Accelerating Translation Medicine: Solving the Machine-Readability Problem

bringing Pharmaceuticals, Implanted Medical Devices, and Cancer Immuno-therapies to Market Sooner and more Cost-Effectively

Linguistic Technology Systems (LTS) has a team of software developers that have designed a unique data integration platform, which is part of our new cloud-computing framework, to enable heterogeneous biomedical data (e.g. genomic/proteomic/transcriptomic, cellular, image biomarkers, and clinical) to be rendered machine readable so as to optimize machine-learning algorithms. In so doing, we are addressing one of the most significant obstacles in machine learning for computational therapeutics: the inability to *merge data from different sources into one common data space* in order to render the data machine readable.

What we offer is a crucial precursor to machine learning by enabling variegated data structures to be subsumed under one Common Data Model. In this way, machine learning would be optimized because algorithms working within one single data space can then operate on a wide spectrum of parameters derived from many different datatypes, something which has not been done heretofore.

In short, we overcome one of the most critical obstacles, widely discussed in the literature, to machine learning by designing the preparatory data integration platform to bring together a wide variety of different kinds of data structures so that they are rendered machine readable. This would inure to the benefit of translational medicine and cut down on the costs of bringing pharmaceuticals, immunotherapies and implanted medical devices to market.

In addition, our data-integration tools would reduce the cost of machine learning itself by defining reusable data-integration protocols rather than programming data-integration algorithms on an *ad-hoc* basis. In this way, machine-learning software can be built more quickly and cost-effectively.

In addition to biomedical use-cases, our data-integration/database engineering protocols and new cloud infrastructure have applications in many other vertical markets, such as Manufacturing/Engineering, Software Development Engineering, Academic Publishing, and Real-Estate/E-Commerce.