Nearly 50% of the US population has a chronic condition and 21%, mostly elderly, have multiple chronic conditions. Chronic diseases such as diabetes, heart failure or depression decrease the quality of life and increase the risk of re-hospitalization. Consequently, early recognition of chronic conditions could improve the quality of life and reduce the cost of healthcare. Various in-home monitoring technologies based on sensors such as depth, infrared, sound, motion or balisto/seismo cardiography could provide invaluable clinical information. However, to become clinically relevant, the sensor data requires not only insight in the evolution of a certain disease but also advanced knowledge of machine learning. I will discuss several examples of such clinical applications of in-home sensors developed at our Center for Eldercare and Rehabilitation Technologies (CERT) from Columbia, Missouri, such as gait characterization using a depth camera and radar, fall detection using a depth camera, radar and sound, sleep characterization using a ballistocardiography sensor and sensor data annotation with EMR data. Most of this research has been performed in an Aging in place context, in nursing homes owned by Americare Corp and instrumented with a PointClickCare (a Canadian company) EMR.