AI & Machine Learning Publications Inventory

Conferences, published articles, seminars/webinars and whitepapers featuring IQVIA experts

IQVIA

Table of contents

***To find any of the listed publications, please follow this link, enter the title of the publication and press "Search".**

2024

Conferences

1. Spanashis, A., Lazzarini, N., Filippoupolitis, A., Stewart, H. and Francis, S., Using Machine Learning to Explore Social Media Engagement with Medical Publications. Poster presentation at 2024 European Meeting of the International Society for Medical Publication Professionals, January 2024
2. Rigolli L, Gaur S, Pagani L, Optimizing Clinical Trial Design with Causal Learning: Insights and Predictions for Improved Success Rates, 2024 May
3. Spanashis, A., Sun, W., Lazzarini, N., Filippoupolitis, A., Francis, S. and Stewart, H., Using Machine Learning to Explore Scientific and Social Media Engagement with Medical Publications. Poster Presentation at The Professional Society for Health Economics and Outcomes Research (ISPOR) Europe 2024, November 17th-20th 2024.

PMSA

4. Tim Weckwerth, Steve Eichert, Yanping Liu, Wenzhe Lu, Yong Cai, Getting Ahead of the Game: Identify the Future Rising Star Clinical Thought Leaders Before Anyone Else, 2023 PMSA Annual Conference, May2023
5. Dheeraj Behl, Yanping Liu, Brian Lasky, Patrick Angelastro, Ruoxin Li. Identifying Untapped Opportunities for Brand Performance by Assessing Gaps in Ideal Patient Prescribing Situations. PMSA 2024 Annual Conference
6. Jessica Zhang, Elizabeth Wallace, Ruoxin Li, Sapna Sharma, Paige Desmarais. Prescription Re-attribution for Accurate Incentive Compensation and Field Deployment in the Immunology Market. PMSA 2024 Annual Conference.
7. Spanashis, A., Lazzarini, N., Filippoupolitis, A., Stewart, H. and Francis, S., Using Machine Learning to Explore Social Media Engagement with Medical Publications. Poster presentation at 2024 European Meeting of the International Society for Medical Publication Professionals, January 2024.
8. Dimitris Fotis Sakellariou, Prabhat Kumar, Aistis Stankevicius, Nicola Lazzarini and Avgoustinos Filippoupolitis. A Deep Learning Factory for Sequential Claims Data. Poster presentation at 2023 PMSA Annual Conference, May 2023.
9. Tong Wu, Doug Hudson, Yunlong Wang, Steve Eichert, and Yong Cai, An Automated KOL Analytic Engine Powered by Large Language Models and Graph Machine Learning to Enrich HCP Profiles with Scientific Data, PMSA 2024 Annual Conference.
10. Byeongchan Jeong, Tong Wu, Anh Tuan Nguyen, Jian Xu, Jonathan Cheng, Edward Keefer and Zhi Yang, Compression-based Feature Reduction for Upper Limb Motor Decoding from Peripheral Neural Signal, IEEE International Conference on Wearable and Implantable Body Sensor Networks, Oct. 2024.
11. Tong Wu, Doug Hudson, Yunlong Wang, Steve Eichert, and Yong Cai, An Automated KOL Analytic Engine Powered by Large Language Models and Graph Machine Learning to Enrich HCP Profiles with Scientific Data, PMSA 2024 Annual Conference

12. Yanping Liu, Steve Eichert, Zhiyi Tian, Yong Cai, Uncovering Hidden Local and Regional KOLs and Their Peer Networks in Underdiagnosed Markets Through Disease Detection and Link Prediction, 2024 PMSA Annual Conference, May 2024

13. Dimitris Fotis Sakellariou, Prabhat Kumar, Aistis Stankevicius, Nicola Lazzarini and Avgoustinos Filippoupolitis. A Deep Learning Factory for Sequential Claims Data. Poster presentation at 2023 PMSA Annual Conference, May 2023

14. Dimitris Fotis Sakellariou, Prabhat Kumar, Aistis Stankevicius, Nicola Lazzarini and Avgoustinos Filippoupolitis. A Deep Learning Factory for Sequential Claims Data. Poster presentation at 2023 PMSA Annual Conference, May 2023

15. Dimitris Fotis Sakellariou, Prabhat Kumar, Aistis Stankevicius, Nicola Lazzarini and Avgoustinos Filippoupolitis. A Deep Learning Factory for Sequential Claims Data. Poster presentation at 2023 PMSA Annual Conference, May 2023

IEEE

16. Byeongchan Jeong, Tong Wu, Anh Tuan Nguyen, Jian Xu, Jonathan Cheng, Edward Keefer and Zhi Yang, Compression-based Feature Reduction for Upper Limb Motor Decoding from Peripheral Neural Signal, IEEE International Conference on Wearable and Implantable Body Sensor Networks, Oct. 2024

SNOMED

17. Czotter M. From conception to consumption: navigating the lifecycle of healthcare terminology. SNOMED CT Expo 2024.

ISPOR

18. Using Machine Learning to Explore Scientific and Social Media Engagement With Medical Publications

Articles (continued)

19. Ruoxin Li, Karl Svensson, Paige Desmarais, Rowan D'Annibale, Lihua Tan. Finding Hidden Referrers for Infusion Products by Leveraging Machine Learning. Journal of the Pharmaceutical Management Science Association, 2024

20. Francesco Ronzano and Jay Nanavati. Towards Ontology-Enhanced Representation Learning for Large Language Models., https://arxiv.org/pdf/2405.20527v1

21. H. Feng, F. Ronzano, J. LaFleur, M. Garber, R de Oliveira, K. Rough, K. Roth, J. Nanavati, K. Zine El Abidine, C. Mack. Evaluation of large language model performance on the Biomedical Language Understanding and Reasoning Benchmark.https://www.medrxiv.org/content/10.1101/2024.05.17.24307411v1.full.pdf

Peer Reviewed Articles

22. Chai Y, Man KKC, Luo H, et al. Incidence of mental health diagnoses during the COVID-19 pandemic: a multinational network study. Epidemiology and Psychiatric Sciences. 2024;33:e9. doi:10.1017/S2045796024000088

23. Andrew P Ambrosy, Jingrong Yang, Andrew S Tai, Sadia J Dimbil, Elisha A Garcia, Sue Hee Sung , Ankeet S Bhatt, Matthew D Solomon, Ivy A Ku, Jacob M Mishell, Edward J McNulty, Jonathan G Zaroff, Andrew N Rassi, Jeremy Kong, Alan S Go. Eligibility and Potential Benefit of

Transcatheter Edge-to-Edge Repair in a Contemporary Cohort With Heart Failure: Evidence From a Large Integrated Health Care Delivery System. Struct Heart. 2023;8(2):100237. Published 2023 Dec 19. doi:10.1016/j.shj.2023.100237

24. Huang, H. Y. R., Vitali, C., Zhang, D., Hand, N. J., Phillips, M. C., Creasy, K. T., Scorletti, E., Park, J., Centre, R., Schneider, K. M., Rader, D. J., & Schneider, C. V. (2024). Deep metabolic phenotyping of humans with protein-altering variants in TM6SF2 using a genome-first approach. JHEP Reports, 101243-. https://doi.org/10.1016/j.jhepr.2024.101243

25. Matthew T Mefford, Andrew P Ambrosy, Rong Wei, Chengyi Zheng, Rishi V Parikh, Teresa N Harrison, Ming-Sum Lee, Alan S Go, Kristi Reynoldsl. Rule-based natural language processing to examine variation in worsening heart failure hospitalizations by age, sex, race and ethnicity, and left ventricular ejection fraction. Am Heart J. Published online September 7, 2024. doi:10.1016/j.ahj.2024.09.001

26. Zheng C, Ackerson B, Qiu S, Sy LS, Daily LIV, Song J, Qian L, Luo Y, Ku JH, Cheng Y, Wu J, Tseng HF. Natural Language Processing Versus Diagnosis Code-Based Methods for Postherpetic Neuralgia Identification: Algorithm Development and Validation. JMIR Med Inform. 2024 Sep 10;12:e57949. doi: 10.2196/57949.

27. Miriam Daphne Rendel , Cecilia Vitali , Kate Townsend Creasy , David Zhang , Eleonora Scorletti , Helen Huang , Katharina Sophie Seeling , Joseph Park , Leonida Hehl , Mara Sophie Vell , Donna Conlon , Sikander Hayat ; Regeneron Center ; Michael C Phillips , Kai Markus Schneider , Daniel J Rader , Carolin Victoria Schneider . The common p.Ile291Val variant of ERLIN1 enhances TM6SF2 function and is associated with protection against MASLD. Med. 2024;5(8):963-980.e5. doi:10.1016/j.medj.2024.04.010

28. Gendrin-Brokmann, A., Harrison, E., Noveras, J., Souliotis, L., Vince, H., Smit, I., Costa, F., Milward, D., Dimitrievska, S., Metcalfe, P. and Louvet, E., 2024. Investigating Deep-Learning NLP for Automating the Extraction of Oncology Efficacy Endpoints from Scientific Literature. Intelligence-Based Medicine, Vol 10, p.100152.

29. Bhatia A, Titus R, Porto JG, et al. Application of Natural Language Processing in Electronic Health Record Data Extraction for Navigating Prostate Cancer Care: A Narrative Review. J Endourol. 2024;38(8):852-864. doi:10.1089/end.2023.0690

30. Leung CJ, Bhatt AS, Go AS, Parikh RV, Garcia EA, Le KC, Low D, Allen AR, Fitzpatrick JK, Adatya S, Sax DR, Goyal P, Varshney AS, Sandhu AT, Gustafson SE, Ambrosy AP. Sex-Based Differences in the Epidemiology, Clinical Characteristics, and Outcomes Associated with Worsening Heart Failure Events in a Learning Health System. J Card Fail. 2024 Apr 30:S1071-9164(24)00147-7

31. Jeffrey K Lee, Abhik Roy, Christopher D Jensen, Jennifer T Chan, Wei K Zhao, Theodore R Levin, Jessica Chubak, Ethan A Halm, Celette S Skinner, Joanne E Schottinger, Nirupa R Ghai, Andrea N Burnett-Hartman, Aruna Kamineni, Natalia Udaltsova, Douglas A Corley. Surveillance Colonoscopy Findings in Older Adults With a History of Colorectal Adenomas. JAMA Netw Open. 2024;7(4):e244611. Published 2024 Apr 1. doi:10.1001/jamanetworkopen.2024.4611

32. Theodore R Levin, Christopher D Jensen , Amy R Marks, David Schlessinger, Vincent Liu, Natalia Udaltsova, Jessica Badalov, Evan Layefsky, Douglas A Corley, Joshua R Nugent, Jeffrey K Lee. Development and External Validation of a Prediction Model for Colorectal Cancer Among Patients Awaiting Surveillance Colonoscopy Following Polypectomy. Gastro Hep Adv. 2024;3(5):671-683. Published 2024 Mar 15. doi:10.1016/j.gastha.2024.03.008

33. Wessel D, Pogrebnyakov N. Using Social Media as a Source of Real-World Data for Pharmaceutical Drug Development and Regulatory Decision Making. Drug Saf. 2024 Mar 6.

34. Zhiyi Tian, Jiaming Xu, Jen Tang. Clustering High-Dimensional Noisy Categorical Data. Journal of the American Statistical Association. 2024 Jan 16:1-2.

2023

Peer Reviewed Articles

35. Rigg J, Doyle O, McDonogh N, Leavitt N, Ali R, Son A, Kreter B. **Finding undiagnosed patients with hepatitis C virus: an application of machine learning to US ambulatory electronic medical records.** BMJ Health & Care Informatics. 2023 Jan 1;30(1): e100651.

36. Wakutsu N, Hirose E, Yonemoto N, Demiya S. **Assessing Definitions, and Incentives Adopted for Innovation for Pharmaceutical Products in Five High-Income Countries:** A Systematic Literature Review. Pharmaceut Med. 2023 Jan 17:1–18

37. Luo H, Lau WCY, Chai Y, Torre CO, Howard R, Liu KY, et al. **Rates of Antipsychotic Drug Prescribing Among People Living with Dementia During the COVID-19 Pandemic.** JAMA Psychiatry. 2023 Jan 25: e224448. doi: 10.1001/jamapsychiatry.2022.4448. Epub ahead of print. PMID: 36696128; PMCID: PMC9878427.

38. Philippe Rocca-Serra, Wei Gu, Vassilios Ioannidis, Tooba abbassi-Daloii, Salvador, et al.; **The FAIR Cookbook - the essential resource for and by FAIR doers. Sci Data 10, 292 (2023).** https://doi.org/10.1038/s41597-023-02166-3

39. Gao, J., Heintz, J., Mack, C., Glass, L., Cross, A., & Sun, J. (2023). **Evidence-driven spatiotemporal COVID-19 hospitalization prediction with Ising dynamics.** Nature communications, 14(1), 3093. https://doi.org/10.1038/s41467-023-38756-3

40. Serghiou, S., & Rough, K. (2023). **Deep Learning for Epidemiologists: An introduction to neural networks.** American journal of epidemiology, kwad107. Advance online publication. https://doi.org/10.1093/aje/kwad107

41. Luo H, Lau WCY, Chai Y, Torre CO, Howard R, Liu KY, et al. **Rates of Antipsychotic Drug Prescribing Among People Living with Dementia During the COVID-19 Pandemic.** AMA Psychiatry. 2023 Mar 1;80(3):211-219. https://pubmed.ncbi.nlm.nih.gov/36696128/

42. Suhan Cui, Guanhao Wei, Li Zhou, Emily Zhao, Ting Wang, and Fenglong Ma. **Predicting line of therapy transition via similar patient augmentation.** Journal of Biomedical Informatics. 9 Oct (2023): 104511 https://doi.org/10.1016/j.jbi.2023.104511

43. Lewis A, Gupta A, Oh I, Schindler SE, et al. **Association Between Socioeconomic Factors, Race, and Use of a Specialty Memory Clinic.** Neurology. 2023 Oct 3;101(14):e1424-e1433

44. Parikh RV, Go AS, Bhatt AS, Tan TC, et al. **Developing Clinical Risk Prediction Models for Worsening Heart Failure Events and Death by Left Ventricular Ejection Fraction.** J Am Heart Assoc. 2023 Oct 3;12(19):e029736

45. Schneider CV, Li T, Zhang D, Mezina AI, et al. **Large-scale identification of undiagnosed hepatic steatosis using natural language processing.** EClinicalMedicine. 2023 Aug 9;62:102149.

46. Riley-Gillis B, Tsaih SW, King E, Wollenhaupt S, et al. **Machine learning reveals genetic modifiers of the immune microenvironment of cancer**. iScience. 2023 Aug 9;26(9):107576.

47. Ambrosy AP, Go AS, Leong TK, Garcia EA, et al. **Temporal trends in the prevalence and severity of aortic stenosis within a contemporary and diverse community-based cohort.** Int J Cardiol. 2023 Aug 1;384:107-111.

48. Roth GA, Vora B, Kim C, Wu M, Kuruvilla D. **Prevalence and utility of pharmacokinetic data in preclinical studies of mRNA cancer vaccines**. Clin Transl Sci. 2023 Sep;16(9):1554-1558. doi: 10.1111/cts.13586

49. Vishwaraj Doshi, Jie Hu, Do Young Eun, **Self-Repellent Random Walks on General Graphs – Achieving Minimal Sampling Variance via Nonlinear Markov Chains, International Conference on Machine Learning (ICML)**, July 2023.

50. Li, Quan, Lingwei Chen, Yong Cai, and Dinghao Wu. **"Hierarchical Graph Neural Network for Patient Treatment Preference Prediction with External Knowledge."** In Pacific-Asia Conference on Knowledge Discovery and Data Mining, 204–15. Springer, 2023.

Conferences

PMSA

51. Ruoxin Li, Karl Svensson, Lihua Tan, Rowan D'Annibale, Paige Desmarais, **Finding Hidden Referrers for Infusion Products by Leveraging Machine Learning**, Podium Presentation at PMSA 2023 Annual Conference

52. Ruoxin Li, Yujie Sun, Yunlong Wang**, Identifying Lookalike Healthcare Providers by Looking – Using Computer Vision Techniques to Find Next Best Targets,** Poster Presentation at PMSA 2023 Annual Conference

53. Tong Wu, Mateusz Buda, Mukesh Mithrakumar, Yunlong Wang, Srikanth Sankaran Iyer, Tanveer Ahmed Nasir**, "Leveraging Language Model for Next Best Action in Promotion Campaigns to Augment HCP Engagement",** 2023 PMSA Annual Conference, May 2023

54. Mack C, Sun J, Wang Z, Gao C, Rough K, Glass L. **Machine Learning and Artificial Intelligence for Clinical Trial Optimization: A Review of Opportunities to Leverage Real World Data [abstract].** In: ISPOR 2023; 2023 May 7-10; Boston, MA, USA.

55. Shankar R, Poole L, Halmos T, Dn V, Sen S, Rough K, Mack C. **Using AI to Support Evidence & Market Access Strategy Development [presentation].** In: ISPOR 2023; 2023 May 7-10; Boston, MA, USA.

56. Wenbo Zhang, Tong Wu, Yunlong Wang, Yong Cai, and Hengrui Cai, **"Towards Trustworthy Explanation: On Causal Rationalization",** 40th International Conference on Machine Learning (ICML), 2023

57. Hui Jin, **Rare Disease Detection Solution Empowered by AI/ML**, The 12th China Rare Disease Summit

58. Anna Teschemaker,1 Shweta Hakre, et al. 1Global Medical Affairs, AstraZeneca Pharmaceuticals, Gaithersburg, MD, USA; 2US Medical Affairs, AstraZeneca Pharmaceuticals, Gaithersburg, MD, USA; 3IQVIA, Durham, NC, USA. **Real-World Duration of Venetoclax Treatment for Chronic Lymphocytic Leukemia and Small Lymphocytic Lymphoma.**

59. Hui Jin, **ChatGPT empowered Hemophilia Nuring**, 2023 WFH-HTCCNC

60. Hui Jin, **Generative AI empowerd innovation in healthcare in China**, 2023 IQVIA CAF Conference.

61. Sees A, Harder B, Lee S, Ali R, et al. **Early identification of patients at risk for Type-2 diabetes using machine learning models [Poster].** In: 39th ICPE; 2023 August 23-27; Halifax, Nova Scotia, Canada.

62. Mack CD, Rough K, Teltsch D, Dickonson H, Strauss V. **Deep Learning for Pharmacoepidemiologists: An Accessible Introduction to Neural Networks [Workshop].** In: 39th ICPE; 2023 August 23-27; Halifax, Nova Scotia, Canada.

63. Wenli Sun, Yong Cai, **A Dynamic Panel Binary Data Model for Personalized Patient Engagement Prediction International Society for Pharmacoeconomics and Outcomes Research (ISPOR),** May 2023

64. Wenzhe Lu, Rory Martin, **Benchmarking the Impact of IDNs on Brand Utilization by Therapeutic Areas**, 2023 PMSA Annual Conference, May 2023.

Articles (continued)

65. Biswal D, Arbuckle L, **Will ChatGPT Put Data Sharing at Risk, Privacy Analytics**. 2023. https://privacy-analytics.com/resources/articles/will-chatgpt-put-data-sharing-at-risk/

66. Hui Jin, Yue Wang, Siyi Yu, Chuchu Liu, Daozhou Yao, Suge Wang, COVID-19 **Tracking for VOC, drug, and vaccine.**

67. Hui Jin, Yue Wang, Tu Tu, Yubo He, Bingzhen Wu, et al. **ChatGPT application discussion in healthcare**

Whitepaper

68. Milligan P, Feng H, Rough K, et al. **Navigating new large language models in healthcare NLP. IQVIA White Paper.** 2023 August 23. Available at: https://www.iqvia.com/-/media/iqvia/pdfs/library/white-papers/navigating-new-large-language-models-in-healthcare-nlp.pdf

2022

Peer Reviewed Articles

69. Fu, Tianfan, Kexin Huang, Cao Xiao, Lucas M. Glass, and Jimeng Sun. **HINT: Hierarchical interaction network for clinical-trial-outcome predictions.** *Patterns* 3, no. 4 (2022): 100445.

70. Ambrosy AP, Parikh RV, Sung SH, Tan TC, Narayanan A, et al. **Analysis of Worsening Heart Failure Events in an Integrated Health Care System.** J Am Coll Cardiol. 2022 Jul 12;80(2):111-122

71. Bamford, S., Lyons, S., Arbuckle, L., & Chetelat, P. **Sharing Anonymized and Functionally Effective (SAFE) Data Standard for Safely Sharing Rich Clinical Trial Data.** Applied Clinical Trials (2022).

72. Rishi Parikh, Thida Tan, Ajit Mahapatra, Weijia Wang, Robert Perkins, Alan Go. **Population-Based Identification of Biopsy Proven IGA Nephropathy using Natural Language Processing: The Knight Study.** Nephrology Dialysis Transplantation, Volume 37, Issue Supplement_3, May 2022, gfac105.001, https://doi.org/10.1093/ndt/gfac105.001

73. Hom J, Nikowitz J, Ottesen R, Niland JC. **Facilitating clinical research through automation: Combining optical character recognition with natural language processing.** Clin Trials.

2022 May 24:17407745221093621. doi: 10.1177/17407745221093621. Online ahead of print. PMID: 35608136

74. Soora Wi, Patricia E. Goldhoff, Laurie A. Fuller, Kiranjit Grewal, et al; **Using Natural Language Processing to Improve Discrete Data Capture From Interpretive Cervical Biopsy Diagnoses at a Large Health Care Organization.** Arch Pathol Lab Med 2022; doi: https://doi.org/10.5858/arpa.2021-0410-OA

75. Solomon BJ, Loong HH, Summers Y, Thomas ZM, French P, et al. **Correlation between treatment effects on response rate and progression-free survival and overall survival in trials of targeted therapies in molecularly enriched populations.** ESMO Open. 2022 Feb 15;7(2):100398. doi: 10.1016/j.esmoop.2022.100398. Epub ahead of print. PMID: 35183043.

76. A Witzmann, E Batanova, L Queiros, S Abogunrin. **Ontology-Based Text Mining in Scientific Literature. Value in Health.** Volume 25, Issue 1, Supplement, S202

77. King, L. M., Kusnetsov, M., Filippoupolitis, A., Arik, D., Bartoces, et al. (2022) **Using machine learning to examine drivers of inappropriate outpatient antibiotic prescribing in acute respiratory illnesses**, Infection Control & Hospital Epidemiology. Cambridge University Press, pp. 1–5. doi: 10.1017/ice.2021.476.

78. Hu, Lining, Yuhang Zhang, Yang Zhao, Tong Wu, and Yongfu Li. **"Micro-YOLO+: Searching Optimal Methods for Compressing Object Detection Model Based on Speed, Size, Cost, and Accuracy."** SN Computer Science 3, no. 5 (2022): 1-8.

79. Jie Hu, Vishwaraj Doshi and Do Young Eun, **"Efficiency Ordering of Stochastic Gradient Descent"**. Advances in Neural Information Processing 35, NeurIPS, 2022

80. Lazzarini, N., Filippoupolitis, A., Manzione, P. and Eleftherohorinou, H., 2022. **A machine learning model on Real World Data for predicting progression to acute respiratory distress syndrome (ARDS) among COVID-19 patients.** PLoS One, 17(7), p.e0271227. https://doi.org/10.1371/journal.pone.0271227

81. Schöler D., Kostev K., Peters M., Zamfir C., Wolk A., Roderburg C., Loosen S.H., **Machine learning can predict the probability of biologic therapy in patients with inflammatory bowel disease,** Journal of Clinical Medicine.

82. Junyi Gao, Cao Xiao, Lucas M. Glass, Jimeng Sun. **PopNet: Real-Time Population-Level Disease Prediction with Data Latency.** arXiv:2202.03415 (2022).

83. Chaoqi Yang, Cheng Qian, Jimeng Sun. **GOCPT: Generalized Online Canonical Polyadic Tensor Factorization and Completion.** arXiv:2205.03749 (2022).

84. Zifeng Wang, Chufan Gao, Lucas M. Glass, Jimeng Sun. **Artificial Intelligence for In Silico Clinical Trials: A Review.** arXiv:2209.09023 (2022).

85. Zhenbang Wu, Huaxiu Yao, Zhe Su, David M Liebovitz, Lucas M Glass, et al. **Knowledge-Driven New Drug Recommendation**. arXiv:2210.05572 (2022).

86. Gray SW, Ottesen RA, Currey M, Cristea M, Nikowitz J, et al. **Leveraging an Informatics Approach to Identify an Unmet Clinical Need for BRCA1/2 Testing Among Patients With Ovarian Cancer.** JCO Clin Cancer Inform. 2022 Sep;6:e2200034.

87. Christina Scott, Andrew Dodson, Muriel Saulnier, Kevin Snyder, Rebecca Racz, **Analysis of secondary pharmacology assays received by the US Food and Drug Administration**, J Pharmacol Toxicol Methods. 2022 Aug 1; https://doi.org/10.1016/j.vascn.2022.107205.

88. Catherine E. Barrett, PhD; Alain K. Koyama, ScD; Pablo Alvarez, MPH; Wilson Chow; Elizabeth A. Lundeen, PhD; et al. **Risk for Newly Diagnosed Diabetes >30 Days After SARS-CoV-2 Infection Among Persons Aged <18 years - United States**, March 1, 2020–June 28, 2021, January 2022 - Morbidity and Mortality Weekly Report (MMWR), https://www.cdc.gov/mmwr/volumes/71/wr/mm7102e2.htm

89. Cheheltani R, King N, Lee S, North B, Kovarik D, Evans-Molina C, Leavitt N, Dutta S. **Predicting misdiagnosed adult-onset type 1 diabetes using machine learning. Diabetes Research and Clinical Practice.** 2022 Sep 1;191:110029.

90. Yasar O, Long P, Harder B, Marshall H, Bhasin S, Lee S, et al. **Machine learning using longitudinal prescription and medical claims for the detection of non-alcoholic steatohepatitis (NASH).** BMJ Health & Care Informatics. 2022;29(1).

91. Zhu VJ, Lenert LA, Barth KS, Simpson KN, Li H, Kopscik M, Brady KT. **Automatically identifying opioid use disorder in non-cancer patients on chronic opioid therapy.** Health Informatics J. 2022 Apr-Jun;28(2):14604582221107808.

92. Alsheikh AJ, Wollenhaupt S, King EA, Reeb J, Ghosh S, Stolzenburg LR, Tamim S, Lazar J, Davis JW, Jacob HJ**. The landscape of GWAS validation; systematic review identifying 309 validated non-coding variants across 130 human diseases**. BMC Med Genomics. 2022 Apr 1;15(1):74.

93. Han Y, Klinger K, Rajpal DK, Zhu C, Teeple E. **Empowering the discovery of novel target-disease associations via machine learning approaches in the open targets platform. BMC Bioinformatics**. 2022 Jun 16;23(1):232.

94. Zaritsky E, Le A, Tucker LY, Ojo A, Weintraub MR, Raine-Bennett T. **Minimally invasive myomectomy: practice trends and differences between Black and non-Black women within a large integrated healthcare system**. Am J Obstet Gynecol. 2022 Jun;226(6):826.e1-826.e11.

95. Jamieson MJ, Byon W, Dettloff RW, Crawford M, Gargalovic PS, et al. **Apixaban Use in Obese Patients: A Review of the Pharmacokinetic, Interventional, and Observational Study Data.** Am J Cardiovasc Drugs. 2022 Nov;22(6):615-631.

96. Bottomly D, Long N, Schultz AR, Kurtz SE, Tognon CE, Johnson K, et al. **Integrative analysis of drug response and clinical outcome in acute myeloid leukemia. Cancer Cell.** 2022 Aug 8;40(8):850-864.e9.

97. Zheng C, Duffy J, Liu IA, Sy LS, Navarro RA, Kim SS, et al. **Identifying Cases of Shoulder Injury Related to Vaccine Administration (SIRVA) in the United States: Development and Validation of a Natural Language Processing Method. JMIR Public Health Surveill.** 2022 May 24;8(5):e30426.

98. Feigelson HS, Clarke CL, Van Den Eeden SK, Weinmann S, Burnett-Hartman AN, et al. **The Kaiser Permanente Research Bank Cancer Cohort: a collaborative resource to improve cancer care and survivorship. BMC Cancer.** 2022 Feb 25;22(1):209.

99. **JCO Clin Cancer Inform**. 2022 Sep;6:e2200034.

100. "Christina Scott, Andrew Dodson, Muriel Saulnier, Kevin Snyder, Rebecca Racz, **Analysis of secondary pharmacology assays received by the US Food and Drug Administration, J Pharmacol Toxicol Methods.** 2022 Aug 1; https://doi.org/10.1016/j.vascn.2022.107205."

101. **"Analysis of Worsening Heart Failure Events in an Integrated Health Care System**. Ambrosy AP, Parikh RV, Sung SH, Tan TC, Narayanan A, et al. 2022 Jul 12;80(2):111-122"

102. **"Facilitating clinical research through automation: Combining optical character recognition with natural language processing.** Hom J, Nikowitz J, Ottesen R, Niland JC. Clin Trials. 2022 May 24:17407745221093621. doi: 10.1177/17407745221093621. Online ahead of print. PMID: 35608136"

103. **"Population-Based Identification of Biopsy Proven IGA Nephropathy using Natural Language Processing:** The Knight Study Rishi Parikh, Thida Tan, Ajit Mahapatra, Weijia Wang, Robert Perkins, Alan Go Nephrology Dialysis Transplantation, Volume 37, Issue Supplement_3, May 2022, gfac105.001, https://doi.org/10.1093/ndt/gfac105.001"

104. Soora Wi, Patricia E. Goldhoff, Laurie A. Fuller, Kiranjit Grewal, Nicolas Wentzensen, Megan A. Clarke, Thomas S. Lorey; **Using Natural Language Processing to Improve Discrete Data Capture From Interpretive Cervical Biopsy Diagnoses at a Large Health Care Organization.** Arch Pathol Lab Med 2022; doi: https://doi.org/10.5858/arpa.2021-0410-OA

105. Solomon BJ, Loong HH, Summers Y, Thomas ZM, French P, Lin BK, Sashegyi A, Wolf J, Yang JC, Drilon A. **Correlation between treatment effects on response rate and progression-free survival and overall survival in trials of targeted therapies in molecularly enriched populations.** ESMO Open. 2022 Feb 15;7(2):100398. doi: 10.1016/j.esmoop.2022.100398. Epub ahead of print. PMID: 35183043.

106. A Witzmann, E Batanova, L Queiros, S Abogunrin. **Ontology-Based Text Mining in Scientific Literature. Value in Health.** VOLUME 25, ISSUE 1, SUPPLEMENT , S202,

107. Li X, Burn E, Duarte-Salles T, Yin C, Reich C, Delmestri A et al. **Comparative risk of thrombosis with thrombocytopenia syndrome or thromboembolic events associated with different covid-19 vaccines: international network cohort study from five European countries and the US** BMJ 2022; 379 :e071594 doi:10.1136/bmj-2022-071594

108. Lau WCY, Torre CO, Man KKC, Stewart HM, Seager S, Van Zandt M, et al. **Comparative Effectiveness and Safety Between Apixaban, Dabigatran, Edoxaban, and Rivaroxaban Among Patients With Atrial Fibrillation : A Multinational Population-Based Cohort Study**. Ann Intern Med. 2022 Nov;175(11):1515-1524. doi: 10.7326/M22-0511. Epub 2022 Nov 1. Erratum in: Ann Intern Med. 2022 Dec 6;: PMID: 36315950.

Conferences

AAAI

109. Lin, Zhen, Lucas Glass, M. Brandon Westover, Cao Xiao, and Jimeng Sun. **SCRIB: set-classifier with class-specific risk bounds for blackbox models.** Thirty-Sixth AAAI Conference on Artificial Intelligence, vol. 36, no. 7, pp. 7497-7505, 2022.

ACM

110. Gao, Junyi, Cao Xiao, Lucas M. Glass, and Jimeng Sun. **PopNet: Real-Time Population-Level Disease Prediction with Data Latency.** In Proceedings of the ACM Web Conference 2022, pp. 2552-2562. 2022.

ISPOR

111. Tu T, Chen L, Wang Y, Jin H, He W. **Multi-Task Learning in Click-through-Probability (Multi-CTP) Prediction for Real-World Digital Content Recommendation.** ISPOR 2022, Virtual conference, May 2022

112. Rebollo P, Wolk A, Luczko M, Tang JP, **Development of a Machine Learning predictive model for stroke among patients with non-valvular atrial fibrillation receiving oral anticoagulant treatment,** ISPOR 2022.

113. Rathore A, Anastassopoulou A, Parhofer KG, Becker C, Zamfir C, Calver H, Dave R, **Machine Learning for Clustering Dyslipidemia Patients with Statin Intolerance in Germany,** ISPOR 2022.

114. Yuri Sakai, Takanori Ishii, Seok-Won Kim, Satoshi Murayama, Asahi, Lee Hirofumi, Shi Wen, Shujiro **Takeno Prevalence of depression in Japan and the US Populations before and during the covid 19 pandemic: A retrospective observational study using real world data** November 2022 – ISPOR Europe *https://www.ispor.org/heor-resources/presentations-database/presentation/euro2022-3564/119994*

115. Cook J, Mattern F, Schnauffer D, Wiest T, Gallinger P. **Implementation and application of the physician information system (arztinformationssystem, ais) in Germany**, November 2022 – ISPOR Europe https://www.ispor.org/heor-resources/presentations-database/presentation/euro2022-3565/119130

116. Tu T, Chen L, Wang Y, Jin H, He W. **Multi-Task Learning in Click-through-Probability (Multi-CTP) Prediction for Real-World Digital Content Recommendation.** ISPOR 2022, Virtual conference, May 2022

117. Wenli Sun, Yong Cai, Yanping liu, **Comparisons of Encoding Techniques for Categorical Features in Linear Regression Models**, 2022 ISPOR Annual Conference, May 2022.

PMSA

118. John Eichert, D. Bruce West, Guanhao Wei, Li Zhou, Lynn Lu. **AIML Powered Thought Leader Networks for Identifying HCP Relationships and Boosting Market Performance**. 2022 PMSA Annual Conference, May 2022

119. Guanhao Wei, Marc Romano, Li Zhou, Lynn Lu, Yunlong Wang. **Innovative Dynamic Graph Network based Deep Learning Algorithms to Enhance Rare Disease Detection and Patient Feature Interaction Analysis.** 2022 PMSA Annual Conference, May 2022

120. Yong Cai, Wei Huang, Wenzhe Lu, Ruoxin Li, and Yanping Liu. **Benchmarking Performance of Various Promotional Channels by Brand, Lifecycle, and COVID, 2022 PMSA Annual Conference, May 2022**

121. Tong Wu, Yunlong Wang, Yoder Shawn, Yingli Yuan, **Multi-Indication Analytics from Longitudinal Prescription Data using Bayesian Two-Step Ensemble Model**, 2022 PMSA Annual Conference, May 2022

122. Ruoxin Li, Robert Kelly, Lihua Tan, **Deciphering Standing Orders - Attributing Prescriptions to Influencers via Machine Learning, 2022 PMSA Annual Conference**, May 2022

ASCO

123. Guanhao Wei, Li Zhou, Lynn Lu, **Marc Romano. Sequential EHR-based dynamic graph network for multiple myeloma detection and feature interaction investigation**. (2022): e13591-e13591, 2022 ASCO Annual Meeting

IJCAI

124. Yang, Chaoqi, Cheng Qian, and Jimeng Sun. **GOCPT: Generalized Online Canonical Polyadic Tensor Factorization and Completion.** IJCAI, (2022).

PKDD

125. Jiaqi Wang, Cheng Qian, Suhan Cui, Lucas Glass, and Fenglong Ma, **Towards Federated COVID-19 Vaccine Side Effect Prediction**, PKDD, 2022

Conferences (continued)

126. Hui Jin; **Digital Transformation and Innovative Practice in China Healthcare Market**, Boehringer-Ingelheim BIX Open Day, Shanghai, Mar 2022

127. Ruoxin Li, Robert Kelly, Lihua Tan, **Deciphering Standing Orders - Attributing Prescriptions to Influencers via Machine Learning**, 2022 PMSA Annual Conference, May 2022

128. John Eichert, D. Bruce West, Guanhao Wei, Li Zhou, Lynn Lu. **AIML Powered Thought Leader Networks for Identifying HCP Relationships and Boosting Market Performance**. 2022 PMSA Annual Conference, May 2022

129. Guanhao Wei, Marc Romano, Li Zhou, Lynn Lu, Yunlong Wang. **Innovative Dynamic Graph Network based Deep Learning Algorithms to Enhance Rare Disease Detection and Patient Feature Interaction Analysis.** 2022 PMSA Annual Conference, May 2022

130. Hui Jin; **AI/ML application in Omni-Channel Engagement in China Pharma Market**, IQVIA TechIQ Forum, Shanghai, Sep 2022

131. Guanhao Wei, Li Zhou, Lynn Lu, Marc Romano. **Sequential EHR-based dynamic graph network for multiple myeloma detection and feature interaction investigation.** (2022): e13591-e13591, 2022 ASCO Annual Meeting

132. Lucas Glass. **Using Real World Data and AI/ML for Clinical Trial Site Matching.** Summit for Clinical Ops Executives (2022).

133. Pedro Manzione. **AI for Drug Repurposing**. Artificial Intelligence in Pharma Online Conference (2022)

134. Pedro Manzione. **AI for Drug Repurposing**. 3rd Annual Pharma AI Summit (2022).

135. Lucas Glass. **Using Real-World data and AI/ML for Clinical Trial Site Matching to Simultaneously Improve Enrollment Rate and Diversity**. DIA Global Annual Meeting (2022).

136. Johanna Karbe. **Using Machine Learning to Investigate Physician Potential in Clinical Trials in Germany — A case study of 5 pathology indications**. 2nd Edition Digital Pathology & AI Conference (2022).

137. Vishwaraj Doshi, Jie Hu and Do Young Eun, "**Bi-SIS Epidemics on Graphs – Quantitative Analysis of Coexistence Equilibria**". 2022 61st IEEE Conference on Decision and Control (CDC), IEEE, 2022.

138. Wenbo Zhang, Tong Wu, Yunlong Wang, Yong Cai, and Hengrui Cai, "**On Causal Rationalization**", In 36th Conference on Neural Information Processing Systems (NeurIPS), Causality for Real-World Impact Workshop (CML4Impact), 2022

139. Luning Bi, Yunlong Wang, Fan Zhang, Yong Cai, and Emily Zhao, "**FD-GATDR: A Federated-Decentralized-Learning Graph Attention Network for Doctor Recommendation Using EHR**", Workshop on Data Science and Artificial Intelligence for Responsible Recommendations, 28th ACM SIGKDD conference on knowledge discovery & data mining (KDD), 2022.

140. Lockwood Taylor, Ruben Herman, Bernadette Dwan, Priscilla Velentgas, Elizabeth Powers, **A systematic process using robust signal detection and Contextualization methods in treescan® and E360® to reduce false Positives in routine pharmacovigilance**, August 2022 – ISPE Europe, https://www.eventscribe.net/2022/ICPE/PosterTitles.asp?pfp=BrowsebyTitle

141. Daniel B. Jernigan, MD, MPH, CDC's Data Modernization Initiative... Changing the Way We Work May 2022 - NCHS Board of Scientific Counselors, https://www.cdc.gov/nchs/data/bsc/bsc-pres-dan-jernigan-5-26-2022.pdf

142. Hui Jin; **Digital Transformation and Innovative Practice in China Healthcare Market**, Boehringer-Ingelheim BIX Open Day, Shanghai, Mar 2022

Articles (continued)

143. Qian, Cheng, Kejun Huang, Lucas Glass, Rakshith S. Srinivasa, and Jimeng Sun. **JULIA: Joint Multi-linear and Nonlinear Identification for Tensor Completion**. arXiv preprint arXiv:2202.00071 (2022).

144. Srinivasa, Rakshith S., Cheng Qian, Brandon Theodorou, Jeffrey Spaeder, Cao Xiao, Lucas Glass, and Jimeng Sun. **Clinical trial site matching with improved diversity using fair policy learning**. arXiv preprint arXiv:2204.06501 (2022).

145. Wu, Zhenbang, Cao Xiao, Lucas M. Glass, David M. Liebovitz, and Jimeng Sun. **AutoMap: Automatic Medical Code Mapping for Clinical Prediction Model Deployment.** arXiv preprint arXiv:2203.02446 (2022).

146. Yang, Chaoqi, Cheng Qian, Navjot Singh, Cao Xiao, M. Brandon Westover, Edgar Solomonik, and Jimeng Sun. **Augmented Tensor Decomposition with Stochastic Optimization.** arXiv preprint arXiv:2106.07900 (2021).

147. Hui Jin, Hanyu Gao, Suge Wang. **Key Social Advocate insight report for social media platform in China**

Whitepapers

148. Megan He, Hui Jin, Yue Wang, Fan Yang. **Artificial Intelligence and Machine Learning Empowers Healthcare in China: an Algorithm-Driven Approach.** IQVIA White Paper, Oct 2022

149. Arbuckle L, Collins J. **Advancing Privacy-Enhancing Technologies - Safe Data Enablement for Health Services & Research through Privacy-Enhancing Data Sharing and Analytics: A Spectrum of Perspectives** [Internet]. Ottawa, Canada: Privacy Analytics (an IQVIA company); 2022. Available from: https://privacy-analytics.com/resources/white-papers/advancing-privacy-enhancing-technologies/

150. Megan He, Hui Jin, Fan Yang, Yue Wang, Siyi Yu, Suge Wang, Yanxin Yang, Chenxi Yang, Hanyu Gao. **AIML Empowered Healthcare in China-an Algorithm based Approach.** IQVIA Whitepaper

Placed Media

151. Lucas Glass. **Interview. Artificial Intelligence could Benefit all Aspects of Clinical Trials: IQVIA.** Outsourcing Pharma, 4 January 2022, https://www.outsourcing-pharma.com/Article/2022/01/04/Artificial-intelligence-could-benefit-all-aspects-of-trials

152. Lucas Glass. **Machine Learning-based Predictive Modeling: Notable Uses in Clinical Trials.** 2 February 2022, https://www.contractpharma.com/contents/view_online-exclusives/2022-02-11/machine-learning-based-predictive-modeling-notable-uses-in-clinical-trials/

153. Lucas Glass**. Using AI to Match Patients with Clinical Trials for Proactive Treatment.** HIT Consultant. 22 August 2022, https://hitconsultant.net/2022/08/22/ai-clinical-trials-proactive-treatment/

2021

Peer Reviewed Articles

154. Tong Wu, Yunlong Wang, Yue Wang, Emily Zhao, and Yilian Yuan. **Leveraging graph-based hierarchical medical entity embedding for healthcare applications.** *Scientific Reports* 11, no. 1 (2021): 1-13.

155. Cassandra Nan , phd,Olaf Schmidt , md,Robert Lindner , phd,Yasemin Ilgin , et al.; **German regional variation of acute and high oral corticosteroid use for asthma**; Jan 2021; Journal of Asthma; https://www.tandfonline.com/doi/full/10.1080/02770903.2021.1878532

156. Nestsiarovich A, Reps JM, Matheny ME et al. **Predictors of diagnostic transition from major depressive disorder to bipolar disorder: a retrospective observational network study.** Transl Psychiatry 11, 642 (2021). https://doi.org/10.1038/s41398-021-01760-6

157. Belenkaya R, Gurkey M, Golozar A, Dymshyts D, Miller R, Williams A, et al. (2021). **Extending the OMOP Common Data Model and Standardized Vocabularies to Support Observational Cancer Research.** JCO Clinical Cancer Informatics 2021 :5, 12-20. 10.1200/CCI.20.00079. https://ascopubs.org/doi/10.1200/CCI.20.00079

158. Reps JM, Kim C, Williams RD, Markus AF, Yang C, Salles TD, Falconer T, et. al. **Can we trust the prediction model? Illustrating the importance of external validation by implementing the COVID-19 Vulnerability (C-19) Index across an international network of observational healthcare datasets.** JMIR Med Inform. 2021 Feb 27. doi: 10.2196/21547. Epub ahead of print. PMID: 33661754. https://pubmed.ncbi.nlm.nih.gov/33661754/

159. Junyi Gao, Rakshith Sharma, Cheng Qian, Lucas M. Glass, Jeffrey Spaeder, Justin Romberg, Jimeng Sun, and Cao Xiao, **STAN: Spatio-Temporal Attention Network for Pandemic Prediction Using Real-World Evidence**, Journal of the American Medical Informatics Association (JAMIA), 2021

160. Tianfan Fu, Cao Xiao, Lucas M. Glass, Jimeng Sun, **MOLER: Incorporate Molecule-Level Reward to Enhance Deep Generative Model for Molecule Optimization**, IEEE Transactions on Knowledge and Data Engineering (TKDE), 2021

161. Belda, J.I., Dabán, J.P., Elvira, J.C. et al. **Nd:YAG capsulotomy incidence associated with five different single-piece monofocal intraocular lenses: a 3-year Spanish real-world evidence study of 8293 eyes.** Eye (2021). https://doi.org/10.1038/s41433-021-01828-z

162. Ambrosy AP, Parikh RV, Sung SH, et al. **A Natural Language Processing–Based Approach for Identifying Hospitalizations for Worsening Heart Failure Within an Integrated Health Care Delivery System.** JAMA Netw Open. 2021;4(11):e2135152. doi:10.1001/jamanetworkopen.2021.35152

163. Staunton, Hannah et al. **A Patient-Centered Conceptual Model of Symptoms and Their Impact in Early Parkinson's Disease: A Qualitative Study**. 1 Jan. 2021 : 1 – 15.

164. Madhamsetty Charitha, Nagaraj G Cholli (2021). **Big Data Analysis and Management in Healthcare.** Special Issue of Second International Conference on Advances in Science Hub (ICASH 2021). Volume 03 Issue 07S July 2021

165. Parikh R, Ambrosy A, HeeSung S, Narayanan A, Masson R, Lam P-Q, et al. (2021). **The use of Natural Language Processing-based algorithms and outpatient clinical encounters for worsening heart failure: Insights from the Utilize-WHF Study.** J Am Coll Cardiol. 2021 May, 77 (18_Supplement_1) 674

166. Schotland, P., Racz, R., Jackson, D.B., Soldatos, T.G., Levin, R., Strauss, D.G. and Burkhart, K. (2021). **Target Adverse Event Profiles for Predictive Safety in the Postmarket Setting.** Clin. Pharmacol. Ther., 109: 1232-1243. https://doi.org/10.1002/cpt.2074

167. Kitani T, Maddipatla SC, Madupuri R, Greco C, Hartmann J, Baraniuk JN, Vasudevan S (2021). **In Search of Newer Targets for Inflammatory Bowel Disease: A Systems and a Network Medicine Approach.** Network and Systems Medicine.Mar 2021.74-87.

168. Trautman A, Linchangco R, Walstead R, Jay JJ, Brouwer C. (2021) **The Aliment to Bodily Condition knowledgebase (ABCkb): A database connecting plants and human health.** bioRxiv 2021.03.20.436160

169. Matthew D. Solomon, Grace Tabada, Amanda Allen, Sue Hee Sung, Alan S. Go. **Large-scale identification of aortic stenosis and its severity using natural language processing on electronic health records**, Cardiovascular Digital Health Journal, 2021, ISSN 2666-6936, https://doi.org/10.1016/j.cvdhj.2021.03.003.

170. Liu VX, Bhimarao M, Greene JD, et al. **The Presentation, Pace, and Profile of Infection and Sepsis Patients Hospitalized Through the Emergency Department: An Exploratory Analysis**. Crit Care Explor. 2021;3(3):e0344. Published 2021 Feb 24. doi:10.1097/CCE.0000000000000344

171. Karel Kostev, Tong Wu, Yue Wang, Kal Chaudhuri, Christian Tanislav, **Predicting the risk of stroke in patients with late-onset epilepsy: A machine learning approach**, Epilepsy & Behavior, July 2021

172. Karel Kostev, Tong Wu, Yue Wang, Kal Chaudhuri, Russel Reeve, Christian Tanislav, **Predicting the Risk of Ischemic Stroke in Patients Treated with Novel Oral Anticoagulants: A Machine Learning Approach**, Neuroepidemiology, July 2021

173. Feng, Guanchao, Kezi Yu, Yunlong Wang, Yilian Yuan, and Petar M. Djuric. **"Exploiting Causality for Improved Prediction of Patient Volumes by Gaussian Processes."** IEEE Journal of Biomedical and Health Informatics, 2021.

174. Xueli Xiao, Guanhao Wei, Li Zhou, Yi Pan, Huan Jing, Emily Zhao, and Yilian Yuan. **Treatment initiation prediction by EHR mapped PPD tensor based convolutional neural networks boosting algorithm**, Journal of Biomedical Informatics 120 (2021): 103840.

175. Yue Zhao, Zhi Qiao, Cao Xiao, Lucas Glass, Jimeng Sun. **PyHealth: A Python Library for Health Predictive Models.** arXiv:2101.04209 (2021).

176. Tianfan Fu, Kexin Huang, Cao Xiao, Lucas M. Glass, Jimeng Sun. **HINT: Hierarchical Interaction Network for Trial Outcome Prediction Leveraging Web Data**. arXiv:2102.04252 (2021).

177. Zhen Lin, Cao Xiao, Lucas Glass, M. Brandon Westover, Jimeng Sun. **SCRIB: Set-classifier with Class-specific Risk Bounds for Blackbox Models.** arXiv:2103.03945 (2021).

178. Kexin Huang, Cao Xiao, Lucas M Glass, Jimeng Sun. MolTrans: **Molecular Interaction Transformer for drug–target interaction prediction.** Bioinformatics, Volume 37, Issue 6, 15 March 2021, https://academic.oup.com/bioinformatics/article/37/6/830/5929692

179. Zhi Qiao, Austin Bae, Lucas M Glass, Cao Xiao, Jimeng Sun. **FLANNEL (Focal Loss bAsed Neural Network EnsembLe) for COVID-19 detection**. Journal of the American Medical Informatics Association, Volume 28, Issue 3, March 2021, Pages 444–452, https://doi.org/10.1093/jamia/ocaa280

180. Yue Yu, Kexin Huang, Chao Zhang, Lucas M Glass, Jimeng Sun, Cao Xiao**. SumGNN: multi-typed drug interaction prediction via efficient knowledge graph summarization.** Bioinformatics, Volume 37, Issue 18, 15 September 2021, Pages 2988–2995, https://doi.org/10.1093/bioinformatics/btab207

181. Kexin Huang, Cao Xiao, Lucas M. Glass, Cathy W. Critchlow, Greg Gibson, Jimeng Sun. **Machine Learning Applications for Therapeutic Tasks with Genomic Data.** Patterns, Volume 2, Issue 10, 100328, 9 October 2021, https://doi.org/10.1016/j.patter.2021.100328

182. Kohei Sazanami; Ryo Inose; Shujiro Takeno; Yuichi Muraki. **Association with the incidence of acute kidney injury between the combination therapy of piperacillin/tazobactam and vancomycin or teicoplanin: using spontaneous adverse drug reaction databases and large electronic health record database.** December 2021 - Biological and Pharmaceutical Bulletin. https://www.jstage.jst.go.jp/

183. Raymond J. King, Lyudmyla Kompaniyets, David S. Freedman, Alyson B. Goodman and Carrie Daymont. Division of Nutrition, Physical Activity and Obesity, Centers for Disease Control and Prevention. **The Relation of Adiposity Rebound to Subsequent BMI in a Large Electronic Health Record Database.** 08 January 2021 - Childhood Obesity Vol. 17, No. 1. https://www.liebertpub.com/doi/10.1089/chi.2020.0192

184. Karel Kostev, Tong Wu, Yue Wang, Kal Chaudhuri, Christian Tanislav, **Predicting the risk of stroke in patients with late-onset epilepsy:** A machine learning approach, Epilepsy & Behavior, July 2021

185. Karel Kostev, Tong Wu, Yue Wang, Kal Chaudhuri, Russel Reeve, Christian Tanislav, **Predicting the Risk of Ischemic Stroke in Patients Treated with Novel Oral Anticoagulants**: A Machine Learning Approach, Neuroepidemiology, July 2021

186. Tong Wu, Yunlong Wang, Yue Wang, Emily Zhao, Yilian Yuan. **Leveraging graph-based hierarchical medical entity embedding for healthcare applications, Scientific reports**, March 2021

187. Xueli Xiao, Guanhao Wei, Li Zhou, Yi Pan, Huan Jing, Emily Zhao, and Yilian Yuan. **Treatment initiation prediction by EHR mapped PPD tensor based convolutional neural networks boosting algorithm**, Journal of Biomedical Informatics 120 (2021): 103840.

188. Feng, Guanchao, Kezi Yu, Yunlong Wang, Yilian Yuan, and Petar M. Djuric. "**Exploiting Causality for Improved Prediction of Patient Volumes by Gaussian Processes.**" IEEE Journal of Biomedical and Health Informatics, 2021.

Conferences

AAAI

189. Nikos Kargas, Cheng Qian, Nicholas Sidiropoulos, Cao Xiao, Lucas M. Glass, Jimeng Sun, **STELAR: Spatio-temporal Tensor Factorization with Latent Epidemiological Regularization**, Thirty-Fifth AAAI Conference on Artificial Intelligence (AAAI-21), 2021

190. Tianfan Fu, Cao Xiao, Xinhao Li, Lucas M. Glass, Jimeng Sun, **MIMOSA: Multi-constraint Molecule Sampling for Molecule Optimization**, Thirty-Fifth AAAI Conference on Artificial Intelligence (AAAI-21), 2021

191. Ardavan Afshar, Kejing Yin, Sherry Yan, Cheng Qian, Joyce Ho, Haesun Park, Jimeng Sun, **SWIFT: Scalable Wasserstein Factorization for Sparse Nonnegative Tensors**, Thirty-Fifth AAAI Conference on Artificial Intelligence (AAAI-21), 2021

192. Faisal M. Almutairi, Yunlong Wang, Dong Wang, Emily Zhao, and Nicholas D. Sidiropoulos. **eTREE: Learning Tree-structured Embeddings**. Thirty-fifth AAAI Conference on Artificial Intelligence (AAAI 2020), virtual conference, Feb. 2020.

193. Faisal M. Almutairi, Yunlong Wang, Dong Wang, Emily Zhao, & Nikolaos Sidiropoulos, **"eTREE: Learning Tree-structured Embeddings"**. In Proceedings of the AAAI Conference on Artificial Intelligence, Vol. 35, No. 8, pp. 6609-6617, (AAAI 2021)

BIBM

194. Tong Wu, Yue Wang, Yunlong Wang, Emily Zhao, Gao Wang, OA-MedSQL: **Order-Aware Medical Sequence Learning for Clinical Outcome Prediction**, 2021 IEEE International Conference on Bioinformatics and Biomedicine (BIBM), December 2021

195. Tong Wu, Yue Wang, Yunlong Wang, Emily Zhao, Gao Wang, OA-MedSQL: **Order-Aware Medical Sequence Learning for Clinical Outcome Prediction,** 2021 IEEE International Conference on Bioinformatics and Biomedicine (BIBM), December 2021

WWW

196. Chacha Chen, Junjie Liang, Fenglong Ma, Lucas Glass, Jimeng Sun and Cao Xiao, **UNITE: Uncertainty-based Health Risk Prediction Leveraging Multi-Sourced Data**, The World Wide Web Conference (WWW' 21)

197. Nghia Hoang, Shenda Hong, Cao Xiao, Bryan Low and Jimeng Sun, **AID: Active Distillation Machine to Leverage Pre-Trained Black-Box Models in Private Data Settings**, The World Wide Web Conference (WWW' 21)

198. Muchao Ye, Suhan Cui, Yaqing Wang, Junyu Luo, Cao Xiao and Fenglong Ma, **MedPath: Augmenting Health Risk Prediction via Medical Knowledge Paths**, The World Wide Web Conference (WWW' 21)

ASCO

199. Guanhao Wei, Li Zhou, Lynn L. Lu, and Robert G. Steen. **Advanced tumor progression detection by leveraging EHR based convolutional neural network boosting approaches**. (2021): e13581-e13581, 2021 ASCO Annual Meeting

Conferences (continued)

200. Pagani L., **EnSidNet: Enhanced Hybrid Siamese-Deep Network for grouping clinical trials into drug-development pathways,** Proceedings of the 2021 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies (NAACL '21)

201. Zhao, Y., Hu, X., Cheng, C., Wang, C., Wan, C., et al., 2021. **SUOD: Accelerating Large-Scale Unsupervised Heterogeneous Outlier Detection**. *Proceedings of Machine Learning and Systems*, *3*

202. Fu, T., Xiao, C., Qian, C., Glass, L.M. and Sun, J., 2021, August. **Probabilistic and Dynamic Molecule-Disease Interaction Modeling for Drug Discovery.** In *Proceedings of the 27th ACM SIGKDD Conference on Knowledge Discovery & Data Mining* (pp. 404-414).

203. Fu, T., Xiao, C., Huang, K., Glass, L.M. and Sun, J., 2021, August. **SPEAR: self-supervised post-training enhancer for molecule optimization.** In *Proceedings of the 12th ACM Conference on Bioinformatics, Computational Biology, and Health Informatics* (pp. 1-10).

204. Chen, C., Liang, J., Ma, F., Glass, L., Sun, J. and Xiao, C., 2021, April. **UNITE: Uncertainty-based Health Risk Prediction Leveraging Multi-Sourced Data**. In *Proceedings of the Web Conference 2021* (pp. 217-226).

205. Biswal D, Arbuckle L, Kulik R. **Disclosure Metrics Born from Statistical Evaluations of Data Utility**. In: *Proceedings of UNECE Work Session on Statistical Confidentiality* [Internet]. Poznań, Poland; 2021. Available from: https://unece.org/statistics/events/SDC2021

206. Guanhao Wei, Li Zhou, Lynn L. Lu, and Robert G. Steen. **Advanced tumor progression detection by leveraging EHR based convolutional neural network boosting approaches**. (2021): e13581-e13581, 2021 ASCO Annual Meeting

207. Sharath Bennur. **Using Decision Intelligence to Achieve Values from AI in R&D.** Summit for Clinical Ops Executives (2021).

208. Lucas Glass. **Using Machine Learning/Artificial Intelligence to Support Clinical Trials.** Metrics Champion Consortium (2021).

209. Pedro Manzione. **AI to interrogate IQVIA healthcare databases in order to answer pressing COVID-19 questions.** 2nd Pharma AI Summit (2021).

210. Jimeng Sun. **Machine Learning Applications for Therapeutic Tasks with Genomic Data.** 6th Annual Computational Drug Discovery & Development Summit (2021).

211. Lucas Glass. **Decision Intelligence: Realizing Value from Investing in Artificial Intelligence for R&D.** Proventa Virtual Boardroom (2021).

212. Lucas Glass. **Applying AI to Select the Best Sites while Maximizing Patient Diversity and Inclusion.** Dpharm (2021).

213. Edwin Addison. **AI for All Phases of Drug Development.** Seoul International Biomedical Conference (2021).

214. Edwin Addison. **AI for All Phases of Drug Development.** 4th Annual Artificial Intelligence in Pharma Summit (2021).

215. Lucia Pagani. 2021. EnSidNet: **Enhanced Hybrid Siamese-Deep Network for grouping clinical trials into drug-development pathways**. In Proceedings of the 2021 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies, pages 254–266, Online. Association for Computational Linguistics.

Articles (continued)

216. Mallon, A.M., Haering, D.A., Dahlke, F., Aarden, P., Afyouni, S., et al.., 2021. **Advancing data science in drug development through an innovative computational framework for data sharing and statistical analysis.** medRxiv.

217. Luo, J., Xiao, C., Glass, L., Sun, J. and Ma, F., 2021, August. **Fusion: Towards Automated ICD Coding via Feature Compression. In *Findings of the Association for Computational Linguistics:*** ACL-IJCNLP 2021 (pp. 2096-2101).

218. Qian, C., Kargas, N., Xiao, C., Glass, L., Sidiropoulos, N. and Sun, J., 2021. **Multi-version Tensor Completion for Time-delayed Spatio-temporal Data**. *arXiv preprint arXiv:2105.05326.*

219. Yang, C., Xiao, C., Ma, F., Glass, L. and Sun, J., 2021. **SafeDrug: Dual Molecular Graph Encoders for Safe Drug Recommendations.** *arXiv preprint arXiv:2105.02711.*

220. Yang, C., Xiao, C., Glass, L. and Sun, J., 2021. **Change Matters: Medication Change Prediction with Recurrent Residual Networks.** *arXiv preprint arXiv:2105.01876.*

221. Huang, K., Xiao, C., Glass, L.M., Critchlow, C.W., Gibson, G. and Sun, J., 2021. **Machine Learning Applications for Therapeutic Tasks with Genomics Data.** *arXiv preprint arXiv:2105.01171.*

222. Nina K. Mair, Jürgen Gottowik, Raul Rodriguez-Esteban, Timothy J. Seabrook. **Characteristics and data reporting of rare disease clinical trials: Getting better but still room for improvement.** *https://www.biorxiv.org/content/10.1101/2021.12.03.471055v2*

Books

223. **The Book of OHD**SI by Observational Health Data Sciences and Informatics; 2021

2020

Peer Reviewed Articles

224. Luk Arbuckle, Muhammad Oneeb Rehman Mian; **Engineering Risk-Based Anonymisation Solutions for Complex Data Environments**; *Journal of Data Protection & Privacy*, (2020) 3(3): 334-343.

225. Junyi Gao, Cao Xiao, Lucas M. Glass, Jimeng Sun; **Dr. Agent: Clinical Predictive Model via Mimicked Second Opinions;** Journal of the American Medical Informatics Association (JAMIA), 2020

226. Ying Li, Antonio Yepes, Cao Xiao, **Combining social media and FDA Adverse Event Reporting System to Detect Adverse Drug Reactions**, Drug Safety, 2020

227. Cao Xiao, Trong Hoang, Shenda Hong, Tengfei Ma and Jimeng Sun, **CHEER: Rich Model Helps Poor Model via Knowledge Infusion**, IEEE Transactions on Knowledge and Data Engineering (TKDE), 2020

228. Kexin Huang, Tianfan Fu, Lucas M. Glass, Marinka Zitnik, Cao Xiao, Jimeng Sun, **DeepPurpose: A Deep Learning Library for Drug-Target Interaction Prediction**, Bioinformatics, 2020

229. Kexin Huang, Cao Xiao, Lucas M. Glass, Marinka Zitnik, Jimeng Sun, **SkipGNN: Predicting Molecular Interactions with Skip-Graph Networks**, Nature Scientific Reports 2020

230. Shenda Hong, Y Zhou, Junyuan Shang, Cao Xiao, Jimeng Sun; **Opportunities and Challenges in Deep Learning Methods on Electrocardiogram Data: A Systematic Review**; Computers in Biology and Medicine, 2020

231. Cassandra Nan, Olaf Schmidt, Robert Lindner, Yasemin Ilgin, Thomas Schultz, Lykke Hinsch Gylvin, Eugene R. Bleecker; **German Regional Variation of Acute and High Oral Corticosteroid Use for Asthma**, under review at Journal of Asthma.

232. Christer Janson, Gunnar Johansson, Kjell Larsson, Björn Ställberg, Mario Mueller, et al. **Use of Machine learning to predict asthma exacerbations**; European Respiratory Journal 2020 56: 4802; DOI: 10.1183/13993003.congress-2020.4802; https://erj.ersjournals.com/content/56/suppl_64/4802

233. Ställberg B, Lisspers K, Larsson K, Janson C, Müller M, et al. **Predicting Hospitalization Due to COPD Exacerbations in Swedish Primary Care Patients Using Machine Learning – Based on the ARCTIC Study**; International Journal of Chronic Obstructive Pulmonary Disease » Volume 16; https://www.dovepress.com/predicting-hospitalization-due-to-copd-exacerbations-in-swedish-primar-peer-reviewed-fulltext-article-COPD

234. Filippoupolitis, A., Kusnetsov, M., Lazzarini, N. and Eleftherohorinou, H. **A Novel Interpretable Machine Learning Approach as a Commercial Decision Support Tool**, Journal of the PMSA, Spring 2020

Conferences

AAAI

235. Pradyumna Byappanahalli Suresha, Yunlong Wang, Cao Xiao, et al. **A Deep Learning Approach for Classifying Nonalcoholic Steatohepatitis Patients from Nonalcoholic Fatty Liver Disease Patients using Electronic Medical Records.** Thirty-Fourth AAAI Conference on Artificial Intelligence (AAAI 2020), health intelligence workshop, 2020.

236. Kexin Huang, Cao Xiao, Nghia Hoang, Lucas Glass, Jimeng Sun, **CASTER: Predicting Drug Interaction with Chemical Substructure Representation**, AAAI 2020

237. Limeng Cui, Siddharth Biswal, Lucas Glass, Greg Lever, Jimeng Sun, Cao Xiao, **CONAN: Complementary Pattern Augmentation for Rare Disease Detection**, AAAI 2020

238. Siddharth Biswal, Cao Xiao, Lucas Glass, Elizabeth Milkovits, Jimeng Sun, **Doctor2Vec: Dynamic Doctor Representation Learning for Clinical Trial Recruitment**, AAAI 2020

239. Tianfan Fu, Cao Xiao, Jimeng Sun, **CORE: Automatic Molecule Optimization using Copy and Refine Strategy**, AAAI 2020

KDD

240. Junyi Gao, Cao Xiao, Lucas M. Glass and Jimeng Sun. **COMPOSE: Cross-Modal Pseudo-Siamese Network for Patient Trial Matching**, The 26th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD), 2020

241. Junyu Luo, Muchao Ye, Cao Xiao, Fenglong Ma. **HiTANet: Hierarchical Time-Aware Attention Networks for Risk Prediction on Electronic Health Records**, The 26th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD), 2020

CIKM

242. Muchao Ye, Junyu Luo, Cao Xiao, Fenglong Ma. **LSAN: Modeling Long-term Dependencies and Short-term Correlations with Hierarchical Attention for Risk Prediction**, The 29th ACM International Conference on Information and Knowledge Management (CIKM2020), 2020

BIBM

243. Tianfan Fu, Cao Xiao, Lucas M. Glass, Jimeng Sun, **α-MOP: Molecule Optimization with α-divergence**, IEEE International Conference on Bioinformatics and Biomedicine 2020 (IEEE BIBM 2020), 2020

IEEE Big Data

244. Xiao Qin, Cao Xiao, Tengfei Ma, Tabassum Kakar, et al. **Supervised Topic Compositional Neural Language Model for Clinical Narrative Understanding**, IEEE International Conference on Big Data (BigData), 2020

ICASSP

245. Guanchao Feng, Kezi Yu, Yunlong Wang, Yilian Yuan, Petar Djuric; **Improving convergent cross mapping for causal discovery with Gaussian processes**, in *Acoustics, Speech and Signal Processing (ICASSP), 2020 IEEE International Conference on,* IEEE.

246. Zhenxun Zhuang, Yunlong Wang, Kezi Yu, Songtao Lu. **Online meta-learning on non-convex setting**, in *Acoustics, Speech and Signal Processing (ICASSP), 2020 IEEE International Conference on,* IEEE.

CISS

247. Songtao Lu, Yawen Zhang, Yunlong Wang. **Learn electronic health records by fully decentralized federated learning**, 54th Annual Conference on Information Sciences and Systems (CISS 2020)

PSB

248. Yue Wang, Tong Wu, Yunlong Wang, Gao Wang. **Enhancing Model Interpretability and Accuracy for Disease Progression Prediction via Phenotype-Based Patient Similarity Learning**. Pacific Symposium on Biocomputing (PSB), 2020.

WWW

249. Junyi Gao, Cao Xiao, Yasha Wang, Wen Tang, et al. **StageNet: Stage-Aware Neural Networks for Health Risk Prediction**, The World Wide Web Conference (WWW' 20)

250. Xingyao Zhang, Cao Xiao, Lucas M. Glass and Jimeng Sun, DeepEnroll: **Patient-Trial Matching with Deep Embedding and Entailment Prediction**, The World Wide Web Conference (WWW' 20)

251. Siddharth Biswal, Cao Xiao, Lucas M. Glass, Brandon Westover and Jimeng Sun, CLARA: **Clinical Report Auto-completion**, The World Wide Web Conference (WWW' 20)

252. Rahul Duggal, Scott Freitas, Cao Xiao, Duen Horng Chau and Jimeng Sun, **REST: Robust and Efficient Neural Networks for Sleep Staging in the Wild**, The World Wide Web Conference (WWW' 20)

NeurIPS

253. Kexin Huang, Tianfan Fu, D Khan, A Abid, A Abdalla, A Abid, Lucas M. Glass, Marinka Zitnik, Cao Xiao, Jimeng Sun. **MolDesigner: Interactive Design of Efficacious Drugs with Deep Learning**, NeurIPS 2020 Demonstration Track

Conferences (continued)

254. Brian Malpede; Goksu Dogan; Scott Moreland; Rabe'e Cheheltani; et al. **AI Algorithms for Disease Detection: Methodological Decisions for Development of Models Validated Through a Clinical, Analytical, and Commercial Lens**, PMSA 2020

255. Wang Y., **Enhancing Model Interpretability and Accuracy for Disease Progression Prediction via Phenotype-Based Patient Similarity Learning**, PMSA 2020

256. Zhou L..; **Exploiting Interconnection with Dynamical System Information to Enhance Forecasting Accuracy by Gaussian Processes in Real Word Application,** PMSA 2020

257. Kezi Yu; **Rare Disease Detection by Sequence Modeling with Generative Adversarial Networks: A Novel Approach for Orphan Drug Physician Targeting**, PMSA 2020

258. Jonathan Ruffin, Christina Mack, Yunlong Wang. **Decentralized Federated Learning for Electronic Health Records**. PMSA 2020.

259. Hui Jin; **An Overview of Predictive Analytics**, IQVIA China CAF, Beijing & Shanghai, Sep 2020

260. Hui Jin; **AI/ML & Big Data Analysis Application in Rare Disease**, the 9th China Rare Disease Summit, Chengdu, Sep 2020

261. Hui Jin; **Causal Inference Enable Business Decision Making**, China Pharmaceutical Market Research Association Summit, Chongqing, Nov 2020

262. Ruffin J, Wang Y, Mack C. **Training the Machine: Deployment of Federated Learning Algorithms For Machine Learning Models Across Electronic Health Record Networks**. Pharmacoepidemiol Drug Saf 2020; 29 (2).

263. Wei G, Wang Y, Wang Y, Behnke M, Reiner E, Chaudhuri K, Reeve R, McKemey A. **Patient and sub-population simulation via multidimensional correlation generation (MCG) and weighted K nearest neighbors (KNN) algorithms for clinical trials and real-world data**. ISPOR Europe 2020, Virtual conference, November 2020.

264. Wang Y, Wei G, Wang Y, Behnke M, Reiner E, Chaudhuri K, Reeve R, McKemey A. **Using machine learning for subpopulation analysis in datasets with no control arm**. ISPOR Europe 2020, Virtual conference, November 2020.

Articles (continued)

265. J Luo, Z Zheng, H Ye, M Ye, Y Wang, Q You, C Xiao, F Ma; **A Benchmark Dataset for Understandable Medical Language Translation**; arXiv preprint arXiv:2012.02420

266. Y Xu, C Xiao, J Sun; **DeepRite: Deep Recurrent Inverse TreatmEnt Weighting for Adjusting Time-varying Confounding in Modern Longitudinal Observational Data**; arXiv preprint arXiv:2010.15028

267. Y Yu, K Huang, C Zhang, LM Glass, J Sun, C Xiao; **SumGNN: Multi-typed Drug Interaction Prediction via Efficient Knowledge Graph Summarization**; arXiv preprint arXiv:2010.01450

268. C Xiao, J Gao, L Glass, J Sun, C Mack; **Two machines are better than one: Using multi-agent reinforcement in machine learning to simulate a clinical second opinion**; PHARMACOEPIDEMIOLOGY AND DRUG SAFETY 29, 90-90, 2020

269. Y Zhao, X Hu, C Cheng, C Wang, C Xiao, Y Wang, J Sun, L Akoglu; **SUOD: A Scalable Unsupervised Outlier Detection Framework;**

270. V.V.Ptushkin, Mario Müller; **The real practice in treatment of Multiple Myeloma;** October 2020

271. Doyle OM; Leavitt N; Rigg J; **Finding undiagnosed patients with hepatitis C infection: an application of artificial intelligence to patient claims data;** June 2020: https://www.nature.com/articles/s41598-020-67013-6

272. Mehle K, Zhou L.; **Predictive Analytics and AI in Oncology**; April 2020: https://www.pm360online.com/predictive-analytics-and-ai-in-oncology/

273. Doyle OM, van der Laan R, Obradovic M, *et al*.; **Identification of potentially undiagnosed patients with nontuberculous mycobacterial lung disease using machine learning applied to primary care data in the UK**; Eur Respir J 2020

274. Yuan Yilian, El-Emam Khaled**; How to Harness AI/ML to Analyze Vast Customer Datasets While Adhering to Data Privacy Laws**, Feb 2020: https://www.pm360online.com/how-to-harness-ai-ml-to-analyze-vast-customer-datasets-while-adhering-to-data-privacy-laws/

Whitepapers

275. Stolper R, Shankar R, Lauks S; **Accelerating AI/ML Adoption in Biopharma**; IQVIA Whitepaper: Nov 2020

276. McClellan W, Yuan Y, Zhao E, Cai Y; Optimizing Brand Performance: **An Evidence-Based Approach Powered by Machine Learning;** IQVIA Whitepaper: Jan 2020

Books

277. Arbuckle & El Emam (2020), **Building an Anonymization Pipeline**, O'Reilly Media. Available at: https://www.amazon.com/Building-Anonymization-Pipeline-Creating-Safe/dp/1492053430/.

2019

Peer Reviewed Articles

278. Luk Arbuckle, Felix Ritchie. **The Five Safes of Risk-Based Anonymization**, *IEEE Security & Privacy*, (2019) 15(5): 84-89.

279. Xihang Cao, Chao Han, Lucas M Glass, Allen Kindman, Zoran Obradovic. **Time-to-Event Estimation by Re-defining Time**, Journal of Biomedical Informatics 2019

280. Olga Uspenskaya-Cadoz and C. Alamuri and Lihua Wang and Mindy Yang, et al.. **Machine Learning Algorithm Helps Identify Non-Diagnosed Prodromal Alzheimer's Disease Patients in the General Population**. The Journal of Prevention of Alzheimer's Disease, (2019) 6: 185.

281. Jelena Gligorijevic, Djordje Gligorijevic, Martin Pavlovski, Elizabeth Milkovits, Lucas Glass, et al. **Optimizing clinical trials recruitment via deep learning**, Journal of the American Medical

Informatics Association, Volume 26, Issue 11, November 2019, Pages 1195–1202, https://doi.org/10.1093/jamia/ocz064

282. Carrell, David S., David J. Cronkite, Muqun Rachel Li, et al. **The machine giveth and the machine taketh away: a parrot attack on clinical text deidentified with hiding in plain sight.** Journal of the American Medical Informatics Association (2019).

283. Karkare SU, Fridman M, Dang-Tan T, Lu J, Smolarz BG, DeKoven M, Iyer NN. **Effect of Weight Change on Economic Outcomes Among Persons with Type 2 Diabetes Mellitus in the United States: Beyond Glycemic Control**. Journal of Managed Care & Specialty Pharmacy 2019 25:6, 658-668 https://www.jmcp.org/doi/10.18553/jmcp.2019.18321

284. Jaganathan, Srihari and Ka Lok Lee (2019), "**Simple Probability Models for Predicting Aggregate or Sparse Data: An Empirical Analysis of Projecting Patient Persistency**," Journal of PMSA, Spring.

Conferences

NIPS

285. Kexin Huang, Cao Xiao, Lucas Glass, Jimeng Sun, **Explainable Substructure Partition Fingerprint for Protein, Drug, and More**. NeurIPS 2019, Learning Meaningful Representations of Life Workshop

286. Tong Wu, Yunlong Wang, Yue Wang, Emily Zhao, Yilian Yuan, Zhi Yang. **Representation Learning of EHR Data via Graph-Based Medical Entity Embedding**, in Proceedings of Advances in Neural Information Processing Systems (NeurIPS 2019), Workshop on Graph Representation Learning

287. Songtao Lu, Yawen Zhang, Yunlong Wang, Christina Mack. **Learn Electronic Health Records by Fully Decentralized Federated Learning**, in Proceedings of Advances in Neural Information Processing Systems (NeurIPS 2019), Workshop on Federated Learning for Data Privacy and Confidentiality in Conjunction.

288. Zhenxun Zhuang, Kezi Yu, Yunlong Wang, Songtao Lu. **Online Meta-Learning on Non-convex Setting**, in Proceedings of Advances in Neural Information Processing Systems (NeurIPS 2019), Workshop on Meta-learning.

PKDD

289. Kezi Yu, Yunlong Wang, Yong Cai. **Modelling Patient Sequences for Rare Disease Detection with Semi-supervised Generative Adversarial Nets.** European Conference on Principles and Practice of Knowledge Discovery in Databases (PKDD 2019), workshop on Advanced Analytics and Learning on Temporal Data, 2019.

290. Yue Wang, Tong Wu, Yunlong Wang, Yong Cai, Cao Xiao, et al. **A Similarity-Driven Sequential Model for Predicting Medical Treatment Initiation via Graph Laplacian.** European Conference on Principles and Practice of Knowledge Discovery in Databases (PKDD 2019), graph embedding and mining workshop, 2019.

KDD

291. Fengyi Tang, Cao Xiao, Fei Wang, Jiayu Zhou, Li-Wei Lehman, **Retaining Privileged Information for Multitask Learning**, KDD' 19

292. Cao Xiao, Jimeng Sun, **Tutorial: Data Mining Methods for Drug Discovery and Development**, KDD' 19

IJCAI

293. Junyuan Shang, Tengfei Ma, Cao Xiao, Jimeng Sun. **Pre-training of Graph Augmented Transformers for Medication Recommendation**, IJCAI' 19

294. Shengda Hong, Cao Xiao, Nghia Hoang, Tengfei Ma, Hongyan Li, Jimeng Sun. **RDPD: Rich Data Helps Poor Data via Imitation**, IJCAI' 19

295. Shengda Hong, Cao Xiao, Tengfei Ma, Hongyan Li, Jimeng Sun. **MINA: Multilevel Knowledge-Guided Attention for Modeling Electrocardiography Signals**, IJCAI' 19

296. Tianfan Fu, Nghia Hoang, Cao Xiao, and Jimeng Sun. **DDL: Deep Dictionary Learning for Predictive Phenotyping**, IJCAI' 19

MLHC

297. Siddharth Biswal, Cao Xiao, Brandon Westover and Jimeng Sun. **EEG2Text: Learning to Write Medical Reports from EEG Recordings**, MLHC 2019

298. Irfan Al-Hussaini, Cao Xiao, Brandon Westover and Jimeng Sun. **SLEEPER: interpretable Sleep staging via Prototypes from Expert Rules**, MLHC 2019

ACM-BCB

299. Tianfan Fu, Tian Gao, Cao Xiao, Tengfei Ma, Jimeng Sun. **PEARL: Prototype Learning via Rule Learning**, ACM-BCB 2019

WWW

300. Sungtae An, Cao Xiao, Walter Stewart, Jimeng Sun. **LAVA: Longitudinal Adversarial Attack on Electronic Health Records Data**, WWW' 19

Conferences (continued)

301. S Gupta, D Homola, FBC Dieleman, A Webber, OM Doyle, N Leavitt, J Rigg; **USING SNOMED TO AUTOMATE CLINICAL CONCEPT MAPPING**; Value in Health 22, 2019, S334

302. H.-C. Chang, H. Hong, Y. Yue **Spatial Cox Model with Applications on Multiple Sclerosis Patients** Joint Statistical Meetings, Denver, CO 2019.

303. Faccone J, Wang Y. **A Comparison of High-dimensional Propensity Score and Traditional Propensity Score Matching Methods Using Commercial Health Care Claims Data.** ISPOR 2019, New Orleans, LA, USA, May 2019. Value in Health, Volume 22, Issue S1 (2019 May).

304. Lin HM, Pan L, Gorritz M, McGuiness C, Huang W, Chen C. **Real-World Brigatinib Use in Non-Small Cell Lung Cancer Patients with Prior Use of Crizotinib/Other ALK Therapies in the US.** IASLC 2019 World Conference on Lung Cancer, Barcelona, Spain

305. Eleftherochorinou H. **A Novel Patient-Physician Machine Learning Approach on Diagnosing Rare Diseases and Informing Commercial Strategies,** presentation at PMSA 2019 Winter Symposium.

306. Eleftherochorinou H, Coder M, Bashan E, Coravos A. **Machine Learning and Artificial Intelligence: Realizing Precision Medicine One Patient at a Time,** presentation at BIO 2019.

307. Eleftherochorinou, H. **Artificial Intelligence and Medicine Around the World**, panel at AIMED Europe (2019)

308. Hui Jin, Juliet Zhu. **Big Data Application – KOL Mapping**. China Pharmaceutical Market Research Association Summit, October 2019.

309. Yunlong Wang, Christina Mack, Fan Zhang, Yong Cai, Emily Zhao. **Detecting Rare Diseases: A Case Study Using Machine Learning Semi-Supervised Networks To Identify Under-diagnosed Patients**. 35th International Conference on Pharmacoepidemiology & Therapeutic Risk Management, August 2019.

310. Emily Zhao, Yunlong Wang, Yong Cai, Pankaj Gupta. **Brand Performance Analyzer - An AI/ML Powered Solution for Identifying Opportunities to Optimize Commercial Performance.** Pharmaceutical Management Science Association (PMSA) Annual Conference April 2019.

311. Frank Waterberg, Agnieszka Wolk. **Mobilizing AI & Machine Learning for Commercial Success in Europe.** Eye for Pharma EU Summit, March 2019

312. Yilian Yuan, Andrew Ploszay. **AIML drives Efficiency and New Insights**. IQVIA Innovation Technology Summit, Shanghai, China, Oct 2019.

313. A. Clemens, A. Sagkriotis, R. Griner, A. Durus, O. Doyle, T. Wintermantel, U. Chakravarthy; **Key confounders for translating results from non-interventional trials (NIS) to those observed in randomized controlled trials (RCTs): applying predictive analytics in neovascular age related macular degeneration (nAMD)**, Oral presentation at Euretina, Paris, 2019.

314. Mario Muller, **Using an Evidence-Based Approach to Multi-Channel Marketing (MCM) Optimization**, PMSA European Summit 2019.

315. Agnieszka Wolk, **Using AI and Machine Learning to Help Drive Patient-Centric Brand Management in the EU**, PMSA European Summit 2019.

Articles (continued)

316. Yuan Yilian, Fernandez Jose Luis**; Artificial Intelligence and Machine Learning can be the backbones of a drug launch playbook**. STAT FIRST OPINION, Dec 2019: https://www.statnews.com/2019/12/17/ai-machine-learning-drug-launch-playbook/

317. Yuan Yilian; **IQVIA on the adoption of AI-and-machine-learning.** Outsourcing Pharma, Dec 2019: https://www.outsourcing-pharma.com/Article/2019/12/11/IQVIA-on-the-adoption-of-AI-and-machine-learning

318. Yuan Yilian. **Data Scientists: Tomorrow's Pharma Superhero?** PharmaVOICE Year in Review, Dec 2019: https://www.pharmavoice.com/digital-edition/nov-dec-2019/#100

319. Yuan Yilian. **What Experts Are Saying About the Potential of AI in 2020 and Beyond?** PharmaVOICE Year in Review, Dec 2019:https://www.pharmavoice.com/digital-edition/nov-dec-2019/#120

320. Cao Xiao, Shupeng Gui, Yu Cheng, Xiaoning Qian, Shuai Huang, and Ji Liu. **Learning Longitudinal Planning for Personalized Health Management from Daily Behavioral Data**, IIE Transactions on Healthcare Systems Engineering, 2019

321. Zelda Zabinsky, S. Zangeneh, Cao Xiao, Pengbo Zhang, P. Dulyakupt, Joe Heim. **Optimal Collection of Medical Specimens and Delivery to Central Laboratory**, Annals of Operations Research, 2019

322. Yu, K., Wang, Y., Cai, Y., Xiao, C., Zhao, E., Glass, L. and Sun, J., 2019. **Rare disease detection by sequence modeling with generative adversarial networks**. arXiv preprint arXiv:1907.01022.

323. Fraser, K.C., Nejadgholi, I., De Bruijn, B., Li, M., LaPlante, A. and Abidine, K.Z.E., 2019. **Extracting UMLS Concepts from Medical Text Using General and Domain-Specific Deep Learning Models.** arXiv preprint arXiv:1910.01274.

324. D Kiely, O Doyle, E Drage, H Jenner, V Salvatelli, FA Daniels, et al. **Utilising artificial intelligence to determine patients at risk of a rare disease: idiopathic pulmonary arterial hypertension;** Pulmonary Circulation, 2019; 9(4) 1–9

325. Nejadgholi, Isar, Kathleen C. Fraser, Berry De Bruijn, et al. **Recognizing UMLS Semantic Types with Deep Learning.** In Proceedings of the Tenth International Workshop on Health Text Mining and Information Analysis (LOUHI 2019), pp. 157-167. 2019.

326. Li, Muqun, Martin Scaiano, Khaled El Emam, and Bradley A. Malin. **Efficient Active Learning for Electronic Medical Record De-identification.** AMIA Summits on Translational Science Proceedings 2019 (2019): 462.

327. Matthew D Solomon, Grace Tabada, Amanda Allen, Sue Hee Sung, Alan S Go, **Using Natural Language Processing to Accurately Identify Aortic Stenosis in a Large, Integrated Healthcare Delivery System**, Circulation. 2019;140:A12926

328. Fan Zhang, Tong Wu, Yunlong Wang, Yong Cai, Cao Xiao, et al. **Predicting Treatment Initiation from Clinical Time Series Data via Graph-Augmented Time-Sensitive Model**, International Conference on Machine Learning (ICML 2019), time series workshop, 2019.

329. Wenzhe Lu **Measuring the impact of Integrated Delivery Networks on physicians' prescribing preference,** The 15th International Conference on Data Science (ICDATA 2019) Las Vegas, USA

Whitepapers

330. John Rigg, Nadea Leavitt, Brian Malpede. **Finding Undiagnosed Patients: Applying Artificial Intelligence and Machine Learning to Drive Earlier Diagnosis**. IQVIA White Paper. October 2019.

331. El Emam & Arbuckle (2019), **The Five Safes of Risk-Based Anonymization**. Available at: https://keep-data-safe.com/

332. Li Zhou, Melissa Marth, Lynn Lu, Emily Zhao. **Predictive Analytics in Oncology – How Artificial Intelligence Drives Greater Precision for Pharma Brands.** IQVIA White Paper, Dec 2019

333. Yilian Yuan, Frank Wartenberg, Agnieszka Wolk, Yasemin Ilgin. **Using AI and Machine Learning to Drive Commercial Success in the EU.** IQVIA White Paper, March 2019.

Books

334. Luk Arbuckle, Michelle Chibba, Khaled El Emam, Ann Cavoukian (2019), **Chapter 13: Privacy, Confidentiality, Security and Ethics** *from Population Health Informatics: Driving Evidence-Based Solutions into Practice*, Jones & Bartlett Learning. Available at: https://www.jblearning.com/catalog/productdetails/9781284103960.

2018

Conferences

NIPS

335. Wenyuan Li, Yunlong Wang, Yong Cai, Corey Arnold, Emily Zhao, Yilian Yuan. **Semi-supervised Rare Disease Detection Using Generative Adversarial Network**. NIPS (Neural Information Processing Systems) Annual conference, Montreal, December 2018.

336. Weiyu Huang, Yunlong Wang , Li Zhou, Emily Zhao, Yilian Yuan, and Alejandro Ribero. **Modeling Treatment Delays for Patients Using Feature Label Pairs in a Time Series.** NIPS (Neural Information Processing Systems) Annual conference, Montreal, December 2018.

Conferences (continued)

337. D Aguilar, G Yuan, RL Wade, J Lu, M Lichtenstein**. Leveraging Clinical Fields from a US EMR Database to Identify and Characterize Latent Autoimmune Diabetes in Adults (LADA) in Real World Practice Settings** ISPOR May 2018, Baltimore, MD, USA. VALUE IN HEALTH 21 (2018) S1–S268 https://doi.org/10.1016/j.jval.2018.04.1484

338. David G. Kiely MD, Allan Lawrie, Orla Doyle PhD, Valentina Salvatelli PhD, et al. **Real world data from hospital episode statistics can be used to determine patients at risk of idiopathic pulmonary arterial hypertension**. ERS International Congress, Paris, France, 15–19 September 2018

339. Aaron Galaznik, Christian Reich, Greg Klebanov, Yuriy Khoma, Eldar Allakhverdiiev, Greg Hather **Predictive modeling for treatment non-response in patients with EGFR-mutated NSCLC treated with EGFR tyrosine kinase inhibitors utilizing OHDSI tools and methods** ODHSI Symposium Bethesda, MD 2018

340. Aaron Galaznik, Greg Klebanov, Eldar Allakhverdiiev, Yuri Khoma, Christian Reich. **Predictive Modeling as an OHDSI Network Study: Treatment Non -Response in NSCLC patients treated with ALK Inhibitors.** ODHSI European Symposium Rotterdam, The Netherlands 2018

341. Li Zhou, Lynn Lu, Yunlong Wang, Yilian Yuan. **Innovative Machine Learning Methods to Enhance Accuracy and Effectiveness Of Physician Alert**, PMSA (Pharmaceutical Management Science Association) annual meeting, San Antonio, April 2018

342. A Sagkriotis, R Griner, A Durus, OM Doyle, LR Torres, T Wintermantel, A Clemens. **IDENTIFYING THE CONFOUNDERS THAT EXPLAIN THE DIFFERENCE IN READOUTS BETWEEN NON-INTERVENTIONAL STUDIES (NIS) AND RANDOMIZED CONTROLLED TRIALS (RCTS): THE CASE OF TREATMENTS IN NEOVASCULAR AGE-RELATED MACULAR DEGENERATION (NAMD)**. Value in Health 21, 2018, S423

Articles

343. Li, Muqun. **Scalable natural language de-identification based on machine learning approaches.** Vanderbilt University, 2018.

344. Wenyuan Li, Yunlong Wang, Yong Cai, Corey Arnold, Emily Zhao, and Yilian Yuan, **Semi-supervised Rare Disease Detection Using Generative Adversarial Network**, in Proceedings of Advances in Neural Information Processing Systems (NeurIPS 2018), Machine Learning for Health Workshop (ML4H 2018).

345. Weiyu Huang, Yunlong Wang, Li Zhou, Emily Zhao, Yilian Yuan, and Alejandro Ribero, **Modeling Treatment Delays for Patients using Feature Label Pairs in a Time Series**, in Proceedings of Advances in Neural Information Processing Systems (NeurIPS 2018), Machine Learning for Health Workshop (ML4H 2018).

346. Anthony L. Vaccarino, Moyez Dharsee, Stephen Strother, Don Aldridge, et al." **Brain-CODE: A Secure Neuroinformatics Platform for Management, Federation, Sharing and Analysis of Multi-Dimensional Neuroscience Data"**, *Frontiers in Neuroinformatics*, May 2018

347. C. Lee Ventola MS. Big data and pharmacovigilance: Data mining for adverse drug events and interactions. P T. 2018;43(6): 340-351.

Whitepapers

348. Yilian Yuan, Emily Zhao. **LEVERAGING ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING TO DRIVE COMMERCIAL SUCCESS. How pharma companies are harnessing artificial intelligence and machine learning, rich real-world data, and deep pharma knowledge to increase sales while reducing overhead**. IQVIA White Paper, Oct 2018.

2017

Conferences

349. Orla M. Doyle, Harsha Jayanti, Daniel Homola, John A. Rigg. **Finding undiagnosed patients with hepatitis C virus: an application of state-of-the-art machine learning methods.** ISPOR 20th Annual International Meeting Glasgow, UK Nov 2017

350. Su EW, Sanger TM. **Systematic drug repositioning through mining adverse event data in ClinicalTrials.gov**. PeerJ 5: e3154

351. Risson V., Jayanti H., Filho E., Rigg J., Skelly A., Bezlyak V., Regnier S. **Assessing the Value of Interactive Decision Trees as a Method for Identifying Patient Subgroups**. ISPOR Nov 2017

352. Yilian Yuan, Yunlong Wang, Yong Cai, Kezi Yu, Li Zhou. **Using Deep Learning to Identify the Key Triggers of Initiating Patient First Line Treatment: An Oncology Case Study**, Predictive Analytic World Health Conference 2017, New York, Nov 2017.

Articles

353. Yunlong Wang, Yong Cai, **Message passing on factor graph: A novel approach for orphan drug physician targeting**, Proceedings of the Industrial Conference on Data Mining, 2017.

2016

Peer Reviewed Articles

354. Yaron Kinar, Nir Kalkstein, Pinchas Akiva, Bernard Levin, Elizabeth E Half, et al. **Development and validation of a predictive model for detection of colorectal cancer in primary care by analysis of complete blood counts: a binational retrospective study**. Journal of the American Medical Informatics Association.

Conferences

355. Andrews C., D'Souza K., Lacey S., Rigg J., Pitcher A., Milnes F. **Predicting Response to Anti-Vascular Endothelial Growth Factor Treatment using Electronic Medical Record Data in Eyes with Neovascular Age-Related Macular Degeneration.** ISPOR Vienna, Nov 2016

356. Risson V., Rigg J., Bonzani I., Medin J., Olson M. **Identifying non-responders to brace therapies in multiple sclerosis using advanced predictive models**. ISPOR Washington, Apr 2016

Articles

357. Souied E, Dugelb P, Ferreirac A, Hashmonayc A, Lu J, Kellye S. **Severe Ocular Inflammation Following Ranibizumab or Aflibercept Injections for Age-Related Macular Degeneration: A Retrospective Claims Database Analysis.** Ophthalmic Epidemiology 2016;23(2):71-9. doi: 10.3109/09286586.2015.1090004. Epub 2016 Feb 8.

358. Larmore C, Effron M, Molife C, DeKoven M, Zhu Y, Lu J, Karkare S. **"Real-world" Comparison of Prasugrel with Ticagrelor in Patients with Acute Coronary Syndrome Treated with Percutaneous Coronary Intervention in the United States.** Catheterization and Cardiovascular Intervention. 2016 Oct;88(4):535-544. doi: 10.1002/ccd.26279.

359. Vinod Dasa, Mitch DeKoven, Kainan Sun, Allan Scott, Sooyeol Lim. **Clinical and cost outcomes from different hyaluronic acid treatments in patients with knee osteoarthritis: evidence from a US health plan claims database.** Drugs Context 2016 23;5:212296. Epub 2016 Jun 23.

360. Chi-Chang Chen, Catherine Balderston McGuiness, G Krishnarajah, Christopher M Blanchette, Yuanyuan Wang, Kainan Sun, Philip O Buck. **Estimated incidence of pertussis in people aged <50 years in the United States.** Hum Vaccin Immunother 2016 May 31:1-10. Epub 2016 May 31.

361. McEntire R, Szalkowski D, Butler J, Kuo MS, Chang M, et al. **Application of automated natural language processing (NLP) workflow to enable a federated search of external biomedical content in drug discovery development.** Drug Discov Today. 2016 May; 21(5):826-35.

362. Duggirala HJ, Tonning JM, Smith E, Bright RA, Baker JD, et al. **Use of data mining at the Food and Drug Administration.** J Am Med Inform Assoc. 2016 Mar;23(2):428-34.

363. Clegg A, Bates C, Young J, Ryan R, Nichols L, et al. **Development and validation of an electronic frailty index using routine primary care electronic health record data**.

2015

Peer Reviewed Articles

364. A Ferreira, As Sagkriotis, M Olson, J Lu, C Makin, F Milnes. **Treatment Frequency and Dosing Interval of Ranibizumab and Aflibercept for Neovascular Age-Related Macular Degeneration in Routine Clinical Practice in the USA**. PLoS One. 2015 Jul 24;10(7):e0133968. doi: 10.1371/journal.pone.0133968.

365. Molife C, Frech-Tamas F, DeKoven M, Effron M, Karkare S, Zhu Y, Larmore C, Lu J. **Comparison of healthcare resource utilization and costs in patients hospitalized for acute coronary syndrome managed with percutaneous coronary intervention and receiving prasugrel or ticagrelor**. Journal of Medical Economics: 2015;18(11):898-908. doi: 10.3111/13696998.2015.1060979.

Conferences

366. Wade R, Hill J., Akinbosoye O, Jiang Z, Mu Y, Sun K, Karkare S, Taitel M.S. **Impact of a pharmacist medication adherence consultation program on health care costs and risk of hospitalization** ISPOR May 2015. VALUE IN HEALTH 18 (2015) A1–A307

367. Emily Zhao, **Multi-Channel Marketing Attribution and Optimization – A Model Based Approach Powered by Customer Level Data** Pharmaceutical Management Science Association Annual Conference 2015 http://www.pmsa.org/conferences/past-conferences/2015

Articles

368. Cormack J, Nath C, Milward D, Raja K, Jonnalagadda SR. **Agile text mining for the 2014 i2b2/ UTHealth Cardiac risk factors challenge.** J Biomed Inform. 2015 Dec; 58 Suppl:S120-7

369. Rodriguez-Esteban, R. **Biocuration with insufficient resources and fixed timelines.** Database (Oxford). 2015 Dec; bav113: pp1-9.

2014

Conferences

370. John Rigg. Symposium – **Predictive Analytics, Healthcare & Big Data. International Society for Pharmacoeconomics and Outcomes Research (ISPOR)**, Amsterdam (Netherlands). Nov 2014

371. John Rigg. Symposium – **Predictive Analytics, Healthcare & Big Data. International Society for Pharmacoeconomics and Outcomes Research (ISPOR)**, Montreal (Canada). Jun 2014

Articles

372. Zheng C, Rashid N, Wu YL, Koblick R, Lin AT, Levy GD, Cheetham TC. **Using natural language processing and machine learning to identify gout flares from electronic clinical notes.** Arthritis Care Res (Hoboken). 2014 Nov; 66(11):1740-8

373. Yang YY, Klose T, Lippy J, Barcelon-Yang CS, Zhang L. **Leveraging text analytics in patent analysis to empower business decisions - A competitive differentiation of kinase assay technology platforms by I2E mining software.** World Patent Inform. 2014 Dec; 39:24–34.

374. Shivade C, Cormack J, Milward D. **Precise Medication Extraction using Agile Text Mining. Proc 5th Int Workshop Health Text Mining Information Analysis (Louhi), EACL.** 2014 Apr; pp.75–79

375. Tari L, Patel J, Küntzer J, Li Y, Peng Z, Wang Y, Aguiar L, Cai J. **Mining gene-centric relationships from literature: the roles of gene mutation and gene expression in supporting drug discovery.** Int J Data Mining Bioinformatics. 2014 Sep; 10(4):357-373

2013

Conferences

376. Yong Cai, PhD, Director; Yi Han, PhD MBA, Director; Xiaolong Jiao, MD Sr. Manager; George Mu, Sr. Statistician. **IDENTIFYING CHRONIC KIDNEY DISEASE STAGES USING PATIENT PRESCRIPTION INFORMATION. A comparative analysis of multiple statistical machine learning approaches.** ISPOR May 2013.

Articles

377. Masiakowski P, Wang S. **Integration of software tools in patent analysis**. World Patent Inform. 2013 Jan; 35(2): 97-104.

378. Rebholz-Schuhmann D, Kafkas S, Kim JH, Li C, Jimeno Yepes A, Hoehndorf R, Backofen R, Lewin I. **Evaluating gold standard corpora against gene/ protein tagging solutions and lexical resources**. J Biomed Semantics. 2013 Oct; 4(1):28.

379. Trugenberger CA, Wälti C, Peregrim D, Sharp ME, Bureeva S. **Discovery of novel biomarkers and phenotypes by semantic technologies.** BMC Bioinformatics. 2013 Feb; 14:51.

2012

Articles

380. Milward D, Singh G. **Clarifying the social media blur. Information Outlook**. 2012 Mar; 16(2): 10-13.

381. Hirschman L, Burns GA, Krallinger M, Arighi C, Cohen KB, et al. **Text mining for the biocuration workflow.** Database (Oxford). 2012 Apr; 2012:bas020.

2008

Articles

382. Roberts PM, Hayes WS. **Information needs and the role of text mining in drug development.** Pac Symp Biocomput. 2008:pp592-603.

383. McQuay SJ. **Early Identification of Potential Drug Safety Issues from Diverse Literature Resources.** Pharma-Bio-Med 2008.

2007

Articles

384. Milward D, Milligan P. **Text Data Mining using Interactive Information Extraction.** BioLINK SIG Text Mining Workshop, ISMB/ECCB 2007.

2006

Articles

385. Milward, D., Blaschke, C., Neefs, J.-M., Ott, M.-C., Verbeeck, R., and Stubbs, A. **Flexible Test Mining Strategies for Drug Discoveries.** Proc 2nd Int Symp Semantic Mining BioMedicine. 2006; pp101-104.

2005

Articles

386. Hale R. **Text mining: getting more value from literature resources**. Drug Discov Today. 2005 Mar; 10(6):377-9.

387. Milward D, Bjäreland M, Hayes W, Maxwell M, Oberg L, et al. **Ontology-based interactive extraction from scientific Abstractss**. Comp Funct Genomics. 2005; 6(1-2):67-71.

2004

Articles

388. Fickett J, Hayes W. **Text Mining for Drug Discovery**. European Pharmaceutical Contractor, Autumn 2004.

389. Milward D, Bjäreland M, Hayes W, Maxwell M, Oberg L, et al. **Ontology-based Interactive Information Extraction from Scientific Abstractss**. BioLINK SIG Text Mining Workshop, ISMB/ECCB 2004.

2000

Articles

390. Thomas J, Milward D, Ouzounis C, Pulman S, Carroll M. **Automatic extraction of protein interactions from scientific Abstractss**. Pac Symp Biocomput. 2000:pp541-52.

391. Milward D and Thomas J. **From Information Retrieval to Information Extraction**. Proc ACL-2000 Workshop Recent Advances Natural Language Processing Information Retrieval. 2000 Oct; pp85-97.

Back to the Top