==========Applied Data Science Track==========

177, TITLE: 150 Successful Machine Learning Models: 6 Lessons Learned at Booking.com
https://doi.org/10.1145/3292500.3330744
AUTHORS: Lucas Bernardi, Themistoklis Mavridis, Pablo Estevez
HIGHLIGHT: Our main conclusion is that an iterative, hypothesis driven process, integrated with other disciplines was fundamental to build 150 successful products enabled by Machine Learning.

178, TITLE: A Collaborative Learning Framework to Tag Refinement for Points of Interest
https://doi.org/10.1145/3292500.3330698
AUTHORS: Jingbo Zhou, Shan Gou, Renjun Hu, Dongxiang Zhang, Jin Xu, Airong Jiang, Ying Li, Hui Xiong
HIGHLIGHT: In this paper, we study the POI tag refinement problem which aims to automatically fill in the missing tags as well as correct noisy tags for POIs.

179, TITLE: A Data-Driven Approach for Multi-level Packing Problems in Manufacturing Industry
https://doi.org/10.1145/3292500.3330708
AUTHORS: Lei Chen, Xialiang Tong, Mingxuan Yuan, Jia Zeng, Lei Chen
HIGHLIGHT: In this paper, we solve a Multi-Level Bin Packing (MLBP) problem in the real make-to-order industry scenario.

180, TITLE: A Deep Generative Approach to Search Extrapolation and Recommendation
https://doi.org/10.1145/3292500.3330786
AUTHORS: Fred X. Han, Di Niu, Haolan Chen, Kunfeng Lai, Yancheng He, Yu Xu
HIGHLIGHT: In this work, we propose a deep generative approach to construct a related search query for recommendation in a word-by-word fashion, given either an input query or the title of a document.

181, TITLE: A Deep Value-network Based Approach for Multi-Driver Order Dispatching
https://doi.org/10.1145/3292500.3330724
AUTHORS: Xiaocheng Tang, Zhiwei (Tony) Qin, Fan Zhang, Zhaodong Wang, Zhe Xu, Yintai Ma, Hongtu Zhu, Jieping Ye
HIGHLIGHT: In this work, we propose a deep reinforcement learning based solution for order dispatching and we conduct large scale online A/B tests on DiDi's ride-dispatching platform to show that the proposed method achieves significant improvement on both total driver income and user experience related metrics.

182, TITLE: A Generalized Framework for Population Based Training
https://doi.org/10.1145/3292500.3330649
AUTHORS: Ang Li, Ola Spyra, Sagi Perel, Valentin Dalibard, Max Jaderberg, Chenjie Gu, David Budden, Tim Harley, Pramod Gupta
HIGHLIGHT: We propose a general, black-box PBT framework that distributes many asynchronous "trials" (a small number of training steps with warm-starting) across a cluster, coordinated by the PBT controller.

183, TITLE: A Robust Framework for Accelerated Outcome-driven Risk Factor Identification from EHR
https://doi.org/10.1145/3292500.3330718
AUTHORS: Prithwish Chakraborty, Faisal Farooq
HIGHLIGHT: In this paper, we present a robust end-to-end machine learning based SaaS system to perform analysis on a very large EHR dataset.

184, TITLE: A Severity Score for Retinopathy of Prematurity
https://doi.org/10.1145/3292500.3330713
AUTHORS: Peng Tian, Yuan Guo, Jayashree Kalpathy-Cramer, Susan Ostmo, John Peter Campbell, Michael F. Chiang, Jennifer Dy, Deniz Erdogmus, Stratis Ioannidis
HIGHLIGHT: We propose a means of producing a continuous severity score in an automated fashion, regressed from both (a) diagnostic class labels as well as (b) comparison outcomes.

185, TITLE: A Unified Framework for Marketing Budget Allocation
https://doi.org/10.1145/3292500.3330700
AUTHORS: Kui Zhao, Junhao Hua, Ling Yan, Qi Zhang, Huan Xu, Cheng Yang
HIGHLIGHT: In this paper, we present a novel unified framework for marketing budget allocation.

186, TITLE: A User-Centered Concept Mining System for Query and Document Understanding at Tencent

https://doi.org/10.1145/3292500.3330727
AUTHORS: Bang Liu, Weidong Guo, Di Niu, Chaoyue Wang, Shunnan Xu, Jinghong Lin, Kunfeng Lai, Yu Xu
HIGHLIGHT: In this paper, we describe our experience of implementing and deploying ConcepT in Tencent QQ Browser.

187, TITLE: AccuAir: Winning Solution to Air Quality Prediction for KDD Cup 2018
https://doi.org/10.1145/3292500.3330787
AUTHORS: Zhipeng Luo, Jianqiang Huang, Ke Hu, Xue Li, Peng Zhang
HIGHLIGHT: In this paper, we present AccuAir, our winning solution to the KDD Cup 2018 of Fresh Air, where the proposed solution has won the 1st place in two tracks, and the 2nd place in the other one.

188, TITLE: Actions Speak Louder than Goals: Valuing Player Actions in Soccer
https://doi.org/10.1145/3292500.3330758
AUTHORS: Tom Decroos, Lotte Bransen, Jan Van Haaren, Jesse Davis
HIGHLIGHT: This paper introduces (1) a new language for describing individual player actions on the pitch and (2) a framework for valuing any type of player action based on its impact on the game outcome while accounting for the context in which the action happened.

189, TITLE: Active Deep Learning for Activity Recognition with Context Aware Annotator Selection
https://doi.org/10.1145/3292500.3330688
AUTHORS: H M Sajjad Hossain, Nirmalya Roy
HIGHLIGHT: In this paper, we first propose an active learning combined deep model which updates its network parameters based on the optimization of a joint loss function. We then propose a novel annotator selection model by exploiting the relationships among the users while considering their heterogeneity with respect to their expertise, physical and spatial context..

190, TITLE: Adversarial Matching of Dark Net Market Vendor Accounts
https://doi.org/10.1145/3292500.3330763
AUTHORS: Xiao Hui Tai, Kyle Soska, Nicolas Christin
HIGHLIGHT: By leveraging eight years of data, we investigate one such adversarial context: matching different online anonymous marketplace vendor handles to unique sellers.

191, TITLE: AiAds: Automated and Intelligent Advertising System for Sponsored Search
https://doi.org/10.1145/3292500.3330782
AUTHORS: Xiao Yang, Daren Sun, Ruiwei Zhu, Tao Deng, Zhi Guo, Zongyao Ding, Shouke Qin, Yanfeng Zhu
HIGHLIGHT: In this paper, we present the AiAds system developed at Baidu, which use machine learning techniques to build an automated and intelligent advertising system.

192, TITLE: AKUPM: Attention-Enhanced Knowledge-Aware User Preference Model for Recommendation
https://doi.org/10.1145/3292500.3330705
AUTHORS: Xiaoli Tang, Tengyun Wang, Haizhi Yang, Hengjie Song
HIGHLIGHT: In this paper, we investigate how to explore these relationships which are essentially determined by the interactions among entities.

193, TITLE: AlphaStock: A Buying-Winners-and-Selling-Losers Investment Strategy using Interpretable Deep Reinforcement Attention Networks
https://doi.org/10.1145/3292500.3330647
AUTHORS: Jingyuan Wang, Yang Zhang, Ke Tang, Junjie Wu, Zhang Xiong
HIGHLIGHT: In this work, we propose AlphaStock, a novel reinforcement learning (RL) based investment strategy enhanced by interpretable deep attention networks, to address the above challenges.

194, TITLE: Ambulatory Atrial Fibrillation Monitoring Using Wearable Photoplethysmography with Deep Learning
https://doi.org/10.1145/3292500.3330657
AUTHORS: Yichen Shen, Maxime Voisin, Alireza Aliamiri, Anand Avati, Awni Hannun, Andrew Ng
HIGHLIGHT: We develop an algorithm that accurately detects Atrial Fibrillation (AF) episodes from photoplethysmograms (PPG) recorded in ambulatory free-living conditions.

195, TITLE: Anomaly Detection for an E-commerce Pricing System
https://doi.org/10.1145/3292500.3330748
AUTHORS: Jagdish Ramakrishnan, Elham Shaabani, Chao Li, Matyas A. Sustik
HIGHLIGHT: In this paper, we describe unsupervised and supervised anomaly detection approaches we developed and deployed for a large-scale online pricing system at Walmart.

196, TITLE: Applying Deep Learning to Airbnb Search
https://doi.org/10.1145/3292500.3330658
AUTHORS: Malay Haldar, Mustafa Abdool, Prashant Ramanathan, Tao Xu, Shulin Yang, Huizhong Duan, Qing Zhang, Nick Barrow-Williams, Bradley C. Turnbull, Brendan M. Collins, Thomas Legrand
HIGHLIGHT: This paper discusses the work done in applying neural networks in an attempt to break out of that plateau.

197, TITLE: AutoCross: Automatic Feature Crossing for Tabular Data in Real-World Applications
https://doi.org/10.1145/3292500.3330679
AUTHORS: Yuanfei Luo, Mengshuo Wang, Hao Zhou, Quanming Yao, Wei-Wei Tu, Yuqiang Chen, Wenyuan Dai, Qiang Yang
HIGHLIGHT: In this paper, we present AutoCross, an automatic feature crossing tool provided by 4Paradigm to its customers, ranging from banks, hospitals, to Internet corporations.

198, TITLE: Auto-Keras: An Efficient Neural Architecture Search System
https://doi.org/10.1145/3292500.3330648
AUTHORS: Haifeng Jin, Qingquan Song, Xia Hu
HIGHLIGHT: In this paper, we propose a novel framework enabling Bayesian optimization to guide the network morphism for efficient neural architecture search.

199, TITLE: Automatic Dialogue Summary Generation for Customer Service
https://doi.org/10.1145/3292500.3330683
AUTHORS: Chunyi Liu, Peng Wang, Jiang Xu, Zang Li, Jieping Ye
HIGHLIGHT: In this paper, we introduce auxiliary key point sequences to solve this problem.

200, TITLE: Bid Optimization by Multivariable Control in Display Advertising
https://doi.org/10.1145/3292500.3330681
AUTHORS: Xun Yang, Yasong Li, Hao Wang, Di Wu, Qing Tan, Jian Xu, Kun Gai
HIGHLIGHT: In this paper, we study the common case where advertisers aim to maximize the quantity of conversions, and set cost-per-click (CPC) as a KPI constraint.

201, TITLE: Blending Noisy Social Media Signals with Traditional Movement Variables to Predict Forced Migration
https://doi.org/10.1145/3292500.3330774
AUTHORS: Lisa Singh, Laila Wahedi, Yanchen Wang, Yifang Wei, Christo Kirov, Susan Martin, Katharine Donato, Yaguang Liu, Kornraphop Kawintiranon
HIGHLIGHT: This paper proposes integrating both publicly available organic data from social media and newspapers with more traditional indicators of forced migration to determine when and where people will move.

202, TITLE: Buying or Browsing?: Predicting Real-time Purchasing Intent using Attention-based Deep Network with Multiple Behavior
https://doi.org/10.1145/3292500.3330670
AUTHORS: Long Guo, Lifeng Hua, Rongfei Jia, Binqiang Zhao, Xiaobo Wang, Bin Cui
HIGHLIGHT: In this paper, we propose a novel end-to-end deep network, named Deep Intent Prediction Network (DIPN), to predict real-time user purchasing intent.

203, TITLE: Carousel Ads Optimization in Yahoo Gemini Native
https://doi.org/10.1145/3292500.3330740
AUTHORS: Michal Aharon, Oren Somekh, Avi Shahar, Assaf Singer, Baruch Trayvas, Hadas Vogel, Dobri Dobrev
HIGHLIGHT: In this work we present a post-auction successive elimination based approach for ranking assets according to their click trough rate (CTR) and render the carousel accordingly, placing higher CTR assets in more conspicuous slots.

204, TITLE: Chainer: A Deep Learning Framework for Accelerating the Research Cycle
https://doi.org/10.1145/3292500.3330756
AUTHORS: Seiya Tokui, Ryosuke Okuta, Takuya Akiba, Yusuke Niitani, Toru Ogawa, Shunta Saito, Shuji Suzuki, Kota Uenishi, Brian Vogel, Hiroyuki Yamazaki Vincent
HIGHLIGHT: In this paper, we introduce the Chainer framework, which intends to provide a flexible, intuitive, and high performance means of implementing the full range of deep learning models needed by researchers and practitioners.

205, TITLE: Characterizing and Detecting Malicious Accounts in Privacy-Centric Mobile Social Networks: A Case Study
https://doi.org/10.1145/3292500.3330702
AUTHORS: Zenghua Xia, Chang Liu, Neil Zhenqiang Gong, Qi Li, Yong Cui, Dawn Song

HIGHLIGHT: In this work, we study a new type of OSN, called privacy-centric mobile social network (PC-MSN), such as KakaoTalk and LINE, which has attracted billions of users recently.

206, TITLE: Characterizing and Forecasting User Engagement with In-App Action Graph: A Case Study of Snapchat
https://doi.org/10.1145/3292500.3330750
AUTHORS: Yozen Liu, Xiaolin Shi, Lucas Pierce, Xiang Ren
HIGHLIGHT: In this paper, we answer the question whether users' in-app activity patterns help inform their future app engagement (e.g., active days in a future time window)?

207, TITLE: Combining Decision Trees and Neural Networks for Learning-to-Rank in Personal Search
https://doi.org/10.1145/3292500.3330676
AUTHORS: Pan Li, Zhen Qin, Xuanhui Wang, Donald Metzler
HIGHLIGHT: In this paper, we study how to combine DTs and NNs to effectively bring the benefits from both sides in the learning-to-rank setting.

208, TITLE: Community Detection on Large Complex Attribute Network
https://doi.org/10.1145/3292500.3330721
AUTHORS: Chen Zhe, Aixin Sun, Xiaokui Xiao
HIGHLIGHT: In this paper, we propose a framework named AGGMMR to effectively address the challenges come from scalability, mixed attributes, and incomplete value.

209, TITLE: Constructing High Precision Knowledge Bases with Subjective and Factual Attributes
https://doi.org/10.1145/3292500.3330720
AUTHORS: Ari Kobren, Pablo Barrio, Oksana Yakhnenko, Johann Hibschman, Ian Langmore
HIGHLIGHT: In this work, we develop a method for constructing KBs with tunable precision--i.e., KBs that can be made to operate at a specific false positive rate, despite storing both difficult-to-evaluate subjective attributes and more traditional factual attributes.

210, TITLE: Context by Proxy: Identifying Contextual Anomalies Using an Output Proxy
https://doi.org/10.1145/3292500.3330780
AUTHORS: Jan-Philipp Schulze, Artur Mrowca, Elizabeth Ren, Hans-Andrea Loeliger, Konstantin B?ttinger
HIGHLIGHT: We propose a novel unsupervised approach that combines tools from deep learning and signal processing, working in a purely data-driven way.

211, TITLE: Conversion Prediction Using Multi-task Conditional Attention Networks to Support the Creation of Effective Ad Creatives
https://doi.org/10.1145/3292500.3330789
AUTHORS: Shunsuke Kitada, Hitoshi Iyatomi, Yoshifumi Seki
HIGHLIGHT: In this paper, we propose a new framework to support creating high-performing ad creatives, including the accurate prediction of ad creative text conversions before delivering to the consumer.

212, TITLE: Deep Spatio-Temporal Neural Networks for Click-Through Rate Prediction
https://doi.org/10.1145/3292500.3330655
AUTHORS: Wentao Ouyang, Xiuwu Zhang, Li Li, Heng Zou, Xin Xing, Zhaojie Liu, Yanlong Du
HIGHLIGHT: In this paper, we investigate various types of auxiliary ads for improving the CTR prediction of the target ad.

213, TITLE: Deep Uncertainty Quantification: A Machine Learning Approach for Weather Forecasting
https://doi.org/10.1145/3292500.3330704
AUTHORS: Bin Wang, Jie Lu, Zheng Yan, Huaishao Luo, Tianrui Li, Yu Zheng, Guangquan Zhang
HIGHLIGHT: In this paper, we design a data-driven method augmented by an effective information fusion mechanism to learn from historical data that incorporates prior knowledge from NWP.

214, TITLE: DeepHoops: Evaluating Micro-Actions in Basketball Using Deep Feature Representations of Spatio-Temporal Data
https://doi.org/10.1145/3292500.3330719
AUTHORS: Anthony Sicilia, Konstantinos Pelechrinis, Kirk Goldsberry
HIGHLIGHT: In this study, we develop a deep learning framework DeepHoops to process a unique dataset composed of spatio-temporal tracking data from NBA games in order to generate a running stream of predictions on the expected points to be scored as a possession progresses.

215, TITLE: DeepRoof: A Data-driven Approach For Solar Potential Estimation Using Rooftop Imagery
https://doi.org/10.1145/3292500.3330741
AUTHORS: Stephen Lee, Srinivasan Iyengar, Menghong Feng, Prashant Shenoy, Subhransu Maji
HIGHLIGHT: In this paper, we propose DeepRoof, a data-driven approach that uses widely available satellite images to assess the solar potential of a roof.

216, TITLE: DeepUrbanEvent: A System for Predicting Citywide Crowd Dynamics at Big Events
https://doi.org/10.1145/3292500.3330654
AUTHORS: Renhe Jiang, Xuan Song, Dou Huang, Xiaoya Song, Tianqi Xia, Zekun Cai, Zhaonan Wang, Kyoung-Sook Kim, Ryosuke Shibasaki
HIGHLIGHT: Therefore in this study, we aim to extract the deep trend only from the current momentary observations and generate an accurate prediction for the trend in the short future, which is considered to be an effective way to deal with the event situations.

217, TITLE: Detecting Anomalies in Space using Multivariate Convolutional LSTM with Mixtures of Probabilistic PCA
https://doi.org/10.1145/3292500.3330776
AUTHORS: Shahroz Tariq, Sangyup Lee, Youjin Shin, Myeong Shin Lee, Okchul Jung, Daewon Chung, Simon S. Woo
HIGHLIGHT: In this work, we propose a data-driven anomaly detection algorithm for Korea Multi-Purpose Satellite 2 (KOMPSAT-2).

218, TITLE: Detection of Review Abuse via Semi-Supervised Binary Multi-Target Tensor Decomposition
https://doi.org/10.1145/3292500.3330678
AUTHORS: Anil R. Yelundur, Vineet Chaoji, Bamdev Mishra
HIGHLIGHT: In this paper, our focus is on detecting such abusive entities (both sellers and reviewers) by applying tensor decomposition on the product reviews data.

219, TITLE: Developing Measures of Cognitive Impairment in the Real World from Consumer-Grade Multimodal Sensor Streams
https://doi.org/10.1145/3292500.3330690
AUTHORS: Richard Chen, Filip Jankovic, Nikki Marinsek, Luca Foschini, Lampros Kourtis, Alessio Signorini, Melissa Pugh, Jie Shen, Roy Yaari, Vera Maljkovic, Marc Sunga, Han Hee Song, Hyun Joon Jung, Belle Tseng, Andrew Trister
HIGHLIGHT: In this work, we present a platform for remote and unobtrusive monitoring of symptoms related to cognitive impairment using several consumer-grade smart devices.

220, TITLE: Diagnosing Sample Ratio Mismatch in Online Controlled Experiments: A Taxonomy and Rules of Thumb for Practitioners
https://doi.org/10.1145/3292500.3330722
AUTHORS: Aleksander Fabijan, Jayant Gupchup, Somit Gupta, Jeff Omhover, Wen Qin, Lukas Vermeer, Pavel Dmitriev
HIGHLIGHT: The goal of this paper is to make diagnosing, fixing, and preventing SRMs easier.

221, TITLE: DuerQuiz: A Personalized Question Recommender System for Intelligent Job Interview
https://doi.org/10.1145/3292500.3330706
AUTHORS: Chuan Qin, Hengshu Zhu, Chen Zhu, Tong Xu, Fuzhen Zhuang, Chao Ma, Jingshuai Zhang, Hui Xiong
HIGHLIGHT: To this end, in this research, we focus on the development of a personalized question recommender system, namely DuerQuiz, for enhancing the job interview assessment.

222, TITLE: Dynamic Pricing for Airline Ancillaries with Customer Context
https://doi.org/10.1145/3292500.3330746
AUTHORS: Naman Shukla, Arinbj?rn Kolbeinsson, Ken Otwell, Lavanya Marla, Kartik Yellepeddi
HIGHLIGHT: This paper describes the dynamic pricing model developed by Deepair solutions, an AI technology provider for travel suppliers.

223, TITLE: E.T.-RNN: Applying Deep Learning to Credit Loan Applications
https://doi.org/10.1145/3292500.3330693
AUTHORS: Dmitrii Babaev, Maxim Savchenko, Alexander Tuzhilin, Dmitrii Umerenkov
HIGHLIGHT: In this paper we present a novel approach to credit scoring of retail customers in the banking industry based on deep learning methods.

224, TITLE: Enabling Onboard Detection of Events of Scientific Interest for the Europa Clipper Spacecraft
https://doi.org/10.1145/3292500.3330656

AUTHORS: Kiri L. Wagstaff, Gary Doran, Ashley Davies, Saadat Anwar, Srija Chakraborty, Marissa Cameron, Ingrid Daubar, Cynthia Phillips
HIGHLIGHT: We describe algorithms that we designed to assist in three specific scientific investigations to be conducted during flybys of Jupiter's moon Europa: the detection of thermal anomalies, compositional anomalies, and plumes of icy matter from Europa's subsurface ocean.

225, TITLE: Estimating Cellular Goals from High-Dimensional Biological Data
https://doi.org/10.1145/3292500.3330775
AUTHORS: Laurence Yang, Michael A. Saunders, Jean-Christophe Lachance, Bernhard O. Palsson, Jos? Bento
HIGHLIGHT: Here, we develop the first approach to estimating constraint reactions from data that can scale to realistically large metabolic models.

226, TITLE: Fairness in Recommendation Ranking through Pairwise Comparisons
https://doi.org/10.1145/3292500.3330745
AUTHORS: Alex Beutel, Jilin Chen, Tulsee Doshi, Hai Qian, Li Wei, Yi Wu, Lukasz Heldt, Zhe Zhao, Lichan Hong, Ed H. Chi, Cristos Goodrow
HIGHLIGHT: In this paper we offer a set of novel metrics for evaluating algorithmic fairness concerns in recommender systems.

227, TITLE: Fairness-Aware Ranking in Search & Recommendation Systems with Application to LinkedIn Talent Search
https://doi.org/10.1145/3292500.3330691
AUTHORS: Sahin Cem Geyik, Stuart Ambler, Krishnaram Kenthapadi
HIGHLIGHT: We present a framework for quantifying and mitigating algorithmic bias in mechanisms designed for ranking individuals, typically used as part of web-scale search and recommendation systems.

228, TITLE: FDML: A Collaborative Machine Learning Framework for Distributed Features
https://doi.org/10.1145/3292500.3330765
AUTHORS: Yaochen Hu, Di Niu, Jianming Yang, Shengping Zhou
HIGHLIGHT: We propose an asynchronous stochastic gradient descent (SGD) algorithm for such a feature distributed machine learning (FDML) problem, to jointly learn from distributed features, with theoretical convergence guarantees under bounded asynchrony.

229, TITLE: Feedback Shaping: A Modeling Approach to Nurture Content Creation
https://doi.org/10.1145/3292500.3330764
AUTHORS: Ye Tu, Chun Lo, Yiping Yuan, Shaunak Chatterjee
HIGHLIGHT: In this work, we propose a modeling approach to predict how feedback from content consumers incentivizes creators.

230, TITLE: Finding Users Who Act Alike: Transfer Learning for Expanding Advertiser Audiences
https://doi.org/10.1145/3292500.3330714
AUTHORS: Stephanie deWet, Jiafan Ou
HIGHLIGHT: We will describe a two-stage embedding-based audience expansion model that is deployed in production at Pinterest.

231, TITLE: FoodAI: Food Image Recognition via Deep Learning for Smart Food Logging
https://doi.org/10.1145/3292500.3330734
AUTHORS: Doyen Sahoo, Wang Hao, Shu Ke, Wu Xiongwei, Hung Le, Palakorn Achananuparp, Ee-Peng Lim, Steven C. H. Hoi
HIGHLIGHT: With increasing reliance on smart devices, we exploit the convenience offered through the use of smart phones and propose a smart-food logging system: FoodAI, which offers state-of-the-art deep-learning based image recognition capabilities.

232, TITLE: Generating Better Search Engine Text Advertisements with Deep Reinforcement Learning
https://doi.org/10.1145/3292500.3330754
AUTHORS: J. Weston Hughes, Keng-hao Chang, Ruofei Zhang
HIGHLIGHT: We jointly train a model to minimize cross-entropy on an existing corpus of Landing Page/Text Ad pairs using typical sequence to sequence training techniques while also optimizing the expected click-through rate (CTR) as predicted by an existing oracle model using SCST.

233, TITLE: Glaucoma Progression Prediction Using Retinal Thickness via Latent Space Linear Regression
https://doi.org/10.1145/3292500.3330757

AUTHORS: Yuhui Zheng, Linchuan Xu, Taichi Kiwaki, Jing Wang, Hiroshi Murata, Ryo Asaoka, Kenji Yamanishi
HIGHLIGHT: In this paper, we propose a novel method to demonstrate the benefits provided by RT measurements.

234, TITLE: Gmail Smart Compose: Real-Time Assisted Writing
https://doi.org/10.1145/3292500.3330723
AUTHORS: Mia Xu Chen, Benjamin N. Lee, Gagan Bansal, Yuan Cao, Shuyuan Zhang, Justin Lu, Jackie Tsay, Yinan Wang, Andrew M. Dai, Zhifeng Chen, Timothy Sohn, Yonghui Wu
HIGHLIGHT: In this paper, we present Smart Compose, a novel system for generating interactive, real-time suggestions in Gmail that assists users in writing mails by reducing repetitive typing.

235, TITLE: Hard to Park?: Estimating Parking Difficulty at Scale
https://doi.org/10.1145/3292500.3330767
AUTHORS: Neha Arora, James Cook, Ravi Kumar, Ivan Kuznetsov, Yechen Li, Huai-Jen Liang, Andrew Miller, Andrew Tomkins, Iveel Tsogsuren, Yi Wang
HIGHLIGHT: In this paper we consider the problem of estimating the difficulty of parking at a particular time and place; this problem is a critical sub-component for any system providing parking assistance to users.

236, TITLE: How to Invest my Time: Lessons from Human-in-the-Loop Entity Extraction
https://doi.org/10.1145/3292500.3330773
AUTHORS: Shanshan Zhang, Lihong He, Eduard Dragut, Slobodan Vucetic
HIGHLIGHT: To get an answer, we consider an iterative human-in-the-loop (HIL) framework that allows users to write a regex or manually label entity mentions, followed by training and refining a classifier based on the provided information.

237, TITLE: Hydra: A Personalized and Context-Aware Multi-Modal Transportation Recommendation System
https://doi.org/10.1145/3292500.3330660
AUTHORS: Hao Liu, Yongxin Tong, Panpan Zhang, Xinjiang Lu, Jianguo Duan, Hui Xiong
HIGHLIGHT: In this work, we propose Hydra, a recommendation system that offers multi-modal transportation planning and is adaptive to various situational context (e.g., nearby point-of-interest (POI) distribution and weather).

238, TITLE: Improving Subseasonal Forecasting in the Western U.S. with Machine Learning
https://doi.org/10.1145/3292500.3330674
AUTHORS: Jessica Hwang, Paulo Orenstein, Judah Cohen, Karl Pfeiffer, Lester Mackey
HIGHLIGHT: Here we present and evaluate our machine learning approach to the Rodeo and release our SubseasonalRodeo dataset, collected to train and evaluate our forecasting system.

239, TITLE: Infer Implicit Contexts in Real-time Online-to-Offline Recommendation
https://doi.org/10.1145/3292500.3330716
AUTHORS: Xichen Ding, Jie Tang, Tracy Liu, Cheng Xu, Yaping Zhang, Feng Shi, Qixia Jiang, Dan Shen
HIGHLIGHT: In this paper, we propose a new approach, called Mixture Attentional Constrained Denoise AutoEncoder (MACDAE), to infer implicit contexts and consequently, to improve the quality of real-time O2O recommendation.

240, TITLE: IntentGC: A Scalable Graph Convolution Framework Fusing Heterogeneous Information for Recommendation
https://doi.org/10.1145/3292500.3330686
AUTHORS: Jun Zhao, Zhou Zhou, Ziyu Guan, Wei Zhao, Wei Ning, Guang Qiu, Xiaofei He
HIGHLIGHT: In this work, we collect abundant relationships from common user behaviors and item information, and propose a novel framework named IntentGC to leverage both explicit preferences and heterogeneous relationships by graph convolutional networks.

241, TITLE: Internal Promotion Optimization
https://doi.org/10.1145/3292500.3330715
AUTHORS: Rupesh Gupta, Guangde Chen, Shipeng Yu
HIGHLIGHT: In this paper, we discuss our approach for optimization of internal promotions at LinkedIn.

242, TITLE: Investigate Transitions into Drug Addiction through Text Mining of Reddit Data
https://doi.org/10.1145/3292500.3330737
AUTHORS: John Lu, Sumati Sridhar, Ritika Pandey, Mohammad Al Hasan, Georege Mohler
HIGHLIGHT: In this work, we obtained data from Reddit, an online collection of forums, to gather insight into drug use/misuse using text snippets from users narratives.

243, TITLE: Investment Behaviors Can Tell What Inside: Exploring Stock Intrinsic Properties for Stock Trend Prediction

https://doi.org/10.1145/3292500.3330663
AUTHORS: Chi Chen, Li Zhao, Jiang Bian, Chunxiao Xing, Tie-Yan Liu
HIGHLIGHT: In this paper, we propose to extract and explore stock intrinsic properties to enhance stock trend prediction.

244, TITLE: IRNet: A General Purpose Deep Residual Regression Framework for Materials Discovery
https://doi.org/10.1145/3292500.3330703
AUTHORS: Dipendra Jha, Logan Ward, Zijiang Yang, Christopher Wolverton, Ian Foster, Wei-keng Liao, Alok Choudhary, Ankit Agrawal
HIGHLIGHT: In this paper, we study and propose design principles for building deep regression networks composed of fully connected layers with numerical vectors as input.

245, TITLE: Large-Scale Training Framework for Video Annotation
https://doi.org/10.1145/3292500.3330653
AUTHORS: Seong Jae Hwang, Joonseok Lee, Balakrishnan Varadarajan, Ariel Gordon, Zheng Xu, Apostol (Paul) Natsev
HIGHLIGHT: In this paper, we present a MapReduce-based training framework, which exploits both data parallelism and model parallelism to scale training of complex video models.

246, TITLE: Large-scale User Visits Understanding and Forecasting with Deep Spatial-Temporal Tensor Factorization Framework
https://doi.org/10.1145/3292500.3330728
AUTHORS: Xiaoyang Ma, Lan Zhang, Lan Xu, Zhicheng Liu, Ge Chen, Zhili Xiao, Yang Wang, Zhengtao Wu
HIGHLIGHT: To address this issue, in this work, we conduct a thorough analysis on large-scale user visits data and propose a novel deep spatial-temporal tensor factorization framework, which provides a general design for high-dimensional time series forecasting.

247, TITLE: Learning a Unified Embedding for Visual Search at Pinterest
https://doi.org/10.1145/3292500.3330739
AUTHORS: Andrew Zhai, Hao-Yu Wu, Eric Tzeng, Dong Huk Park, Charles Rosenberg
HIGHLIGHT: In this work we describe a multi-task deep metric learning system to learn a single unified image embedding which can be used to power our multiple visual search products.

248, TITLE: Learning Sleep Quality from Daily Logs
https://doi.org/10.1145/3292500.3330792
AUTHORS: Sungkyu Park, Cheng-Te Li, Sungwon Han, Cheng Hsu, Sang Won Lee, Meeyoung Cha
HIGHLIGHT: This study presents a computational framework for predicting sleep efficiency of insomnia sufferers.

249, TITLE: Learning to Prescribe Interventions for Tuberculosis Patients Using Digital Adherence Data
https://doi.org/10.1145/3292500.3330777
AUTHORS: Jackson A. Killian, Bryan Wilder, Amit Sharma, Vinod Choudhary, Bistra Dilkina, Milind Tambe
HIGHLIGHT: We analyze data from one city served by 99DOTS, a phone-call-based DAT deployed for Tuberculosis (TB) treatment in India where nearly 3 million people are afflicted with the disease each year.The data contains nearly 17,000 patients and 2.1M dose records. We lay the groundwork for learning from this real-world data, including a method for avoiding the effects of unobserved interventions in training data used for machine learning.

250, TITLE: LightNet: A Dual Spatiotemporal Encoder Network Model for Lightning Prediction
https://doi.org/10.1145/3292500.3330717
AUTHORS: Yangli-ao Geng, Qingyong Li, Tianyang Lin, Lei Jiang, Liangtao Xu, Dong Zheng, Wen Yao, Weitao Lyu, Yijun Zhang
HIGHLIGHT: In this work, we propose a data-driven model based on neural networks, referred to as LightNet, for lightning prediction.

251, TITLE: Machine Learning at Microsoft with ML.NET
https://doi.org/10.1145/3292500.3330667
AUTHORS: Zeeshan Ahmed, Saeed Amizadeh, Mikhail Bilenko, Rogan Carr, Wei-Sheng Chin, Yael Dekel, Xavier Dupre, Vadim Eksarevskiy, Senja Filipi, Tom Finley, Abhishek Goswami, Monte Hoover, Scott Inglis, Matteo Interlandi, Najeeb Kazmi, Gleb Krivosheev, Pete Luferenko, Ivan Matantsev, Sergiy Matusevych, Shahab Moradi, Gani Nazirov, Justin Ormont, Gal Oshri, Artidoro Pagnoni, Jignesh Parmar, Prabhat Roy, Mohammad Zeeshan Siddiqui, Markus Weimer, Shauheen Zahirazami, Yiwen Zhu
HIGHLIGHT: In this paper we present ML.NET, a framework developed at Microsoft over the last decade in response to the challenge of making it easy to ship machine learning models in large software applications.

252, TITLE: Mathematical Notions vs. Human Perception of Fairness: A Descriptive Approach to Fairness for Machine Learning
https://doi.org/10.1145/3292500.3330664
AUTHORS: Megha Srivastava, Hoda Heidari, Andreas Krause
HIGHLIGHT: We take a descriptive approach and set out to identify the notion of fairness that best captures lay people's perception of fairness.

253, TITLE: MediaRank: Computational Ranking of Online News Sources
https://doi.org/10.1145/3292500.3330709
AUTHORS: Junting Ye, Steven Skiena
HIGHLIGHT: In this work, we design and build MediaRank (urlwww.media-rank.com), a fully automated system to rank over 50,000 online news sources around the world.

254, TITLE: Metapath-guided Heterogeneous Graph Neural Network for Intent Recommendation
https://doi.org/10.1145/3292500.3330673
AUTHORS: Shaohua Fan, Junxiong Zhu, Xiaotian Han, Chuan Shi, Linmei Hu, Biyu Ma, Yongliang Li
HIGHLIGHT: In this paper, we propose to model the complex objects and rich interactions in intent recommendation as a Heterogeneous Information Network.

255, TITLE: MetaPred: Meta-Learning for Clinical Risk Prediction with Limited Patient Electronic Health Records
https://doi.org/10.1145/3292500.3330779
AUTHORS: Xi Sheryl Zhang, Fengyi Tang, Hiroko H. Dodge, Jiayu Zhou, Fei Wang
HIGHLIGHT: In this paper, we propose MetaPred, a meta-learning framework for clinical risk prediction from longitudinal patient EHR.

256, TITLE: MOBIUS: Towards the Next Generation of Query-Ad Matching in Baidu's Sponsored Search
https://doi.org/10.1145/3292500.3330651
AUTHORS: Miao Fan, Jiacheng Guo, Shuai Zhu, Shuo Miao, Mingming Sun, Ping Li
HIGHLIGHT: Specifically, this paper will elaborate on how we adopt active learning to overcome the insufficiency of click history at the matching layer when training our neural click networks offline, and how we use the SOTA ANN search technique for retrieving ads more efficiently (Here "ANN" stands for approximate nearest neighbor search).

257, TITLE: MSURU: Large Scale E-commerce Image Classification with Weakly Supervised Search Data
https://doi.org/10.1145/3292500.3330696
AUTHORS: Yina Tang, Fedor Borisyuk, Siddarth Malreddy, Yixuan Li, Yiqun Liu, Sergey Kirshner
HIGHLIGHT: In this paper we present a deployed image recognition system used in a large scale commerce search engine, which we call MSURU.

258, TITLE: Multi-Horizon Time Series Forecasting with Temporal Attention Learning
https://doi.org/10.1145/3292500.3330662
AUTHORS: Chenyou Fan, Yuze Zhang, Yi Pan, Xiaoyue Li, Chi Zhang, Rong Yuan, Di Wu, Wensheng Wang, Jian Pei, Heng Huang
HIGHLIGHT: We propose a novel data-driven approach for solving multi-horizon probabilistic forecasting tasks that predicts the full distribution of a time series on future horizons.

259, TITLE: MVAN: Multi-view Attention Networks for Real Money Trading Detection in Online Games
https://doi.org/10.1145/3292500.3330687
AUTHORS: Jianrong Tao, Jianshi Lin, Shize Zhang, Sha Zhao, Runze Wu, Changjie Fan, Peng Cui
HIGHLIGHT: We present a multi-graph attention network (MGAT) in the graph structure view, a behavior attention network (BAN) in the vertex content view, a portrait attention network (PAN) in the vertex attribute view and a data source attention network (DSAN) in the data source view.

260, TITLE: Naranjo Question Answering using End-to-End Multi-task Learning Model
https://doi.org/10.1145/3292500.3330770
AUTHORS: Bhanu Pratap Singh Rawat, Fei Li, Hong Yu
HIGHLIGHT: In this study, we present the first attempt to automatically infer the causality between a drug and an ADR from electronic health records (EHRs) by answering the Naranjo questionnaire, the validated clinical question answering set used by domain experts for ADR causality assessment.

261, TITLE: Nonparametric Mixture of Sparse Regressions on Spatio-Temporal Data -- An Application to Climate Prediction

https://doi.org/10.1145/3292500.3330692
AUTHORS: Yumin Liu, Junxiang Chen, Auroop Ganguly, Jennifer Dy
HIGHLIGHT: Motivated by the need of identifying which GCMs are more useful for a particular region and time, we introduce a clustering model combining Dirichlet Process (DP) mixture of sparse linear regression with Markov Random Fields (MRFs).

262, TITLE: Nostalgin: Extracting 3D City Models from Historical Image Data
https://doi.org/10.1145/3292500.3330743
AUTHORS: Amol Kapoor, Hunter Larco, Raimondas Kiveris
HIGHLIGHT: In this work, we describe Nostalgin (Nostalgia Engine), a method that can faithfully reconstruct cities from historical images.

263, TITLE: NPA: Neural News Recommendation with Personalized Attention
https://doi.org/10.1145/3292500.3330665
AUTHORS: Chuhan Wu, Fangzhao Wu, Mingxiao An, Jianqiang Huang, Yongfeng Huang, Xing Xie
HIGHLIGHT: In this paper, we propose a neural news recommendation model with personalized attention (NPA).

264, TITLE: OAG: Toward Linking Large-scale Heterogeneous Entity Graphs
https://doi.org/10.1145/3292500.3330785
AUTHORS: Fanjin Zhang, Xiao Liu, Jie Tang, Yuxiao Dong, Peiran Yao, Jie Zhang, Xiaotao Gu, Yan Wang, Bin Shao, Rui Li, Kuansan Wang
HIGHLIGHT: Employing two billion-scale academic entity graphs (Microsoft Academic Graph and AMiner) as sources for our study, we propose a unified framework --- LinKG --- to address the problem of building a large-scale linked entity graph.

265, TITLE: OCC: A Smart Reply System for Efficient In-App Communications
https://doi.org/10.1145/3292500.3330694
AUTHORS: Yue Weng, Huaixiu Zheng, Franziska Bell, Gokhan Tur
HIGHLIGHT: In this paper, we introduce Uber's smart reply system: one-click-chat (OCC), which is a key enhanced feature on top of the Uber in-app chat system.

266, TITLE: Online Amnestic DTW to allow Real-Time Golden Batch Monitoring
https://doi.org/10.1145/3292500.3330650
AUTHORS: Chin-Chia Michael Yeh, Yan Zhu, Hoang Anh Dau, Amirali Darvishzadeh, Mikhail Noskov, Eamonn Keogh
HIGHLIGHT: In this work, we make two contributions to golden batch processing.

267, TITLE: Online Purchase Prediction via Multi-Scale Modeling of Behavior Dynamics
https://doi.org/10.1145/3292500.3330790
AUTHORS: Chao Huang, Xian Wu, Xuchao Zhang, Chuxu Zhang, Jiashu Zhao, Dawei Yin, Nitesh V. Chawla
HIGHLIGHT: To address these factors, we develop a Graph Multi-Scale Pyramid Networks (GMP) framework to fully exploit users' latent behavioral patterns with both multi-scale temporal dynamics and arbitrary inter-dependencies among product categories.

268, TITLE: Optuna: A Next-generation Hyperparameter Optimization Framework
https://doi.org/10.1145/3292500.3330701
AUTHORS: Takuya Akiba, Shotaro Sano, Toshihiko Yanase, Takeru Ohta, Masanori Koyama
HIGHLIGHT: The purpose of this study is to introduce new design-criteria for next-generation hyperparameter optimization software.

269, TITLE: Personalized Attraction Enhanced Sponsored Search with Multi-task Learning
https://doi.org/10.1145/3292500.3330659
AUTHORS: Wei Zhao, Boxuan Zhang, Beidou Wang, Ziyu Guan, Wanxian Guan, Guang Qiu, Wei Ning, Jiming Chen, Hongmin Liu
HIGHLIGHT: We study a novel problem of sponsored search (SS) for E-Commerce platforms: how we can attract query users to click product advertisements (ads) by presenting them features of products that attract them.

270, TITLE: Personalized Purchase Prediction of Market Baskets with Wasserstein-Based Sequence Matching
https://doi.org/10.1145/3292500.3330791
AUTHORS: Mathias Kraus, Stefan Feuerriegel
HIGHLIGHT: Personalized Purchase Prediction of Market Baskets with Wasserstein-Based Sequence Matching

271, TITLE: PinText: A Multitask Text Embedding System in Pinterest

https://doi.org/10.1145/3292500.3330671
AUTHORS: Jinfeng Zhuang, Yu Liu
HIGHLIGHT: In this paper, we propose a multitask text embedding solution called PinText for three major vertical surfaces including homefeed, related pins, and search in Pinterest, which consolidates existing text embedding algorithms into a single solution and produces state-of-the-art performance.

272, TITLE: POG: Personalized Outfit Generation for Fashion Recommendation at Alibaba iFashion
https://doi.org/10.1145/3292500.3330652
AUTHORS: Wen Chen, Pipei Huang, Jiaming Xu, Xin Guo, Cheng Guo, Fei Sun, Chao Li, Andreas Pfadler, Huan Zhao, Binqiang Zhao
HIGHLIGHT: In this paper, we demonstrate these two requirements can be satisfied via building a bridge between outfit generation and recommendation.

273, TITLE: Practice on Long Sequential User Behavior Modeling for Click-Through Rate Prediction
https://doi.org/10.1145/3292500.3330666
AUTHORS: Qi Pi, Weijie Bian, Guorui Zhou, Xiaoqiang Zhu, Kun Gai
HIGHLIGHT: In this paper, we face directly the challenge of long sequential user behavior modeling and introduce our hands-on practice with the co-design of machine learning algorithm and online serving system for CTR prediction task.

274, TITLE: Precipitation Nowcasting with Satellite Imagery
https://doi.org/10.1145/3292500.3330762
AUTHORS: Vadim Lebedev, Vladimir Ivashkin, Irina Rudenko, Alexander Ganshin, Alexander Molchanov, Sergey Ovcharenko, Ruslan Grokhovetskiy, Ivan Bushmarinov, Dmitry Solomentsev
HIGHLIGHT: We have developed a method for precipitation nowcasting based on geostationary satellite imagery and incorporated the resulting data into the Yandex.Weather precipitation map (including an alerting service with push notifications for products in the Yandex ecosystem), thus expanding its coverage and paving the way to a truly global nowcasting service.

275, TITLE: Predicting Different Types of Conversions with Multi-Task Learning in Online Advertising
https://doi.org/10.1145/3292500.3330783
AUTHORS: Junwei Pan, Yizhi Mao, Alfonso Lobos Ruiz, Yu Sun, Aaron Flores
HIGHLIGHT: In this paper, we formulate conversion prediction as a multi-task learning problem, so that the prediction models for different types of conversions can be learned together.

276, TITLE: Predicting Economic Development using Geolocated Wikipedia Articles
https://doi.org/10.1145/3292500.3330784
AUTHORS: Evan Sheehan, Chenlin Meng, Matthew Tan, Burak Uzkent, Neal Jean, Marshall Burke, David Lobell, Stefano Ermon
HIGHLIGHT: Here we propose a novel method for estimating socioeconomic indicators using open-source, geolocated textual information from Wikipedia articles.

277, TITLE: Predicting Evacuation Decisions using Representations of Individuals' Pre-Disaster Web Search Behavior
https://doi.org/10.1145/3292500.3330697
AUTHORS: Takahiro Yabe, Kota Tsubouchi, Toru Shimizu, Yoshihide Sekimoto, Satish V. Ukkusuri
HIGHLIGHT: In this study, we investigate whether web search data observed prior to the disaster can be used to predict the evacuation decisions.

278, TITLE: Probabilistic Latent Variable Modeling for Assessing Behavioral Influences on Well-Being
https://doi.org/10.1145/3292500.3330738
AUTHORS: Ehimwenma Nosakhare, Rosalind Picard
HIGHLIGHT: In this paper, we present a framework to 1) map multi-modal messy data collected in the "wild" to meaningful feature representations of health behavior, and 2) uncover latent patterns comprising multiple health behaviors that best predict well-being.

279, TITLE: Pythia: AI-assisted Code Completion System
https://doi.org/10.1145/3292500.3330699
AUTHORS: Alexey Svyatkovskiy, Ying Zhao, Shengyu Fu, Neel Sundaresan
HIGHLIGHT: In this paper, we propose a novel end-to-end approach for AI-assisted code completion called Pythia.

280, TITLE: Raise to Speak: An Accurate, Low-power Detector for Activating Voice Assistants on Smartwatches
https://doi.org/10.1145/3292500.3330761

AUTHORS: Shiwen Zhao, Brandt Westing, Shawn Scully, Heri Nieto, Roman Holenstein, Minwoo Jeong, Krishna Sridhar, Brandon Newendorp, Mike Bastian, Sethu Raman, Tim Paek, Kevin Lynch, Carlos Guestrin
HIGHLIGHT: This paper describes a new way to invoke IVAs on smartwatches: simply raise your hand and speak naturally.

281, TITLE: Randomized Experimental Design via Geographic Clustering
https://doi.org/10.1145/3292500.3330778
AUTHORS: David Rolnick, Kevin Aydin, Jean Pouget-Abadie, Shahab Kamali, Vahab Mirrokni, Amir Najmi
HIGHLIGHT: Our main technical contribution is a statistical framework to measure the effectiveness of clusterings.

282, TITLE: Ranking in Genealogy: Search Results Fusion at Ancestry
https://doi.org/10.1145/3292500.3330772
AUTHORS: Peng Jiang, Yingrui Yang, Gann Bierner, Fengjie Alex Li, Ruhan Wang, Azadeh Moghtaderi
HIGHLIGHT: Herein, we provide an overview of our solutions to overcome such record disparity problems in the Ancestry search engine.

283, TITLE: Real-time Attention Based Look-alike Model for Recommender System
https://doi.org/10.1145/3292500.3330707
AUTHORS: Yudan Liu, Kaikai Ge, Xu Zhang, Leyu Lin
HIGHLIGHT: This paper introduces a real-time attention based look-alike model (RALM) for recommender systems, which tackles the challenge of conflict between real-time and effectiveness.

284, TITLE: Real-time Event Detection on Social Data Streams
https://doi.org/10.1145/3292500.3330689
AUTHORS: Mateusz Fedoryszak, Brent Frederick, Vijay Rajaram, Changtao Zhong
HIGHLIGHT: We describe a real-time system for discovering events that is modular in design and novel in scale and speed: it applies clustering on a large stream with millions of entities per minute and produces a dynamically updated set of events.

285, TITLE: Real-time On-Device Troubleshooting Recommendation for Smartphones
https://doi.org/10.1145/3292500.3330669
AUTHORS: Keiichi Ochiai, Kohei Senkawa, Naoki Yamamoto, Yuya Tanaka, Yusuke Fukazawa
HIGHLIGHT: Here, we design and implement a system that based on the user's smartphone activity detects that the user has a problem and requires help.

286, TITLE: Real-World Product Deployment of Adaptive Push Notification Scheduling on Smartphones
https://doi.org/10.1145/3292500.3330732
AUTHORS: Tadashi Okoshi, Kota Tsubouchi, Hideyuki Tokuda
HIGHLIGHT: In this paper, we construct a new interruptibility estimation and adaptive notification scheduling with redesigned technical components.

287, TITLE: Recurrent Neural Networks for Stochastic Control in Real-Time Bidding
https://doi.org/10.1145/3292500.3330749
AUTHORS: Nicolas Grislain, Nicolas Perrin, Antoine Thabault
HIGHLIGHT: Recurrent Neural Networks for Stochastic Control in Real-Time Bidding

288, TITLE: Reinforcement Learning to Optimize Long-term User Engagement in Recommender Systems
https://doi.org/10.1145/3292500.3330668
AUTHORS: Lixin Zou, Long Xia, Zhuoye Ding, Jiaxing Song, Weidong Liu, Dawei Yin
HIGHLIGHT: To address these issues, in this work, we introduce a RL framework --- FeedRec to optimize the long-term user engagement.

289, TITLE: Reserve Price Failure Rate Prediction with Header Bidding in Display Advertising
https://doi.org/10.1145/3292500.3330729
AUTHORS: Achir Kalra, Chong Wang, Cristian Borcea, Yi Chen
HIGHLIGHT: In this paper, we study the problem of estimating the failure rate of a reserve price, i.e., the probability that a reserve price fails to be outbid.

290, TITLE: Robust Anomaly Detection for Multivariate Time Series through Stochastic Recurrent Neural Network
https://doi.org/10.1145/3292500.3330672
AUTHORS: Ya Su, Youjian Zhao, Chenhao Niu, Rong Liu, Wei Sun, Dan Pei

HIGHLIGHT: This paper proposes OmniAnomaly, a stochastic recurrent neural network for multivariate time series anomaly detection that works well robustly for various devices.

291, TITLE: Robust Gaussian Process Regression for Real-Time High Precision GPS Signal Enhancement
https://doi.org/10.1145/3292500.3330695
AUTHORS: Ming Lin, Xiaomin Song, Qi Qian, Hao Li, Liang Sun, Shenghuo Zhu, Rong Jin
HIGHLIGHT: In this work, we consider a data-mining approach to enhance the GPS signal.

292, TITLE: Sample Adaptive Multiple Kernel Learning for Failure Prediction of Railway Points
https://doi.org/10.1145/3292500.3330731
AUTHORS: Zhibin Li, Jian Zhang, Qiang Wu, Yongshun Gong, Jinfeng Yi, Christina Kirsch
HIGHLIGHT: In this paper, we formulate our prediction task as a multiple kernel learning problem with missing kernels.

293, TITLE: Seasonal-adjustment Based Feature Selection Method for Predicting Epidemic with Large-scale Search Engine Logs
https://doi.org/10.1145/3292500.3330766
AUTHORS: Thien Q. Tran, Jun Sakuma
HIGHLIGHT: In this work, we proposed a novel feature selection method to overcome this instability problem.

294, TITLE: Seeker: Real-Time Interactive Search
https://doi.org/10.1145/3292500.3330733
AUTHORS: Ari Biswas, Thai T. Pham, Michael Vogelsong, Benjamin Snyder, Houssam Nassif
HIGHLIGHT: This paper introduces Seeker, a system that allows users to adaptively refine search rankings in real time, through a series of feedbacks in the form of likes and dislikes.

295, TITLE: Semantic Product Search
https://doi.org/10.1145/3292500.3330759
AUTHORS: Priyanka Nigam, Yiwei Song, Vijai Mohan, Vihan Lakshman, Weitian (Allen) Ding, Ankit Shingavi, Choon Hui Teo, Hao Gu, Bing Yin
HIGHLIGHT: We study the problem of semantic matching in product search, that is, given a customer query, retrieve all semantically related products from the catalog.

296, TITLE: Sequence Multi-task Learning to Forecast Mental Wellbeing from Sparse Self-reported Data
https://doi.org/10.1145/3292500.3330730
AUTHORS: Dimitris Spathis, Sandra Servia-Rodriguez, Katayoun Farrahi, Cecilia Mascolo, Jason Rentfrow
HIGHLIGHT: In this paper, we propose a new end-to-end ML model inspired by video frame prediction and machine translation, that forecasts future sequences of mood from previous self-reported moods collected in the real world using mobile devices.

297, TITLE: Sequential Scenario-Specific Meta Learner for Online Recommendation
https://doi.org/10.1145/3292500.3330726
AUTHORS: Zhengxiao Du, Xiaowei Wang, Hongxia Yang, Jingren Zhou, Jie Tang
HIGHLIGHT: This paper addresses such problems usingfew-shot learning andmeta learning.

298, TITLE: Short and Long-term Pattern Discovery Over Large-Scale Geo-Spatiotemporal Data
https://doi.org/10.1145/3292500.3330755
AUTHORS: Sobhan Moosavi, Mohammad Hossein Samavatian, Arnab Nandi, Srinivasan Parthasarathy, Rajiv Ramnath
HIGHLIGHT: We therefore introduce a new geo-spatiotemporal pattern discovery framework which defines a semantically correct definition of neighborhood; and then provides two capabilities, one to explore propagation patterns and the other to explore influential patterns.

299, TITLE: Shrinkage Estimators in Online Experiments
https://doi.org/10.1145/3292500.3330771
AUTHORS: Drew Dimmery, Eytan Bakshy, Jasjeet Sekhon
HIGHLIGHT: In this work we develop consistent, small bias, shrinkage estimators for this setting.

300, TITLE: Smart Roles: Inferring Professional Roles in Email Networks
https://doi.org/10.1145/3292500.3330735
AUTHORS: Di Jin, Mark Heimann, Tara Safavi, Mengdi Wang, Wei Lee, Lindsay Snider, Danai Koutra

HIGHLIGHT: Toward our goal, in this paper we study professional role inference on a unique new email dataset comprising billions of email exchanges across thousands of organizations.

301, TITLE: SMOILE: A Shopper Marketing Optimization and Inverse Learning Engine
https://doi.org/10.1145/3292500.3330788
AUTHORS: Abhilash Reddy Chenreddy, Parshan Pakiman, Selvaprabu Nadarajah, Ranganathan Chandrasekaran, Rick Abens
HIGHLIGHT: We propose an SM Optimization and Inverse Learning Engine (SMOILE) that combines optimization and inverse reinforcement learning to streamline implementation.

302, TITLE: Social Skill Validation at LinkedIn
https://doi.org/10.1145/3292500.3330752
AUTHORS: Xiao Yan, Jaewon Yang, Mikhail Obukhov, Lin Zhu, Joey Bai, Shiqi Wu, Qi He
HIGHLIGHT: In this paper, we develop the Social Skill Validation, a novel framework of collecting validations for members' skill expertise at the scale of billions of member-skill pairs.

303, TITLE: Structured Noise Detection: Application on Well Test Pressure Derivative Data
https://doi.org/10.1145/3292500.3330661
AUTHORS: Farhan Asif Chowdhury, Satomi Suzuki, Abdullah Mueen
HIGHLIGHT: In this paper, we use the Singular Spectrum Analysis (SSA) to decompose PTA data into additive components; subsequently we use the eigenvalues associated with the decomposed components to identify the components that contain most of the structured noise information.

304, TITLE: Temporal Probabilistic Profiles for Sepsis Prediction in the ICU
https://doi.org/10.1145/3292500.3330747
AUTHORS: Eitam Sheetrit, Nir Nissim, Denis Klimov, Yuval Shahar
HIGHLIGHT: Here, we propose a new dynamic-behavior-based model, which we call a Temporal Probabilistic proFile (TPF), for classification and prediction tasks of multivariate time series.

305, TITLE: TF-Ranking: Scalable TensorFlow Library for Learning-to-Rank
https://doi.org/10.1145/3292500.3330677
AUTHORS: Rama Kumar Pasumarthi, Sebastian Bruch, Xuanhui Wang, Cheng Li, Michael Bendersky, Marc Najork, Jan Pfeifer, Nadav Golbandi, Rohan Anil, Stephan Wolf
HIGHLIGHT: We introduce TensorFlow Ranking, the first open source library for solving large-scale ranking problems in a deep learning framework.

306, TITLE: The Error is the Feature: How to Forecast Lightning using a Model Prediction Error
https://doi.org/10.1145/3292500.3330682
AUTHORS: Christian Sch?n, Jens Dittrich, Richard M?ller
HIGHLIGHT: We therefore present a new approach to the problem of predicting thunderstorms based on machine learning.

307, TITLE: The Identification and Estimation of Direct and Indirect Effects in A/B Tests through Causal Mediation Analysis
https://doi.org/10.1145/3292500.3330769
AUTHORS: Xuan Yin, Liangjie Hong
HIGHLIGHT: In this paper, we introduce causal mediation analysis as a formal statistical tool to reveal the underlying causal mechanisms.

308, TITLE: The Secret Lives of Names?: Name Embeddings from Social Media
https://doi.org/10.1145/3292500.3330751
AUTHORS: Junting Ye, Steven Skiena
HIGHLIGHT: In this paper, we explore learning name embeddings from public Twitter data.

309, TITLE: Time-Series Anomaly Detection Service at Microsoft
https://doi.org/10.1145/3292500.3330680
AUTHORS: Hansheng Ren, Bixiong Xu, Yujing Wang, Chao Yi, Congrui Huang, Xiaoyu Kou, Tony Xing, Mao Yang, Jie Tong, Qi Zhang
HIGHLIGHT: In this paper, we introduce the pipeline and algorithm of our anomaly detection service, which is designed to be accurate, efficient and general.

310, TITLE: Topic-Enhanced Memory Networks for Personalised Point-of-Interest Recommendation
https://doi.org/10.1145/3292500.3330781
AUTHORS: Xiao Zhou, Cecilia Mascolo, Zhongxiang Zhao
HIGHLIGHT: In this paper, we propose a novel topic-enhanced memory network (TEMN), a deep architecture to integrate the topic model and memory network capitalising on the strengths of both the global structure of latent patterns and local neighbourhood-based features in a nonlinear fashion.

311, TITLE: Towards Identifying Impacted Users in Cellular Services
https://doi.org/10.1145/3292500.3330711
AUTHORS: Shobha Venkataraman, Jia Wang
HIGHLIGHT: In this paper, we present LOTUS, a system that identifies users impacted by a common root cause (such as a network outage) from user feedback.

312, TITLE: Towards Knowledge-Based Personalized Product Description Generation in E-commerce
https://doi.org/10.1145/3292500.3330725
AUTHORS: Qibin Chen, Junyang Lin, Yichang Zhang, Hongxia Yang, Jingren Zhou, Jie Tang
HIGHLIGHT: In this paper, we explore a new way to generate personalized product descriptions by combining the power of neural networks and knowledge base.

313, TITLE: Towards Sustainable Dairy Management - A Machine Learning Enhanced Method for Estrus Detection
https://doi.org/10.1145/3292500.3330712
AUTHORS: Kevin Fauvel, V?ronique Masson, ?lisa Fromont, Philippe Faverdin, Alexandre Termier
HIGHLIGHT: Our research tackles the challenge of milk production resource use efficiency in dairy farms with machine learning methods.

314, TITLE: TrajGuard: A Comprehensive Trajectory Copyright Protection Scheme
https://doi.org/10.1145/3292500.3330685
AUTHORS: Zheyi Pan, Jie Bao, Weinan Zhang, Yong Yu, Yu Zheng
HIGHLIGHT: To this end, we propose a novel trajectory copyright protection scheme, which can protect trajectory data from comprehensive types of data modifications/attacks.

315, TITLE: TV Advertisement Scheduling by Learning Expert Intentions
https://doi.org/10.1145/3292500.3330768
AUTHORS: Yasuhisa Suzuki, Wemer M. Wee, Itaru Nishioka
HIGHLIGHT: This paper considers the automation of a typical complex advertisement scheduling system in broadcast television (TV) networks.

316, TITLE: Two-Sided Fairness for Repeated Matchings in Two-Sided Markets: A Case Study of a Ride-Hailing Platform
https://doi.org/10.1145/3292500.3330793
AUTHORS: Tom S?hr, Asia J. Biega, Meike Zehlike, Krishna P. Gummadi, Abhijnan Chakraborty
HIGHLIGHT: In this paper, we analyze job assignments of a major taxi company and observe that there is significant inequality in the driver income distribution.

317, TITLE: Uncovering the Co-driven Mechanism of Social and Content Links in User Churn Phenomena
https://doi.org/10.1145/3292500.3330736
AUTHORS: Yunfei Lu, Linyun Yu, Peng Cui, Chengxi Zang, Renzhe Xu, Yihao Liu, Lei Li, Wenwu Zhu
HIGHLIGHT: As a result, we propose a novel survival model, which incorporates both social and content factors, to predict churn probability over time.

318, TITLE: Understanding Consumer Journey using Attention based Recurrent Neural Networks
https://doi.org/10.1145/3292500.3330753
AUTHORS: Yichao Zhou, Shaunak Mishra, Jelena Gligorijevic, Tarun Bhatia, Narayan Bhamidipati
HIGHLIGHT: To address challenges in the two tasks, we propose an attention based recurrent neural network (RNN) which ingests a user activity trail, and predicts the user's conversion probability along with attention weights for each activity (analogous to its position in the funnel).

319, TITLE: Understanding the Role of Style in E-commerce Shopping
https://doi.org/10.1145/3292500.3330760
AUTHORS: Hao Jiang, Aakash Sabharwal, Adam Henderson, Diane Hu, Liangjie Hong
HIGHLIGHT: In this paper, we discuss a novel process by which we leverage 43 named styles given by merchandising experts in order to bootstrap large-scale style prediction and analysis of how style impacts purchase decision.

320, TITLE: Unsupervised Clinical Language Translation
https://doi.org/10.1145/3292500.3330710
AUTHORS: Wei-Hung Weng, Yu-An Chung, Peter Szolovits
HIGHLIGHT: We show that a framework using representation learning, bilingual dictionary induction and statistical machine translation yields the best precision at 10 of 0.827 on professional-to-consumer word translation, and mean opinion scores of 4.10 and 4.28 out of 5 for clinical correctness and layperson readability, respectively, on sentence translation.

321, TITLE: UrbanFM: Inferring Fine-Grained Urban Flows
https://doi.org/10.1145/3292500.3330646
AUTHORS: Yuxuan Liang, Kun Ouyang, Lin Jing, Sijie Ruan, Ye Liu, Junbo Zhang, David S. Rosenblum, Yu Zheng
HIGHLIGHT: In this paper, we aim to infer the real-time and fine-grained crowd flows throughout a city based on coarse-grained observations.

322, TITLE: Using Twitter to Predict When Vulnerabilities will be Exploited
https://doi.org/10.1145/3292500.3330742
AUTHORS: Haipeng Chen, Rui Liu, Noseong Park, V.S. Subrahmanian
HIGHLIGHT: In this paper, we propose a novel framework to predict when a vulnerability will be exploited via Twitter discussion, without using CVSS score information.

323, TITLE: Whole Page Optimization with Global Constraints
https://doi.org/10.1145/3292500.3330675
AUTHORS: Weicong Ding, Dinesh Govindaraj, S V N Vishwanathan
HIGHLIGHT: We present the first unified framework for dealing with relevance, diversity, and business constraints simultaneously.