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The Trolley Problem in Virtual Reality

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Question

Would people react to the Trolley problem differently based on the medium? If so, How?

Goal

1. Collect and analyze extensive data on the Trolley problem in immersive VR
2. Model the behavioral response

Introduction

1. Study in decision making involving moral dilemmas

(Wachter et al 2017).

- Human moral decisions sometimes utilitarian sometimes deontological (rule-based).
- Provides guidelines for autonomous vehicles

2. Action aversion & emotional inhibition in moral dilemmas

(McDonald & Defever 2017).

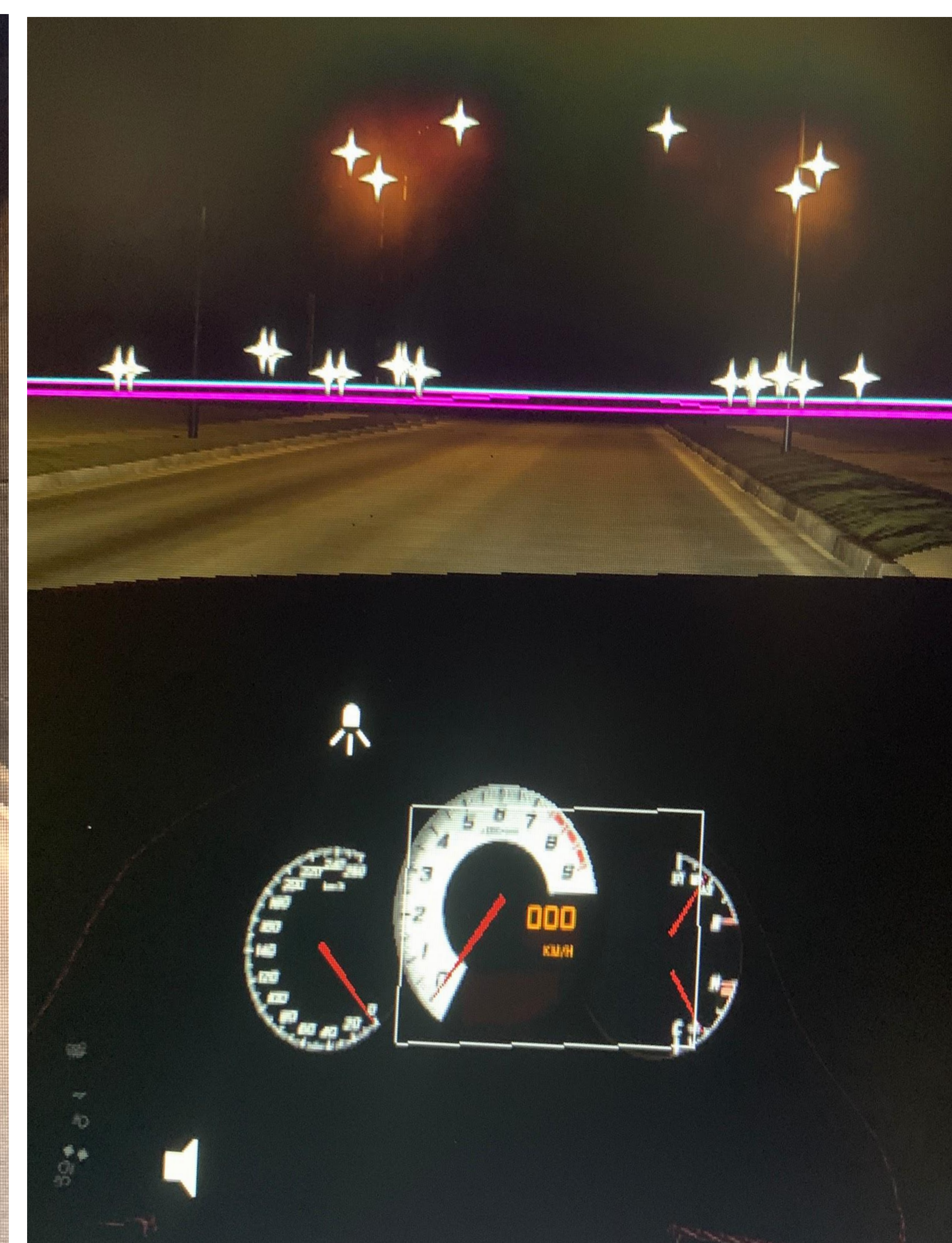
- Competing intuitions: automatic vs. deliberative systems
- Physiological arousal increased in moral dilemmas



Tunnel for Trolley Problem



The Trolley Problem



Subject's Perspective

Method

Task:

1. Subject drives freely in driving simulator for several minutes
2. Suddenly encounters trolley problem
3. Controls enable subjects to make decision & act
4. Measure EEG to analyze concurrent neural activity

Trolley Problem:

Philosophical thought experiment:

- Person walks near train tracks where runaway trolley will hit & kill 5 people
- Can switch it to another track where 1 person will be killed
- Should they switch?

Virtual Reality (VR):

Immersion & Illusion of presence in VR (Slater 2018).

- Known illusion: initial perception does not change
- Stronger emotional response
- More ecological results vs. textual vignettes
- Subject immediately reacts