

## Phase II ABSTRACT

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This Small Business Innovation Research (SBIR) Phase II project will develop a state of the art 3D imaging system to objectively assess, track and archive gait, balance and range of motion. The prototype will be designed for use by a professional health care provider, such as a physical therapist. The system will be validated in a university lab by testing against advanced costly gait analysis systems, and against itself to ensure consistency, and an application for assessing Fall Risk in the elderly will be developed as the first outcome of the project. The potential of this system is to significantly improve, at a very low cost, the analysis and monitoring of mobility issues due to age, injury, disease, disability, inactivity or obesity. The results will be compared with norms and archived, allowing subjects to see their progress or regress.

The broader impact/commercial potential of this project will be to address a needed gap in the field of mobility assessment. With the advent of the Affordable Care Act (ACA), the healthcare industry is motivated to move in the direction of preventive care. Private insurance companies and Medicare are encouraging and funding programs designed to maintain wellness, and methods to keep people healthier and independent longer. A quantitative Fall Risk Assessment will be of enormous value. An important aspect of a fall assessment is mobility issues related to gait and balance. Falls are the leading cause of injury death for older Americans ? they not only jeopardize the safety and independence of the older population, but generate tremendous economic costs. Current yearly costs is over \$30 billion and expected to be over \$250 billion by 2040.