UC Berkeley Study on Fall Prevention Systems for Memory Care

About the Study: UC Berkeley and SafelyYou, Inc are teaming up to design a safety system that detects key safety concerns for loved ones in memory care. Using wall-mounted cameras, wireless sensors, and software algorithms we can detect when a person:

- Rises from bed
- Leaves the room
- Has fallen down

The technology does not require any action of residents such as wearing a fall pendant or pressing call buttons, ideal for residents with dementia.

Our Goal is to reduce falls in memory care. The focus of this study is to record videos of fall events to determine if personalized recommendations from an occupational therapist reduces the fall rate, and to develop computer algorithms for detecting falls from video. We hope to create a system which provides real-time detection.

Benefits Include:

- An Occupational Therapist to review videos of falls and provide professional recommendations for each participant at no-cost.
- Assessment of head injury status post-fall
- Identification of precipitating factors for adjustment of the environment as needed.
- Possible reduction in fall rate, based on 80% reduction with first pilot community

Did you Know? Individuals with Alzheimer's disease in managed care facilities fall on average 4 times per year compared with 2.3 times per year for cognitively healthy adults living in managed care.

We are gathering participants that are interested in being part of our study. If you choose to participate, we will ask you to sign our informed consent and install a camera in the participant's room. Care staff will have access to the video and all video will be securely maintained at UC Berkeley under the Committee for the Protection of Human Subjects.

For more information, contact our Research Director, George Netscher at 510-423-3639 or Dementia.Tech.2015@gmail.com

George Netscher
PhD in Electrical Engineering

George is currently a 3rd year PhD student in the Electrical Engineering and Computer Science Department at UC Berkeley supported by University and NSF fellowships (0.7% and 12.5% acceptance rate, respectively). The focus of his research is on machine learning algorithms that leverage low-cost sensor networks to predict and facilitate care for patients with Alzheimer's disease and other cognitive impairments.

Pulkit Agrawal
PhD in Computer Science

Pulkit is a 6th year PhD student in Artificial Intelligence at UC Berkeley advised by Jitendra Malik and Jack Gallant. He works in computer vision and computational neuroscience. He has developed algorithms for understanding how the human brain represents visual information, estimating human pose in natural images, and how visual representations can be learned from only a few labeled examples.

Julien Jacquemot
MS in Computational Biology

Julien is a staff software engineer in the Electrical Engineering and Computer Science Department at UC Berkeley. He received a BS in Electrical Engineering from *Ecole Polytechnique* and a MS in Computational Neuroscience from *Ecole Polytechnique Federale de Lausanne*. He has developed machine learning systems with medical applications at Second Sight, LUSAGE laboratory, and UC Berkeley.

Alex Bayen
Professor in Electrical Engineering & Computer Science

Alex Bayen is a professor in the Electrical Engineering and Computer Science Department at UC Berkeley. The focus of his research is algorithm design and implementation, specifically in the area of control and optimization. His algorithms have been applied in the context of several major projects: (1) monitoring with smart phones, applied to water, traffic, earthquakes; (2) use of wearables for monitoring patients with disabilities, and dementia.

Savannah Carroll
Registered Nurse

Savannah Carroll is a patient navigator at the UCSF Memory and Aging Center and a UC Berkeley Research Study Coordinator. She received a BS in Public Health from The George Washington University and a BS in Nursing from New York University.

Rebecca D'Amato
Research Coordinator

Rebecca D'Amato is a Research Study Coordinator at UC Berkeley. She received a BA in Geography from UC Berkeley. After graduating, she worked for A9 as a Quality Assurance Analyst assessing the visual system's performance.