عنوان مقاله:

Toxicoinfotrmatics: Recent Approaches in Integration of Big Data Biomath for the Benefit of healthcare policy

محل انتشار:

اولین همایش بین المللی و دهمین همایش ملی بیوانفورماتیک ایران (سال: 1400)

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خلاصه مقاله:

The era of in vivo, in vitro and ex vivo transmission to in silico experiments has been rapidly progressed inrecent decades due to the benefits of computation in shortening the prediction time of results, reducing costs,and has provided significant advances in computational predictive toxicology, Including risk assessment ofdifferent organs toxicity at the encounter of high-risk molecules, estimating the co-effect of the time on lifelongexposure, aggregating these effects with the consequences of multifactor underlying diseases andbringing forward system toxicology and ultimately using next generation sequencing results in designingindividual-centered therapies for individual medicine. However, existing data and massive calculations arestill not being used as efficiently as they should be in achieving health goals. In this article we are focusedon introducing adverse outcome pathways coalition and outcome extrapolation strategies by artificialintelligence, integrated approaches of testing & prediction utility, some aspects of the most machine learningmethods: support vector machines (SVMs), random forest (RF), decision trees (DTs), Naive Bayes, k-nearestneighbors (KNN) and neural networks and their current deficits in. finally propose practical solutions forcurrent issues in big data analysis systems. We believe this is not a smooth road to endpoint application buta feasible prospect to beneficial decision-making regulators in favor of individuals one-by-one, in an exampleof what the world confrontes in the case of Covid-۱۹, we summarize the unaccounted adverse outcomes oflong-approved beneficial drugs because of the lack of massive calculations in the scale of whole populationand how affected the general healthcare policies.

کلمات کلیدی:

toxicoinformatics; big data; computational toxicology; system toxicology; machine learning

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