

Searching for Street Parking: Effects on Driver Physiology, Behaviour and Visual Attention Allocation

Canmanie Teresa Ponnambalam

MASc Candidate, Mechanical & Industrial Engineering

Human Factors & Applied Statistics Lab

Supervisor: Dr. Birsen Donmez

There is a heightened crash risk in urban areas that allow street parking (Box & Levinson, 2004)

Proposed reasons:

- Reduced road width
- Heavy traffic flow
- Increased obstacles
- Pedestrians entering/exiting parked vehicles
- Decreased sight distance

Could drivers **searching for parking** contribute to this heightened crash risk?

How does searching for parking affect drivers?



On-road instrumented vehicle study



26 participants drove 540m on Bloor St., once when searching for parking and once as a baseline (counterbalanced order)

We measured:

- Driver heart rate and skin conductance
- Vehicle speed and lane position
- Off-road glances and percent time looking off-road



On-road instrumented vehicle study

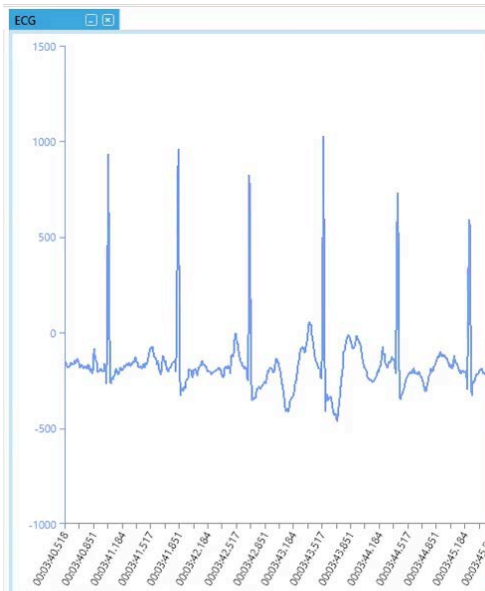


On-road instrumented vehicle study



Results: Baseline vs. searching for parking

Physiology



- Heart rate increased marginally
- Skin conductance produced no significant difference

Results: Baseline vs. searching for parking

Vehicle Measures

- Speed decreased
- Speed variability decreased
- Vehicles were positioned closer to the curb



Results: Baseline vs. searching for parking

Visual Attention Allocation



Results: Baseline vs. searching for parking

Visual Attention Allocation

- Number of off-road glances under 1.6s decreased
- Number of off-road glances above 1.6s increased
- Percent time looking off-road increased



Conclusions

- Our experiment provides evidence that searching for parking affects driving behaviour and visual attention
- Improved support for drivers searching for parking (e.g. road design, mobile apps) may contribute to road safety
- More research is needed to determine if compensatory behaviour (decreased speed) is sufficient to mitigate effects of possible unsafe behaviours (increased off-road glances)

