**Research Question:** How can aggression detected in Alzheimer's and dementia patients?

## Annotates Bibliography

Bannow, Tara. "Experts urge caution when choosing memory care facility."
*The Bulletin.* (2015)

It is very important to identify what is triggering a person that is suffering from Alzheimer's or dementia so that he/she can be assisted immediately. A "trigger" is something that sets off an emotional episode—in this case, an aggressive one. If the family members know what triggers the patient towards aggressive behavior, they must make sure they let the hospital faculty know about the patient's medical history. This will enable the medical staff to assist or look after the patient in a better manner. If they can develop a comprehensive plan for avoiding these triggers, aggressive or disturbing behavior can be avoided up to certain extent.

Human activity recognition (HAR) is a highly dynamic and challenging research topic. This makes use of sensor devices to observe the activities or changes in behavior of a person. A number of sensors are used for these activities which include sensory devices which are embedded in clothing or wearable devices which monitor the patient's physical or mental activities. Cameras are also enforced to keep an eye on the patient's activities towards himself or others. Instant assistance can be provided by the care giver. These are audio-video based solutions.

This being the review on applications of activity recognition systems with regard to performance and evaluation.

A large set of sensor network can track the information of simple human activities in detail. This information can later be combined by using computer fusion algorithms to detect the complex behavior of a particular patient.
Considering the performance factors, visual sensor-based approaches require a higher amount of computer processing power to process the data

compared to other approaches due to the complexity of the vision algorithms and the data volumes. Whereas, non-visual sensor approaches perform comparatively faster and consume less energy and are more resourceful.

For our research, observation and analysis of the performed activity is done by the following steps
(1) Preprocessing of the raw data from sensor streams for eliminating noises and performing aggregation.
(2) Segmentation – from the obtained parameters, the most significant data is picked up.
(3) Feature extraction – extracting the main characteristics of features from the segmented data.
(5) Classification- the core machine learning and reasoning. The classified data is sent to display system.

Use of sensors can increase the efficiency and effectiveness of observation and analysis of patients. The computational unit and UI provides a mode for instant interaction with the hospital caregivers in case of urgent need.