**Human Memory Model:**

In discussions with Jen, we’ve decided that the human memory is too complex to model in a general sense because of the large number of factors that can have an effect. Therefore, we think we need to work from the bottom up, trying to choose as specific scenario/application as possible. If we can start with a simple application and develop a model for how we expect QoI attributes to change between information being given/input to a person and then being recalled/output, then we can use that model to try to predict how the QoI is affected when being forwarded through multiple hops.

Some points of thought/discussion from my meeting with Tom last week:

* Maybe we should focus on an all human network first and then consider a mixed human-computer network
* Two variables whose impact we can consider in the single human model, if possible, are storage time (how long between learning the information and recalling it), contact duration time, essentially treating it as a Delay Tolerant Network
* Another choice for human or mixed networks to consider is the medium of communication (voice, text, image, video, etc.)
* Can we use Elicit either 1) to develop the network-level model empirically from our human node-level model, or 2) to validate an analytically derived network-level model
* For the initial application, can we create an intelligence gathering and sharing application where human agents learn and share facts? This may be useful if trying to use Elicit, right?
* An important question: Given our chosen scenario, is it possible to develop an accurate single agent model of how accuracy and precision will change with the factors of interest (like delay and amount of information), or is this something that we would need a human experiment to determine?

**Machine Learning:**

Xifeng also had an idea that machine learning might be applied to this problem. I’m not sure if I understood it correctly, but I’ll explain my takeaway from the conversation, and I’ll let him correct and expand where necessary. Basically, machine learning could be applied two ways.

First, given models of how the different QoI attributes change, machine learning algorithms can be used to determine the optimal combination of these attributes. This could be applied, for example, to decide whether a node should cache a piece of data that it relays and what data to drop when space constraints are reached. An example application here could be Facial Recognition. Given 1,000 images to compare against, a computer will have a certain level of accuracy in recognizing a face. When a new image is received, the machine learning algorithm can provide the decision of whether keeping it and deleting a different image will improve future expected accuracy.

Second, given a data set of how information flows through multiple hops, we might be able to infer the QoI function that each node uses to determine what to forward. This could be useful in modeling a single agent’s memory model empirically if we had a data set to train on. Unfortunately, when Twitter users forward information, they retweet it, which doesn’t change the information accuracy or precision, so I don’t think this data set would work. If we did have a data set where accuracy and precision could be evaluated at each hop from source to destination, then I think this could be really useful.