

## **[371] USING AI AND REAL-WORLD DATA FOR THE DESIGN OF DECISION SUPPORT TOOLS FOR DOCTORS**

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### **ABSTRACT TEMPLATE for Company Presentations**

Innovations in computer science now allow for the collection and sharing of large amount of data, and the advancement of next generation sequencing technologies facilitates accumulation of genetic information. Taking advantage of these advances, we combine artificial intelligence and machine learning algorithms with clinical and biological knowledge to design successful prediction algorithms for efficacy and adverse effects of common antidepressant medications. These prediction algorithms are validated using large databases obtained from the NIH. It is important to note however, that machine learning algorithms are not designed for the analysis of genetic data, as the number of tested subjects using these algorithms has to be several scales higher than the number of tested features. Since the human's genome is comprised of over 3 billion nucleotides, each considered as a genetic feature, even if whole genome sequence of all the world's population (7-8 billion people) were available, it still wouldn't be enough to apply machine learning algorithms. At Taliaz we developed a pipe-line of algorithms and procedures which allows the use of machine learning algorithms on genetic data combined with clinical and demographic information. Using this pipeline, we have succeeded in designing prediction algorithms for the efficacy and adverse effects of current antidepressants. Based on these algorithms, we have designed Predictix Antidepressant which support doctors' decision while prescribing antidepressant medication to their patients.