Deep learning for sparse and noisy experimental data

Experimental data

Experimental data are complex. No experimentalist has ever run every experiment they could imagine, resulting in sparse data availability. Biological data are also noisy, as running the same experiment twice gives different results. Drug discovery data can also be weakly defined: running the same assay in two different groups can give systematically different results, so is this one assay or two?

Alchemite™ engine

Inteligens is a spin-out from the University of Cambridge, and specialises in applying deep learning to sparse and noisy experimental data using our proprietary Alchemite™ engine. We combine all accessible data sources to extend horizons, learning between endpoints to capture all available information. By focussing on the most confident predictions we are able to increase the utility of the results, rejecting low-likelihood outcomes. Flexible, user-defined relationships between variables overcome weak definitions. Alchemite™ is available now in collaborative projects: see https://inteligens.ai.

Material design

Inteligens' Alchemite™ engine has been used to design new high performance alloys [1], metals for 3D printing [2], and industrial lubricants [3]. Below are a predicted and experimentally verified property for an alloy designed for 3D printing, and the alloy itself.

References