Pedestrian collision avoidance on narrow sidewalk: a meeting between psychology and virtual reality
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PEDESTRIAN COLLISION AVOIDANCE ON NARROW SIDEWALK: A MEETING BETWEEN PSYCHOLOGY AND VIRTUAL REALITY

Context: NARROW SIDEWALKS

- Encounters of two pedestrians are impossible when walking in the opposite way.
- Narrow sidewalk when we encounter a pedestrian.
- The pedestrian is expected to step down when:
  - He walks fast.
  - He is attentive.
- For the participants, no gender effects.

Goal:
- Simulate a social virtual pedestrian.
- To anticipate the collision.
- We avoid the collision by modifying our trajectory.

Impact of 3 personal factors were studied:
- Speed (fast – slow)
- Sex (male – female)
- Distraction (texting – non texting)

Social Perception Model:
- Speed and attention influence the decision to step down.
- Detection time is then a score.

General Perception Model:
- Speed and attention increase the detection time.
- Overall ranking of the model-based videos:
  - Median = 4

First Experiment – Questionnaire:
- 64 videos of pre-jousting, before any modification of trajectory.
- 64 videos of complete jousting with the new model.
- One of 8 videos is a false video.
- Participants said if the jousting is credible.

Second Experiment – Questionnaire:
- 64 videos of complete jousting with the new model.
- One of 8 videos is a false video.
- Participants said if the jousting is credible.

Discussion:
- To use Social Pedestrian Non Player Characters in VR environment is feasible.
- Needs to take into account the empowerment/authority.