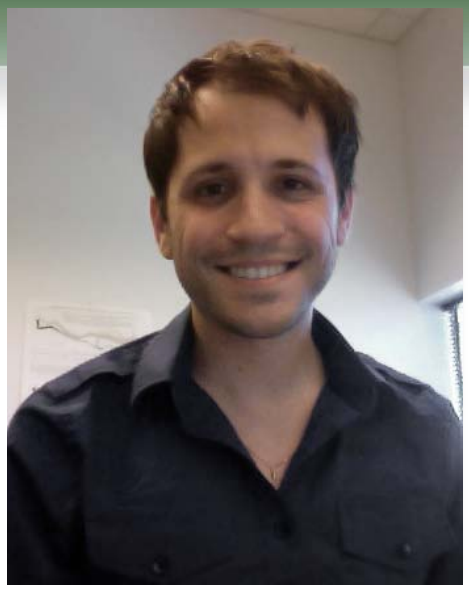
Nicholas P. Tatonetti

"Nicholas"



Graduate Institution: Stanford University

Location: Stanford, California

Graduate Discipline: Biomedical Informatics

Hometown: Cleveland, Ohio

Research Interests:

Over the last 30 years there has been a golden era of drug discovery, with new treatments being developed for an incredible range of afflictions. Recently, however, pharmaceutical companies have failed to sustain this rate of progress and the future of the industry is in peril. In fact, the primary reason drugs fail clinical trials is lack of efficacy. Complicating the situation further, drugs have many unexpected and unanticipated effects on patients and, as a result, cause millions of adverse events each year. These adverse events may manifest before the drug is approved and thus cause the drug to fail clinical trials. Or even worse, may be discovered only after the drug is widely used and marketed. In either case, the ability to predict patient response is central to the future of the drug industry. In this era of genomes and high-powered computing we now have the opportunity to address this issue with resources unavailable to previous researchers. I am interested in leveraging this power to investigate the genetic basis of drug response. Specifically, I am developing novel computational methods for predicting not only what adverse events a drug will cause, but also who will be affected. This new information will be used to tailor drugs to the particular subpopulation of patients who will respond most favorably and usher in a new era of personalized medicine.

About me:

Soon after staring my first quarter at Stanford, I joined Russ Altman's lab. The researches in Dr. Altman's lab study the genetic basis of patient drug response from many different angles. There are some who use molecular modeling techniques to investigate how drugs interact chemically with proteins. However, others, myself included, take a systems-wide approach and use large data sets to study the phenotypes of biologically active small molecules, genetic drug interactions, as well as discover alternative uses for drugs. It is my ambition to leverage this experience into an academic career in molecular pharmacology and computational drug discovery.