this paper we propose a Deep r-th root of Rank Supervised Joint Binary Embedding (Deep r-RSJBE) to perform multivariate time series retrieval.

230, TITLE: A Unified Approach to Quantifying Algorithmic Unfairness: Measuring Individual &Group Unfairness via Inequality Indices
https://doi.org/10.1145/3219819.3220046
AUTHORS: Till Speicher, Hoda Heidari, Nina Grgic-Hlaca, Krishna P. Gummadi, Adish Singla, Adrian Weller, Muhammad Bilal Zafar
HIGHLIGHT: In this paper, we focus on the following question: Given two unfair algorithms, how should we determine which of the two is more unfair?

231, TITLE: Multi-Round Influence Maximization
https://doi.org/10.1145/3219819.3220101
AUTHORS: Lichao Sun, Weiran Huang, Philip S. Yu, Wei Chen
HIGHLIGHT: In this paper, we study the Multi-Round Influence Maximization (MRIM) problem, where influence propagates in multiple rounds independently from possibly different seed sets, and the goal is to select seeds for each round to maximize the expected number of nodes that are activated in at least one round.

232, TITLE: Subspace Network: Deep Multi-Task Censored Regression for Modeling Neurodegenerative Diseases
https://doi.org/10.1145/3219819.3219966
AUTHORS: Mengying Sun, Inci M. Baytas, Liang Zhan, Zhangyang Wang, Jiayu Zhou
HIGHLIGHT: In this paper, we propose Subspace Network, an efficient deep modeling approach for non-linear multi-task censored regression.

233, TITLE: Exploring the Urban Region-of-Interest through the Analysis of Online Map Search Queries
https://doi.org/10.1145/3219819.3220009
AUTHORS: Ying Sun, Hengshu Zhu, Fuzhen Zhuang, Jingjing Gu, Qing He
HIGHLIGHT: To this end, in this paper we propose a systematic study on ROI analysis through mining the large-scale online map query logs, which provides a new data-driven research paradigm for ROI detection and profiling.

234, TITLE: Data Diff: Interpretable, Executable Summaries of Changes in Distributions for Data Wrangling
https://doi.org/10.1145/3219819.3220057
AUTHORS: Charles Sutton, Timothy Hobson, James Geddes, Rich Caruana
HIGHLIGHT: We introduce the data diff problem, which attempts to turn this problem into an opportunity.

235, TITLE: Ranking Distillation: Learning Compact Ranking Models With High Performance for Recommender System
https://doi.org/10.1145/3219819.3220021
AUTHORS: Jiaxi Tang, Ke Wang
HIGHLIGHT: We propose a KD technique for learning to rank problems, called ranking distillation (RD).

236, TITLE: Multi-Cast Attention Networks
https://doi.org/10.1145/3219819.3220048
AUTHORS: Yi Tay, Luu Anh Tuan, Siu Cheung Hui
HIGHLIGHT: We propose Multi-Cast Attention Networks (MCAN), a new attention mechanism and general model architecture for a potpourri of ranking tasks in the conversational modeling and question answering domains.

237, TITLE: Multi-Pointer Co-Attention Networks for Recommendation
https://doi.org/10.1145/3219819.3220086
AUTHORS: Yi Tay, Anh Tuan Luu, Siu Cheung Hui

HIGHLIGHT: This paper proposes a new neural architecture for recommendation with reviews.

238, TITLE: Count-Min: Optimal Estimation and Tight Error Bounds using Empirical Error Distributions
https://doi.org/10.1145/3219819.3219975
AUTHORS: Daniel Ting
HIGHLIGHT: The Count-Min sketch is an important and well-studied data summarization method.

239, TITLE: Isolation Kernel and Its Effect on SVM
https://doi.org/10.1145/3219819.3219990
AUTHORS: Kai Ming Ting, Yue Zhu, Zhi-Hua Zhou
HIGHLIGHT: We introduce Isolation Kernel which is solely dependent on data distribution, requiring neither class information nor explicit learning to be a classifier.

240, TITLE: Latent Variable Time-varying Network Inference
https://doi.org/10.1145/3219819.3220121
AUTHORS: Federico Tomasi, Veronica Tozzo, Saverio Salzo, Alessandro Verri
HIGHLIGHT: In this work we present latent variable time-varying graphical lasso (LTGL), a method for multivariate time-series graphical modelling that considers the influence of hidden or unmeasurable factors.

241, TITLE: NetLSD: Hearing the Shape of a Graph
https://doi.org/10.1145/3219819.3219991
AUTHORS: Anton Tsitsulin, Davide Mottin, Panagiotis Karras, Alexander Bronstein, Emmanuel M?ller
HIGHLIGHT: In this paper, we propose the Network Laplacian Spectral Descriptor (NetLSD): the first, to our knowledge, permutation- and size-invariant, scale-adaptive, and efficiently computable graph representation method that allows for straightforward comparisons of large graphs.

242, TITLE: Deep Recursive Network Embedding with Regular Equivalence
https://doi.org/10.1145/3219819.3220068
AUTHORS: Ke Tu, Peng Cui, Xiao Wang, Philip S. Yu, Wenwu Zhu
HIGHLIGHT: Accordingly, we propose a new approach named Deep Recursive Network Embedding (DRNE) to learn network embeddings with regular equivalence.

243, TITLE: Hyperparameter Importance Across Datasets
https://doi.org/10.1145/3219819.3220058
AUTHORS: Jan N. van Rijn, Frank Hutter
HIGHLIGHT: In this work, we aim to answer the following two questions: Given an algorithm, what are generally its most important hyperparameters, and what are typically good values for these?

244, TITLE: Quantifying Uncertainty in Discrete-Continuous and Skewed Data with Bayesian Deep Learning
https://doi.org/10.1145/3219819.3219996
AUTHORS: Thomas Vandal, Evan Kodra, Jennifer Dy, Sangram Ganguly, Ramakrishna Nemani, Auroop R. Ganguly
HIGHLIGHT: Here we present a discrete-continuous BDL model with Gaussian and lognormal likelihoods for uncertainty quantification (UQ).

245, TITLE: Efficient Attribute Recommendation with Probabilistic Guarantee
https://doi.org/10.1145/3219819.3219984
AUTHORS: Chi Wang, Kaushik Chakrabarti
HIGHLIGHT: In this paper, we develop an adaptive querying solution with probabilistic guarantee of correctness and near-optimal sample complexity.

246, TITLE: Multi-Type Itemset Embedding for Learning Behavior Success
https://doi.org/10.1145/3219819.3219949
AUTHORS: Daheng Wang, Meng Jiang, Qingkai Zeng, Zachary Eberhart, Nitesh V. Chawla
HIGHLIGHT: In this work, we formulate a behavior as a set of context items of different types (such as decision makers, operators, goals and resources), consider an observable itemset as a behavior success, and propose a novel scalable method, "multi-type itemset embedding", to learn the context items' representations preserving the success structures.

247, TITLE: Not Just Privacy: Improving Performance of Private Deep Learning in Mobile Cloud
https://doi.org/10.1145/3219819.3220106
AUTHORS: Ji Wang, Jianguo Zhang, Weidong Bao, Xiaomin Zhu, Bokai Cao, Philip S. Yu

HIGHLIGHT: To mitigate this influence, we propose a noisy training method to enhance the cloud-side network robustness to perturbed data.

248, TITLE: Learning Credible Models
https://doi.org/10.1145/3219819.3220070
AUTHORS: Jiaxuan Wang, Jeeheh Oh, Haozhu Wang, Jenna Wiens
HIGHLIGHT: In this work, we formally define credibility in the linear setting and focus on techniques for learning models that are both accurate and credible.

249, TITLE: Towards Mitigating the Class-Imbalance Problem for Partial Label Learning
https://doi.org/10.1145/3219819.3220008
AUTHORS: Jing Wang, Min-Ling Zhang
HIGHLIGHT: To mitigate the negative influence of class-imbalance to partial label learning, a novel class-imbalance aware approach named CIMAP is proposed by adapting over-sampling techniques for handling PL training examples.

250, TITLE: Multilevel Wavelet Decomposition Network for Interpretable Time Series Analysis
https://doi.org/10.1145/3219819.3220060
AUTHORS: Jingyuan Wang, Ze Wang, Jianfeng Li, Junjie Wu
HIGHLIGHT: In particular, we propose an importance analysis method to mWDN based models, which successfully identifies those time-series elements and mWDN layers that are crucially important to time series analysis.

251, TITLE: Supervised Reinforcement Learning with Recurrent Neural Network for Dynamic Treatment Recommendation
https://doi.org/10.1145/3219819.3219961
AUTHORS: Lu Wang, Wei Zhang, Xiaofeng He, Hongyuan Zha
HIGHLIGHT: In this paper, we propose Supervised Reinforcement Learning with Recurrent Neural Network (SRL-RNN), which fuses them into a synergistic learning framework.

252, TITLE: You Are How You Drive: Peer and Temporal-Aware Representation Learning for Driving Behavior Analysis
https://doi.org/10.1145/3219819.3219985
AUTHORS: Pengyang Wang, Yanjie Fu, Jiawei Zhang, Pengfei Wang, Yu Zheng, Charu Aggarwal
HIGHLIGHT: To that end, in this paper, we develop a Peer and Temporal-Aware Representation Learning based framework (PTARL) for driving behavior analysis with GPS trajectory data.

253, TITLE: Neural Memory Streaming Recommender Networks with Adversarial Training
https://doi.org/10.1145/3219819.3220004
AUTHORS: Qinyong Wang, Hongzhi Yin, Zhiting Hu, Defu Lian, Hao Wang, Zi Huang
HIGHLIGHT: In this paper, we propose a streaming recommender model based on neural memory networks with external memories to capture and store both long-term stable interests and short-term dynamic interests in a unified way.

254, TITLE: Towards Evolutionary Compression
https://doi.org/10.1145/3219819.3219970
AUTHORS: Yunhe Wang, Chang Xu, Jiayan Qiu, Chao Xu, Dacheng Tao
HIGHLIGHT: In contrast to directly recognizing subtle weights or filters as redundant in a given CNN, this paper presents an evolutionary method to automatically eliminate redundant convolution filters.

255, TITLE: Smoothed Dilated Convolutions for Improved Dense Prediction
https://doi.org/10.1145/3219819.3219944
AUTHORS: Zhengyang Wang, Shuiwang Ji
HIGHLIGHT: In this work, we propose two simple yet effective degridding methods by studying a decomposition of dilated convolutions.

256, TITLE: IntelliLight: A Reinforcement Learning Approach for Intelligent Traffic Light Control
https://doi.org/10.1145/3219819.3220096
AUTHORS: Hua Wei, Guanjie Zheng, Huaxiu Yao, Zhenhui Li
HIGHLIGHT: In this paper, we propose a more effective deep reinforcement learning model for traffic light control.

257, TITLE: Scalable Spectral Clustering Using Random Binning Features
https://doi.org/10.1145/3219819.3220090
AUTHORS: Lingfei Wu, Pin-Yu Chen, Ian En-Hsu Yen, Fangli Xu, Yinglong Xia, Charu Aggarwal

HIGHLIGHT: In this paper, we present a novel scalable spectral clustering method using Random Binning features (RB) to simultaneously accelerate both similarity graph construction and the eigendecomposition.

258, TITLE: Decoupled Learning for Factorial Marked Temporal Point Processes
https://doi.org/10.1145/3219819.3220035
AUTHORS: Weichang Wu, Junchi Yan, Xiaokang Yang, Hongyuan Zha
HIGHLIGHT: This paper presents a factorial marked temporal point process model and presents efficient learning methods.

259, TITLE: Deep Censored Learning of the Winning Price in the Real Time Bidding
https://doi.org/10.1145/3219819.3220066
AUTHORS: Wush Wu, Mi-Yen Yeh, Ming-Syan Chen
HIGHLIGHT: We generalize the winning price model to incorporate the deep learning models with different distributions and propose an algorithm to learn from the historical bidding information, where the winning price are either observed or partially observed.

260, TITLE: On Discrimination Discovery and Removal in Ranked Data using Causal Graph
https://doi.org/10.1145/3219819.3220087
AUTHORS: Yongkai Wu, Lu Zhang, Xintao Wu
HIGHLIGHT: In this paper, we study the fairness-aware ranking problem which aims to discover discrimination in ranked datasets and reconstruct the fair ranking.

261, TITLE: Geographical Hidden Markov Tree for Flood Extent Mapping
https://doi.org/10.1145/3219819.3220053
AUTHORS: Miao Xie, Zhe Jiang, Arpan Man Sainju
HIGHLIGHT: In this paper, we propose geographical hidden Markov tree, a probabilistic graphical model that generalizes the common hidden Markov model from a one dimensional sequence to a two dimensional map.

262, TITLE: New Robust Metric Learning Model Using Maximum Correntropy Criterion
https://doi.org/10.1145/3219819.3220016
AUTHORS: Jie Xu, Lei Luo, Cheng Deng, Heng Huang
HIGHLIGHT: To overcome this limitation, we propose a new robust metric learning approach by introducing the maximum correntropy criterion to deal with real-world malicious occlusions or corruptions.

263, TITLE: RAIM: Recurrent Attentive and Intensive Model of Multimodal Patient Monitoring Data
https://doi.org/10.1145/3219819.3220051
AUTHORS: Yanbo Xu, Siddharth Biswal, Shriprasad R. Deshpande, Kevin O. Maher, Jimeng Sun
HIGHLIGHT: RAIM: Recurrent Attentive and Intensive Model of Multimodal Patient Monitoring Data

264, TITLE: Coupled Context Modeling for Deep Chit-Chat: Towards Conversations between Human and Computer
https://doi.org/10.1145/3219819.3220045
AUTHORS: Rui Yan, Dongyan Zhao
HIGHLIGHT: In this paper, we propose a novel context modeling framework with end-to-end neural networks for human-computer conversational systems.

265, TITLE: HeavyGuardian: Separate and Guard Hot Items in Data Streams
https://doi.org/10.1145/3219819.3219978
AUTHORS: Tong Yang, Junzhi Gong, Haowei Zhang, Lei Zou, Lei Shi, Xiaoming Li
HIGHLIGHT: Different algorithms are proposed for different tasks, but they seldom achieve high accuracy and high speed at the same time.

266, TITLE: Complex Object Classification: A Multi-Modal Multi-Instance Multi-Label Deep Network with Optimal Transport
https://doi.org/10.1145/3219819.3220012
AUTHORS: Yang Yang, Yi-Feng Wu, De-Chuan Zhan, Zhi-Bin Liu, Yuan Jiang
HIGHLIGHT: In this paper, we propose a novel Multi-modal Multi-instance Multi-label Deep Network (M3DN), which learns the label prediction and exploits label correlation simultaneously based on the Optimal Transport, by considering the consistency principle between different modal bag-level prediction and the learned latent ground label metric.

267, TITLE: Can Who-Edits-What Predict Edit Survival?
https://doi.org/10.1145/3219819.3219979

AUTHORS: Ali Batuhan Yardim, Victor Kristof, Lucas Maystre, Matthias Grossglauser
HIGHLIGHT: In this work, we explore a different point in the solution space that goes beyond user reputation but does not involve any content-based feature of the edits.

268, TITLE: An Iterative Global Structure-Assisted Labeled Network Aligner
https://doi.org/10.1145/3219819.3220079
AUTHORS: Abdurrahman Yasar, ?mit V. ?ataly?rek
HIGHLIGHT: We propose a new iterative graph aligner, gsaNA, that uses the global structure of the graphs to significantly reduce the problem size and align large graphs with a minimal loss of information.

269, TITLE: Multi-User Mobile Sequential Recommendation: An Efficient Parallel Computing Paradigm
https://doi.org/10.1145/3219819.3220111
AUTHORS: Zeyang Ye, Lihao Zhang, Keli Xiao, Wenjun Zhou, Yong Ge, Yuefan Deng
HIGHLIGHT: To this end, we formalize a new multi-user MSR (MMSR) problem that locates optimal routes for a group of drivers with different starting positions.

270, TITLE: Model-based Clustering of Short Text Streams
https://doi.org/10.1145/3219819.3220094
AUTHORS: Jianhua Yin, Daren Chao, Zhongkun Liu, Wei Zhang, Xiaohui Yu, Jianyong Wang
HIGHLIGHT: In this paper, we propose a model-based short text stream clustering algorithm (MStream) which can deal with the concept drift problem and sparsity problem naturally.

271, TITLE: Transcribing Content from Structural Images with Spotlight Mechanism
https://doi.org/10.1145/3219819.3219962
AUTHORS: Yu Yin, Zhenya Huang, Enhong Chen, Qi Liu, Fuzheng Zhang, Xing Xie, Guoping Hu
HIGHLIGHT: To this end, in this paper, we propose a hierarchical Spotlight Transcribing Network (STN) framework followed by a two-stage "where-to-what" solution.

272, TITLE: Safe Triplet Screening for Distance Metric Learning
https://doi.org/10.1145/3219819.3220037
AUTHORS: Tomoki Yoshida, Ichiro Takeuchi, Masayuki Karasuyama
HIGHLIGHT: We study safe screening for metric learning.

273, TITLE: Learning Deep Network Representations with Adversarially Regularized Autoencoders
https://doi.org/10.1145/3219819.3220000
AUTHORS: Wenchao Yu, Cheng Zheng, Wei Cheng, Charu C. Aggarwal, Dongjin Song, Bo Zong, Haifeng Chen, Wei Wang
HIGHLIGHT: In this study, we propose to learn the network representations with adversarially regularized autoencoders (NetRA).

274, TITLE: NetWalk: A Flexible Deep Embedding Approach for Anomaly Detection in Dynamic Networks
https://doi.org/10.1145/3219819.3220024
AUTHORS: Wenchao Yu, Wei Cheng, Charu C. Aggarwal, Kai Zhang, Haifeng Chen, Wei Wang
HIGHLIGHT: In this paper, we propose a novel approach, NetWalk, for anomaly detection in dynamic networks by learning network representations which can be updated dynamically as the network evolves.

275, TITLE: Learning and Interpreting Complex Distributions in Empirical Data
https://doi.org/10.1145/3219819.3220073
AUTHORS: Chengxi Zang, Peng Cui, Wenwu Zhu
HIGHLIGHT: In this paper, we view the complex empirical data as being generated by a dynamic system which takes uniform randomness as input.

276, TITLE: Simultaneous Urban Region Function Discovery and Popularity Estimation via an Infinite Urbanization Process Model
https://doi.org/10.1145/3219819.3219987
AUTHORS: Bang Zhang, Lelin Zhang, Ting Guo, Yang Wang, Fang Chen
HIGHLIGHT: In this paper, we propose the infinite urbanization process (IUP) model for simultaneous urban region function discovery and region popularity prediction.

277, TITLE: TaxoGen: Unsupervised Topic Taxonomy Construction by Adaptive Term Embedding and Clustering

https://doi.org/10.1145/3219819.3220064
AUTHORS: Chao Zhang, Fangbo Tao, Xiusi Chen, Jiaming Shen, Meng Jiang, Brian Sadler, Michelle Vanni, Jiawei Han
HIGHLIGHT: In this paper, we propose a method for constructing topic taxonomies, wherein every node represents a conceptual topic and is defined as a cluster of semantically coherent concept terms.

278, TITLE: StockAssIstant: A Stock AI Assistant for Reliability Modeling of Stock Comments
https://doi.org/10.1145/3219819.3219964
AUTHORS: Chen Zhang, Yijun Wang, Can Chen, Changying Du, Hongzhi Yin, Hao Wang
HIGHLIGHT: Based on these features, we propose an ensemble learning based approach for measuring the reliability of comments.

279, TITLE: On the Generative Discovery of Structured Medical Knowledge
https://doi.org/10.1145/3219819.3220010
AUTHORS: Chenwei Zhang, Yaliang Li, Nan Du, Wei Fan, Philip S. Yu
HIGHLIGHT: To promote the benefits while minimizing the data requirement in expanding medical knowledge, we introduce a generative perspective to study the relational medical entity pair discovery problem.

280, TITLE: TextTruth: An Unsupervised Approach to Discover Trustworthy Information from Multi-Sourced Text Data
https://doi.org/10.1145/3219819.3219977
AUTHORS: Hengtong Zhang, Yaliang Li, Fenglong Ma, Jing Gao, Lu Su
HIGHLIGHT: To tackle these challenges, in this paper, we propose a novel truth discovery method, named "TextTruth", which jointly groups the keywords extracted from the answers of a specific question into multiple interpretable factors, and infers the trustworthiness of both answer factors and answer providers.

281, TITLE: Multi-Label Inference for Crowdsourcing
https://doi.org/10.1145/3219819.3219958
AUTHORS: Jing Zhang, Xindong Wu
HIGHLIGHT: In this paper, we propose a novel probabilistic method, which includes a multi-class multi-label dependency (MCMLD) model, to address this problem.

282, TITLE: Trajectory-driven Influential Billboard Placement
https://doi.org/10.1145/3219819.3219946
AUTHORS: Ping Zhang, Zhifeng Bao, Yuchen Li, Guoliang Li, Yipeng Zhang, Zhiyong Peng
HIGHLIGHT: In this paper we propose and study the problem of trajectory-driven influential billboard placement: given a set of billboards $\ur$ (each with a location and a cost), a database of trajectories $\td$ and a budget $\budget$, find a set of billboards within the budget to influence the largest number of trajectories.

283, TITLE: Discrete Ranking-based Matrix Factorization with Self-Paced Learning
https://doi.org/10.1145/3219819.3220116
AUTHORS: Yan Zhang, Haoyu Wang, Defu Lian, Ivor W. Tsang, Hongzhi Yin, Guowu Yang
HIGHLIGHT: To this end, we propose a Discrete Ranking-based Matrix Factorization (DRMF) algorithm based on each user's pairwise preferences, and formulate it into binary quadratic programming problems to learn binary codes.

284, TITLE: Online Adaptive Asymmetric Active Learning for Budgeted Imbalanced Data
https://doi.org/10.1145/3219819.3219948
AUTHORS: Yifan Zhang, Peilin Zhao, Jiezhang Cao, Wenye Ma, Junzhou Huang, Qingyao Wu, Mingkui Tan
HIGHLIGHT: In this paper, we propose a novel Online Adaptive Asymmetric Active (OA3) learning algorithm, which is based on a new asymmetric strategy (merging both the asymmetric losses and queries strategies), and second-order optimization.

285, TITLE: Arbitrary-Order Proximity Preserved Network Embedding
https://doi.org/10.1145/3219819.3219969
AUTHORS: Ziwei Zhang, Peng Cui, Xiao Wang, Jian Pei, Xuanrong Yao, Wenwu Zhu
HIGHLIGHT: To address these challenges, we propose AROPE (arbitrary-order proximity preserved embedding), a novel network embedding method based on SVD framework.

286, TITLE: Prediction-time Efficient Classification Using Feature Computational Dependencies
https://doi.org/10.1145/3219819.3220117
AUTHORS: Liang Zhao, Amir Alipour-Fanid, Martin Slawski, Kai Zeng
HIGHLIGHT: As machine learning methods are utilized in more and more real-world applications involving constraints on computational budgets, the systematic integration of such constraints into the process of model selection and model optimization is required to an increasing extent.

287, TITLE: REST: A Reference-based Framework for Spatio-temporal Trajectory Compression
https://doi.org/10.1145/3219819.3220030
AUTHORS: Yan Zhao, Shuo Shang, Yu Wang, Bolong Zheng, Quoc Viet Hung Nguyen, Kai Zheng
HIGHLIGHT: To relieve this problem, in this paper we propose a novel framework for compressing trajectory data, REST (Reference-based Spatio-temporal trajectory compression), by which a raw trajectory is represented by concatenation of a series of historical (sub-)trajectories (called reference trajectories) that form the compressed trajectory within a given spatio-temporal deviation threshold.

288, TITLE: SPARC: Self-Paced Network Representation for Few-Shot Rare Category Characterization
https://doi.org/10.1145/3219819.3219968
AUTHORS: Dawei Zhou, Jingrui He, Hongxia Yang, Wei Fan
HIGHLIGHT: The unique challenge of rare category characterization, i.e., the non-separability nature of the rare categories from the majority classes, together with the availability of the multi-modal representation of the examples, poses a new research question: how can we learn a salient rare category oriented embedding representation such that the rare examples are well separated from the majority class examples in the embedding space, which facilitates the follow-up rare category characterization?

289, TITLE: Unlearn What You Have Learned: Adaptive Crowd Teaching with Exponentially Decayed Memory Learners
https://doi.org/10.1145/3219819.3219952
AUTHORS: Yao Zhou, Arun Reddy Nelakurthi, Jingrui He
HIGHLIGHT: In this paper, we address a different problem of adaptive crowd teaching, which is a sub-area of machine teaching in the context of crowdsourcing.

290, TITLE: Deep Variational Network Embedding in Wasserstein Space
https://doi.org/10.1145/3219819.3220052
AUTHORS: Dingyuan Zhu, Peng Cui, Daixin Wang, Wenwu Zhu
HIGHLIGHT: To address the problem, we propose a novel Deep Variational Network Embedding in Wasserstein Space (DVNE) in this paper.

291, TITLE: XiaoIce Band: A Melody and Arrangement Generation Framework for Pop Music
https://doi.org/10.1145/3219819.3220105
AUTHORS: Hongyuan Zhu, Qi Liu, Nicholas Jing Yuan, Chuan Qin, Jiawei Li, Kun Zhang, Guang Zhou, Furu Wei, Yuanchun Xu,
HIGHLIGHT: We propose an end-to-end melody and arrangement generation framework, called XiaoIce Band, which generates a melody track with several accompany tracks played by several types of instruments.

292, TITLE: Adversarial Attacks on Neural Networks for Graph Data
https://doi.org/10.1145/3219819.3220078
AUTHORS: Daniel Z?gner, Amir Akbarnejad, Stephan G?nnemann
HIGHLIGHT: In this work, we introduce the first study of adversarial attacks on attributed graphs, specifically focusing on models exploiting ideas of graph convolutions.

293, TITLE: Embedding Temporal Network via Neighborhood Formation
https://doi.org/10.1145/3219819.3220054
AUTHORS: Yuan Zuo, Guannan Liu, Hao Lin, Jia Guo, Xiaoqian Hu, Junjie Wu
HIGHLIGHT: In light of this, in this paper, we introduce the concept of neighborhood formation sequence to describe the evolution of a node, where temporal excitation effects exist between neighbors in the sequence, and thus we propose a Hawkes process based Temporal Network Embedding (HTNE) method.