# Stochastic Simulation

The data is simulated from a spatial markov chain with variable transition probabilities. Participants alter between three possible states: roam, check phone and conversation. The probability of transition between the states depends not only on the location of the participant relative to other participants, but also the fame score and specialization field of nearby participants. This way, the probability of engaging in conversation instead of checking ones phone is higher if in the vicinity of a famous participant from the same specialization.

We run the model over a variety of parameters, and during the SC14 conference, hope to train the model with real-world data gathered from attendees.
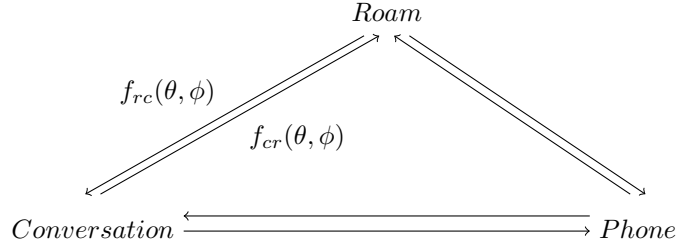


Figure 1: A graph illustrating the transition states of the model. The function $f_{ij}(\theta, \phi)$ denotes the probability of transitioning from state $i$ to $j$ , and is only shown twice as an example

$3 \times 3$ matrix

$$\begin{pmatrix} f & b & c \\ d & e & f \\ g & h & i \end{pmatrix}$$