Week One Assignment

CS 370

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Home is a place people generally feel safest, safe from the environment, the hustle and bustle of the world, and generally a place they can relax and be at ease. A person's home is supposed to be safe, that is until it isn't. Home invasions are a real thing that a lot of people say they never thought would happen to them. Home security is a huge thing in a lot of modern homes, between ring doorbells and cameras. Systems that alert emergency services when needed and things that in general give most people more piece of mind then they already have. This however only goes so far and I think could be greatly improved with the help of artificial intelligence.

The first thing would be facial recognition, knowing when someone is at your door or in your yard that has yet to be detected in your system and alerting you of said person's presence could help for early detection of a problem! While most homes have cameras, imagine the possibility of seeing every angle of the outside of the home with the use of motion detection, no more dead zones or blind spots. How you ask, smart drones that are programmed to learn the movements of the home's residence and pin point abnormal habit patterns in the movement of humans and animals alike.

The next big thing would be the cloud based systems. Everyone has the desire to control their home from anywhere, knowing what's happening in real time. What if we had AI technology that automatically sensed when doors were unlocked, or notify you when someone you know enters the property by a special notification vs someone you don’t know. This could use facial recognition as another layer where AI would come in handy. Long story short the benefits of AI in home security run deeper than you would think, it's a universal no blind spot of home security allowing for no limit visualization over your entire home giving peace of mind.

I have already talked about one of the AI techniques that home security could use to help with the sense of security and it is machine learning. This can be used in the facial recognition part of the cameras learning in a sense who is friend and who isn't. This isn't just as simplee though it could help detect humans and animals, helping to detect threat or just simply an animal running by. It also could use sound analysis as well, learning what is normal with humans and animals and most importantly normal human sounds vs distressed human sounds. Allowing for early detection of an emergency within the home.

NLP is another thing that we see a lot currently but could as AI help improve security. Imagine walking out of your home and instead of asking alexa to arm the security system the system itself will do it. Along with locking doors on voice command or calling emergency services. This is another AI technique that would be very helpful in the world of home security!

Component this would need are things like smart cameras for the facial recognition, microphones for voice commands and the sound analysis and the ability to connect to allow for the notification of emergency services. I believe that as time goes on, drones would be a great addition to eyes on the homeowners property to allow for that no blind spot surface area. Other things are glass break sensors, door cameras and a home station to allow a hub area for all the devices on the system to communicate and work.

THe largest ethical concern of AI home security is privacy, or lack there of when it comes to such an invasive type of home security. KNowing information from faces to things the AI can learn from the technology that is picking up everyday behavior. There is also the issue of bias that comes through in AI over time the security system could develop a human-like bias which can cause more harm than good in the long run!

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