

Abstract Submitted
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Reconstructing a network of health deficits during human aging
SPENCER FARRELL, ARNOLD MITNITSKI, KENNETH ROCKWOOD, ANDREW RUTENBERG, Dalhousie Univ — We have developed a computational model of human aging and mortality that captures Gompertz's law of exponentially increasing mortality with age together with the approximately exponential average increase of the Frailty Index with age. The Frailty Index is the proportion of binary health deficits that an individual has acquired. Our stochastic dynamical model consists of a generated network of these interacting health deficits. Using information with respect to mortality, we observe an approximately power-law spectrum of mutual information of individual deficits with respect to their degree of connectivity in the generated network. To characterize the information spectrum of real health deficits, we must reconstruct the connectivity of the real network using observational health data. We have used our model data to test and develop reconstruction algorithms, which we apply to observational data.

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