Panic Driven Human Motion

Mid-Semester Presentation

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Problem Statement

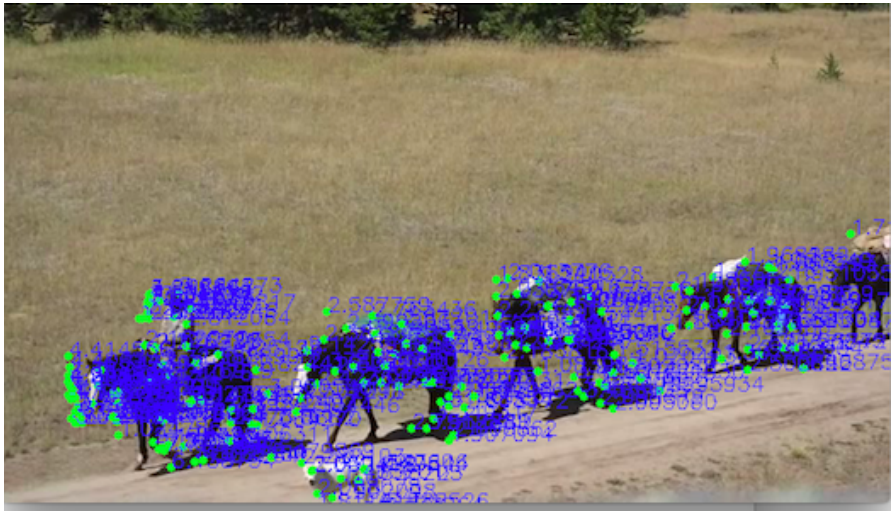
- To understand panic driven motion of people under different conditions.
- To model the motion of panic driven minds which tend to make rash collective decisions.
- Try to come up with strategic solutions to minimize the trouble caused due to panic related rush.

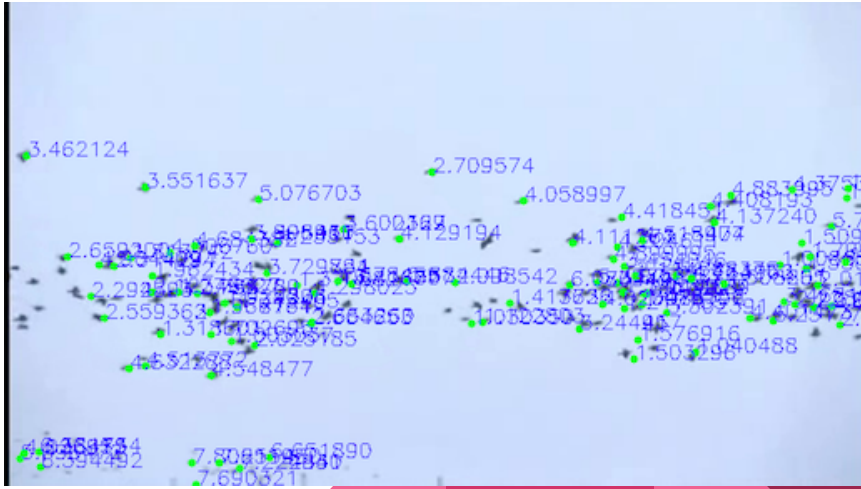
Point Object Simulation

- People can be approximated to be point objects moving towards exit(s)
- We analyse the force relations between different people and between people and walls, we can effectively simulate a panic situation.
- Helbing, Dirk, Illes Farkas, and Tamas Vicsek. ”Simulating dynamical features of escape panic.” Nature 407.6803 (2000):487-490. gives us the required equations

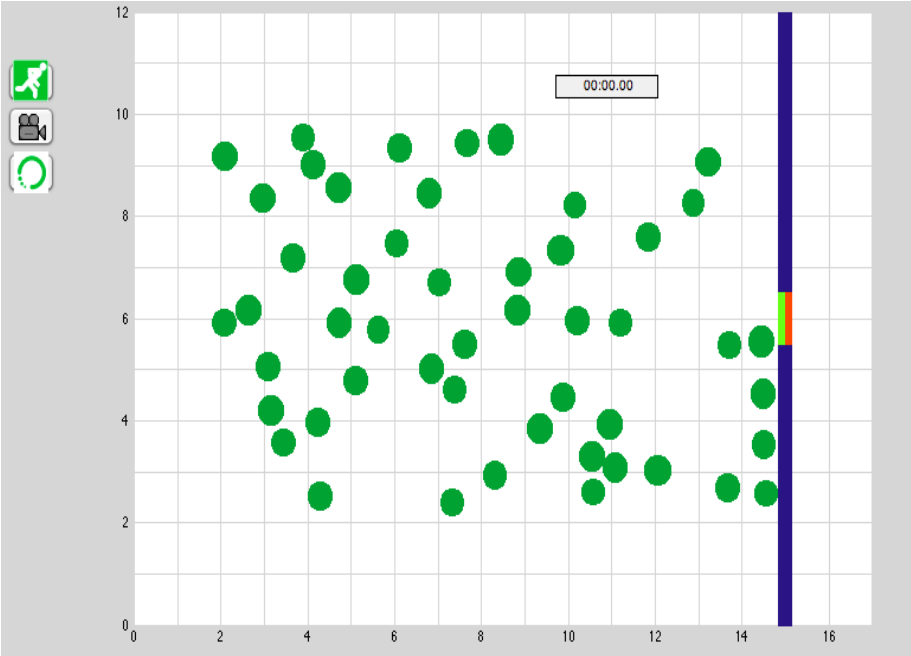
Work done so far

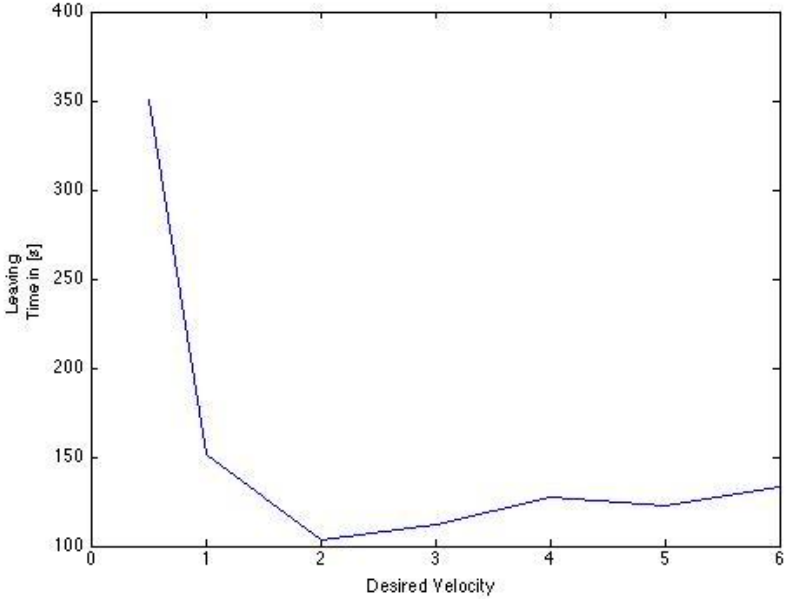
Optical flow computation using Lucas-Kanade algorithm from videos.





Reproducing results from Dirk’s paper.





Further Aims

- To simulate for multiple exits and to find out optimum placing of exits for minimum amount of damage
- Moving/expanding point of panic to further make the simulation closer to real life panic situations
- Analysis of videos to see how the simulations match up to real cases