Application of Machine learning in Drug Side Effect Prediction: Databases, Methods and Challenges

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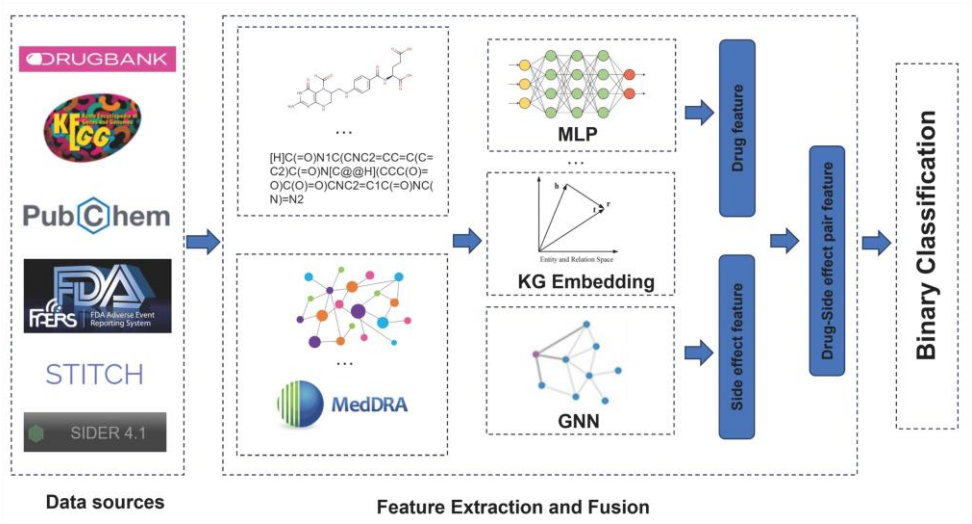
Problems & Ideas

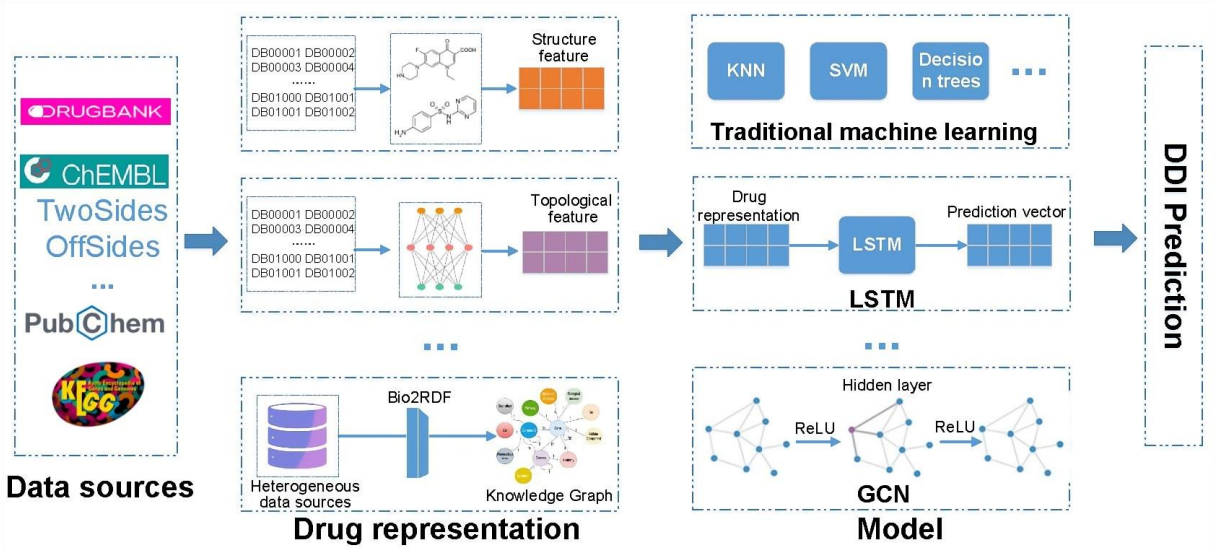
- Problems in the review of drug side effect prediction:
  - While numerous review articles have addressed drug side effect prediction, most have concentrated on methods for predicting drug side effect associations.
- Ideas: Sorting out machine learning-based prediction methods for side effects caused by single drugs and drug-drug interactions (DDIs). Moreover, the study of prediction of the frequency and severity of side effects for drugs is highlighted.



Overview of drug–side effect association prediction based on machine learning algorithms.

Main Contributions

- Contributions:
  - Providing a comprehensive review of computational methods that employ machine learning to identify side effects stemming from individual drugs as well as DDIs;
  - Outlining the fundamental principles behind establishing predictive models and introduces commonly utilized databases and web servers employed in the detection of drug side effects;
  - Deliberating on the current challenges and future avenues in machine learning-based methods for discerning drug side effects.



Overview of side effect prediction resulting from DDIs using machine learning algorithms.