# Simulation Design Document

RQ1: How spreading fake news impacts the overall consumption of real news?

RQ2: What type of communities develop on social media when fake news spreads?

## Types of Objects interacting in the simulation

1. News event: This object is to cover a specific event; the events will drive the simulation as when an event happens the environment reacts to it. The news event has the following attributes:
   1. Title sentiment: this factor drives the important of the story.
   2. Fake probability: This is a flag that resembles is the article is real or fake, this will not be known to the users until after the event ends.
2. News sources: This object is concerned with where news stories are referred to as a resource. The news sources have the following attributes:
   1. Malicious intent: This factor is a binary field that captures whether the news source has the intent to spread news that are blatantly made up.
   2. Reliability of journalism: This factor captures the degree of which a news source will accept a story. Generally, a reliable news story needs a confirmation from two sources, however, not every news source on social media operates to this standard and may share an event story with less than two credible sources.
   3. Source bias: This factor is to capture is the news source is biased. Generally, a biased news source might not want to prioritize sharing a story if it contradicts with its direction.
3. Users: In the social network, the users are the consumers of news. The users have the following attributes:
   1. Individual bias: This is what the users perceive the world around them to be. A higher value implies a more extreme view (regardless of the direction)
   2. Individual use of intellect: This factor is for how much reasoning the user will put in understanding the news and rationalizing it. The higher the value, the higher the user’s ability and motivation to translate the events.
   3. Connectivity: This feature captures how much influence the user has on the network by capturing how many other users follow this user.
   4. Individual fake news classifier: This will be the model the user develops in order classify news as fake or real. It is directly intended to estimate the fake probability attribute of the news event object

## Simulation Steps

The following steps are carried out to execute the simulation

1. Initialize the world, agents, and the internal models
2. Agents observe the world
3. Agents update their internal model, they send their observations to ML model
   1. Observe the world and record observations
   2. Update internal model based on history
   3. Recommend actions (i)believe or not (ii)accept by like/favorite (iii)share
4. Agents take action, then go back to step 2