

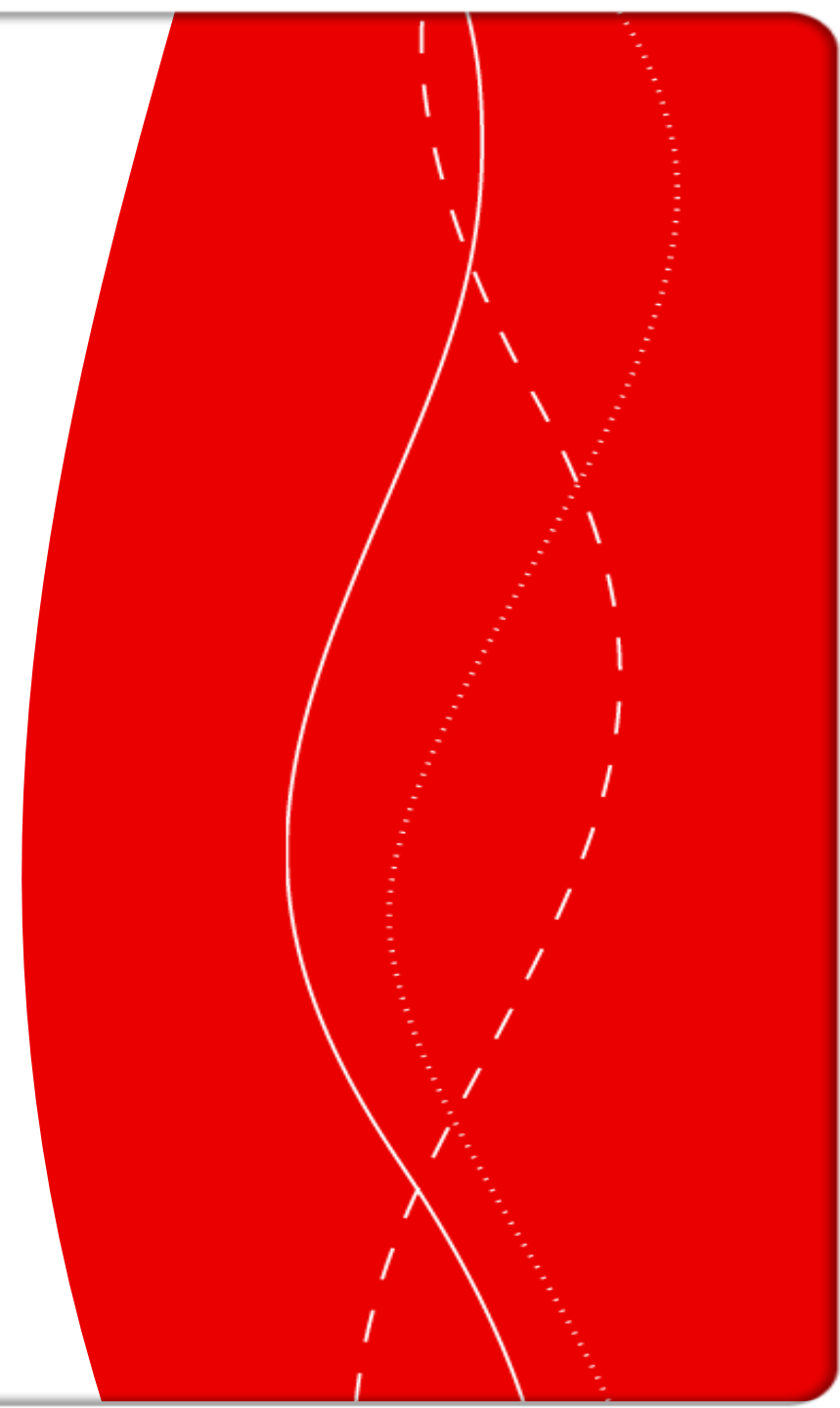


”Blue light” simulators for driver training and for 5G ”Emergency Vehicle Approaching” warnings

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Driver and vehicle group



Emergency and rescue services is riskful

Police vehicle damage (Sweden, SEK)	2013	2014	2015	2016	2017
PIT* manouvres	196	276	314	316	345
Cost (PIT)	8 425 166	10 291 811	12 606 430	12 984 906	15 576 793
# damages	4771	4819	4904	4931	5105
Damage cost	57 902 774	56 027 009	62 981 290	59 229 373	61 500 611

* Pursuit Intervention Technique

Risky business



Risky business (courtesy of AISAB)



Who is affected?

Emergency and rescue service personnel

Other road users

Those expecting help by the actual mission

Society (costs, suffering)

Potential for improvement!

- Simulator-based driver training
- Early warnings for "Emergency Vehicle Approaching" (EVA)

Simulator-based driver training

Advantages

- Well-established (flight and train industry)
- Cost-efficient
- Allows for repetition, individualisation, group exercises
- Improve awareness of your own limitations

Downsides

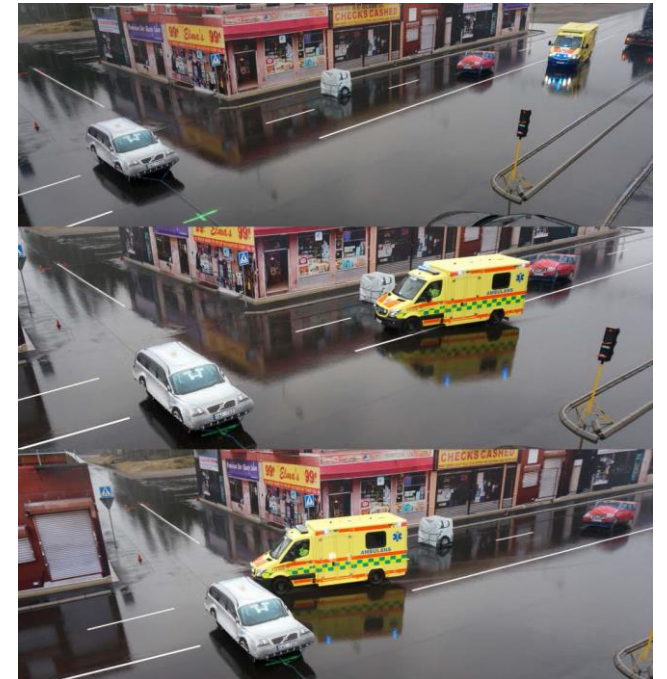
- Lack of realism (visually, response-wise etc.)
- Suspension of disbelief, however, works!
- Certain types of training, however, is better done on real roads

Reality does not allow...

- Mistakes
- Repetition
- Demonstration
- Feedback in real time...



... but this is possible in a simulated world!



ITS-based warning systems

- Emergency Vehicle Approaching
- Emergency/crash site under establishment

May

- Save lives
- Improve working environment
- Prevent congestion or queues (re-direction/alternate routing)
- Reduce stress and accident risk in other road users

Techniques

- RDS (EVA-M)
- 5G
- Short-range and ad-hoc networking

"Nordic Way 2" – interoperable 5G messaging

6,5 M€ EU project

Road admin. in Norway, Sweden, Denmark & Finland

5G "interchange nodes"

- implemented and deployed

Demonstrate services for

- Connected traffic lights
- Hazards, Warnings
- "Emergency Vehicle Approaching" as one use case

"Emergency Vehicle Approaching" in short



Emergency personnel view and actions



Traffic control + interface



Vehicle driver view and HMI

Simulator set-ups for emergency driving



Sim II, truck/fire engine moving base



Sim III, ambulance/police moving base



Sim IV, moving base



Transportable

Simulated scenarios with "human-in-the-loop"



User-centered development



QUESTIONS?