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

Impact of 3 personal factors were studied
- Speed (fast – slow)
- Sex (Male – Female)
- Distraction (texting – non-texting)

First Experiment – Results
- Influence of speed and attention
  - Pedestrian is expected to step down when
    - he walks fast,
    - he is attentive
  - Pedestrian, no gender effects

Social Perception Model
- Speed and attention influence the decision to step down from the narrow sidewalk
- Virtual pedestrian decides to step down if his detection time is greater than the other pedestrian involving in the jousting

N.B.: the virtual pedestrian sees pedestrian in the public space, and detects him in the social space

Goal: to simulate a social virtual pedestrian (non player character) in order to study this kind of situation in virtual environment

Problem: why do we choose to step down or stay on the narrow sidewalk when we encounter a pedestrian walking in the opposite way ?

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

2nd Experiment – Results
- Credibility of model-based videos and fake videos according to the subjects’ answers

First Experiment – Questionnaire
- 64 videos of pre-jousting, before any modification of trajectory
  - 32 counter-balanced videos
- Participants told who was to step down: pedestrian at left or at right in the jousting with a Likert scale.
- Participants said why the virtual pedestrian stepped down (speed, sex, distraction) with Likert scales
- 64 videos of complete jousting with a Likert scale.
- Participants said if the jousting is credible
- 64 videos according to the subjects’ answers

Social Perception Model
- Speed and attention influence the decision to step down from the narrow sidewalk
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- N.B.: the virtual pedestrian sees pedestrian in the public space, and detects him in the social space

Discussion
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Overall ranking of the model-based videos, Median = 4

Experiment – Results
- Credibility of model-based videos and fake videos according to the subjects’ answers

First Experiment – Questionnaire
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