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Collection of micro-level behaviour indicators with automated video analysis

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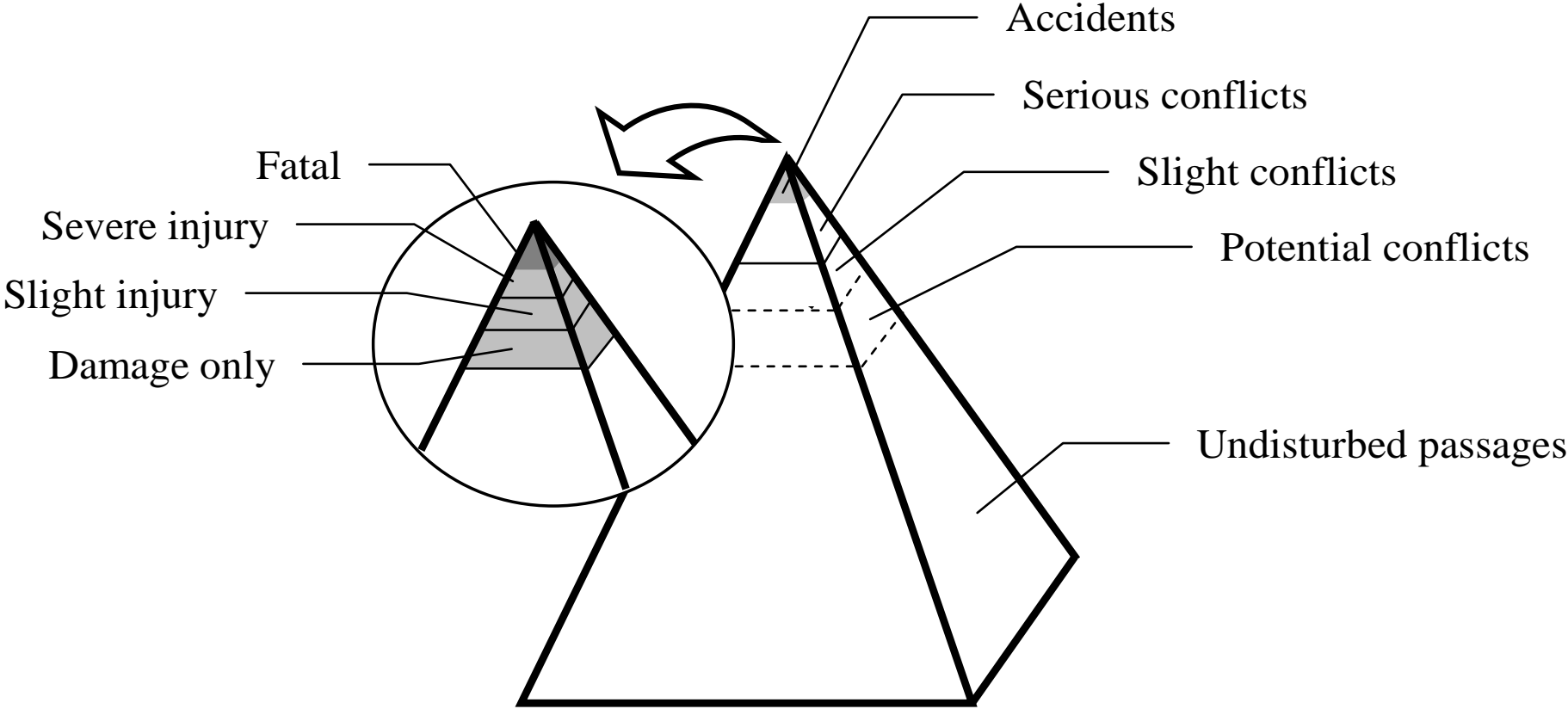
14th September 2011
Indianapolis

Problems with accident data

- Too rare for a specific location
- Under-reporting (esp. vulnerable RU)
- Poorly recorded, no information about how the accident developed
- No chance to be pro-active
- etc.

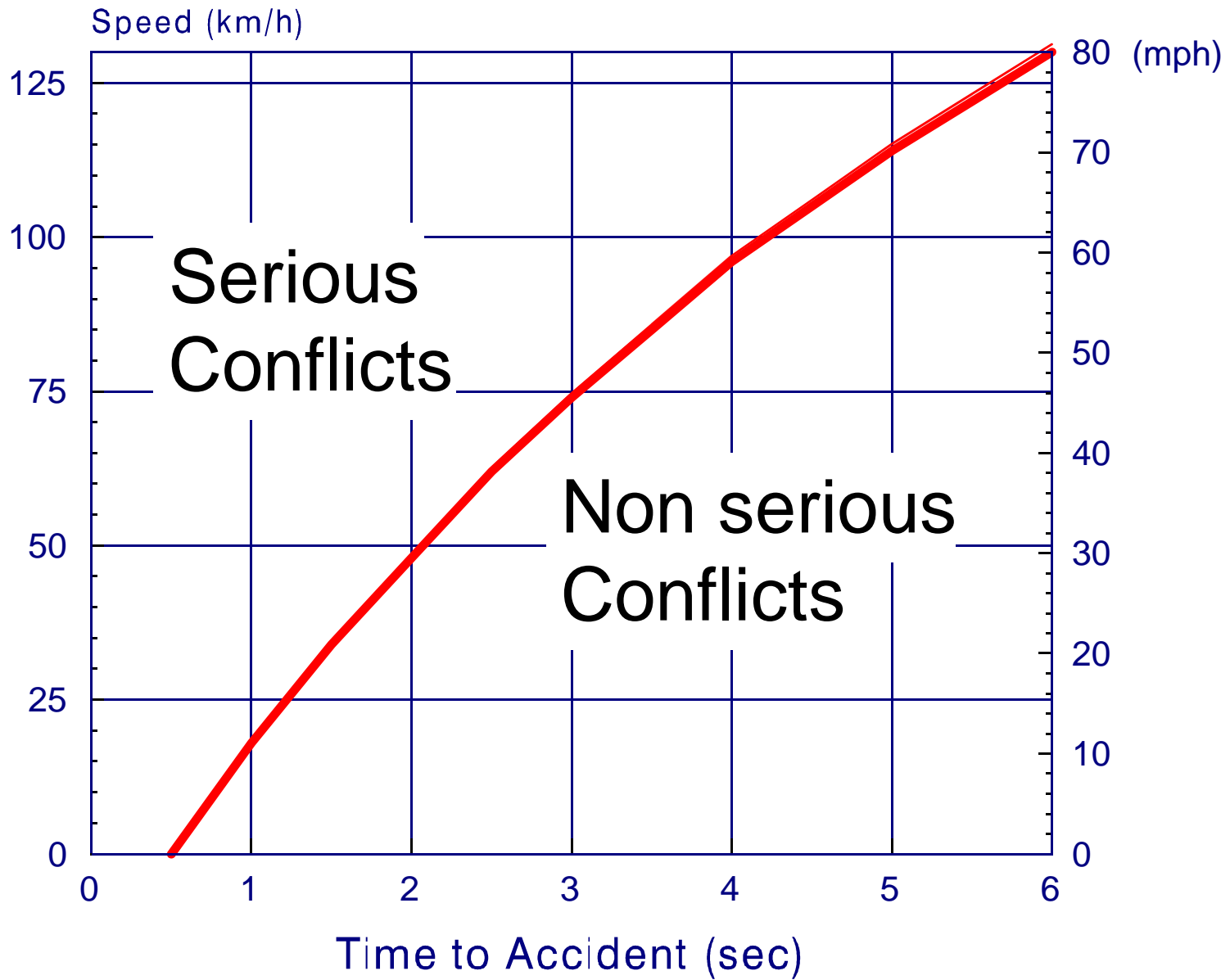


Interactions and safety

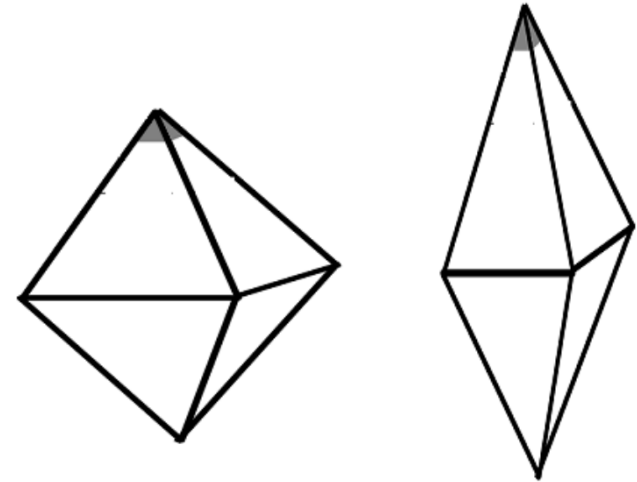
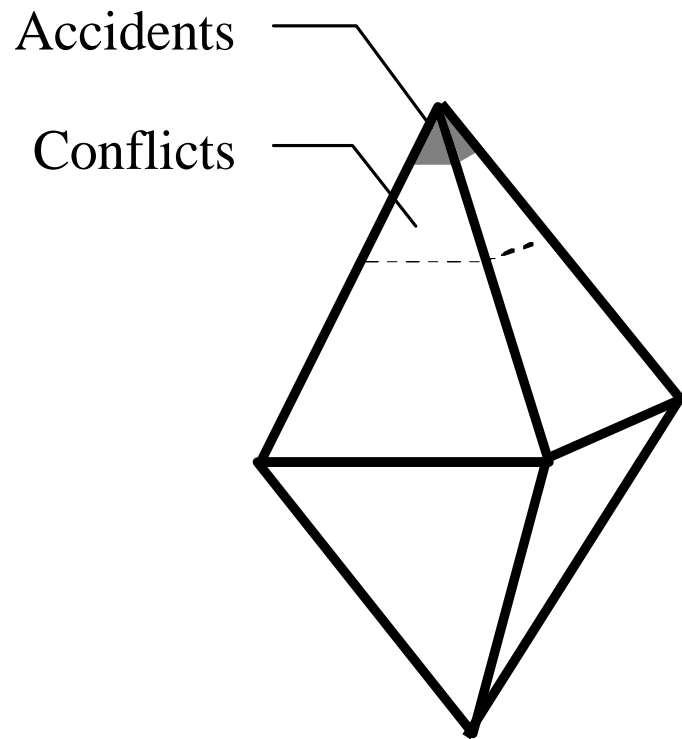


C. Hydén, 1987





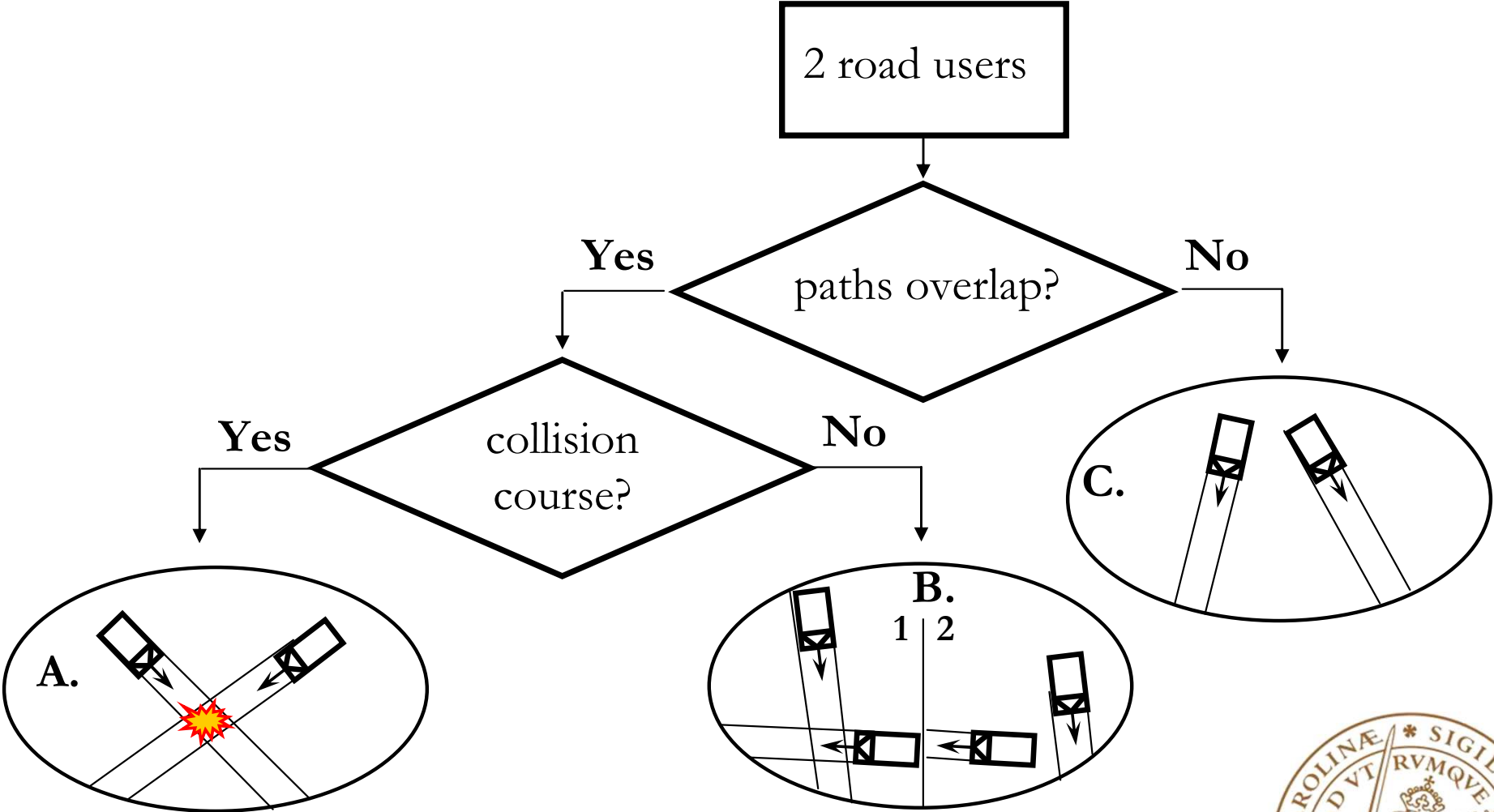
Safety vs. efficiency



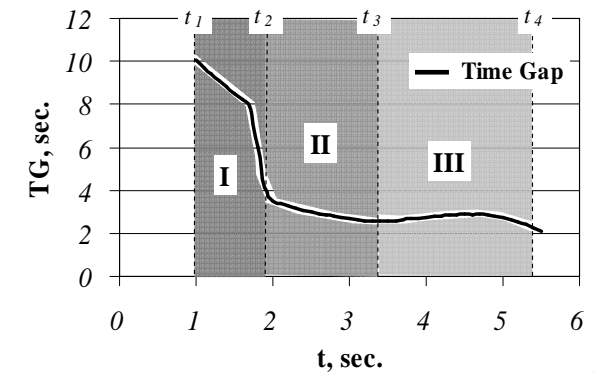
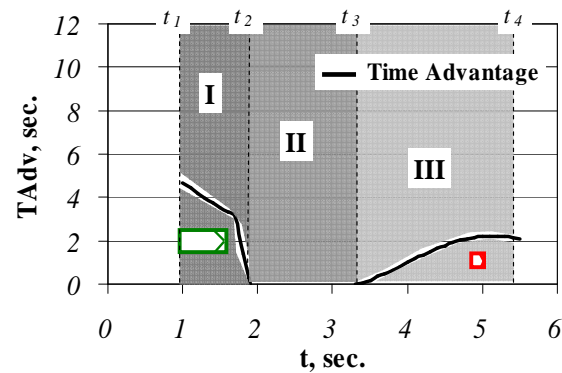
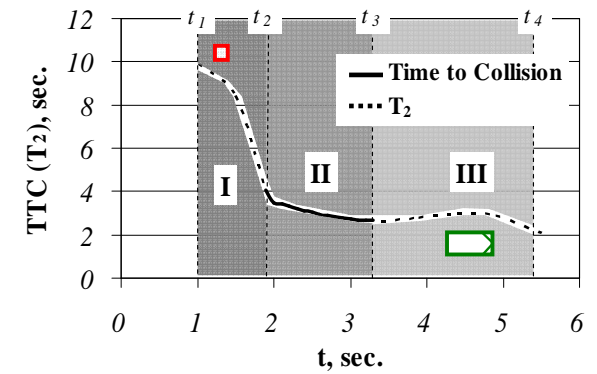
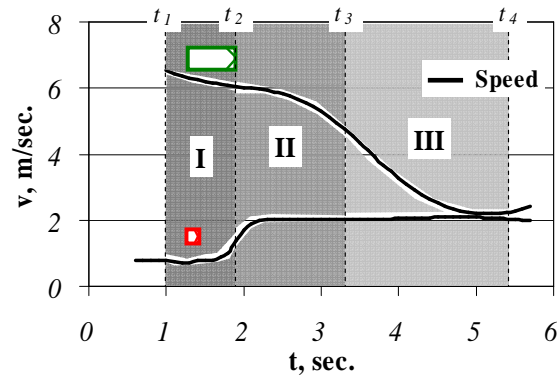
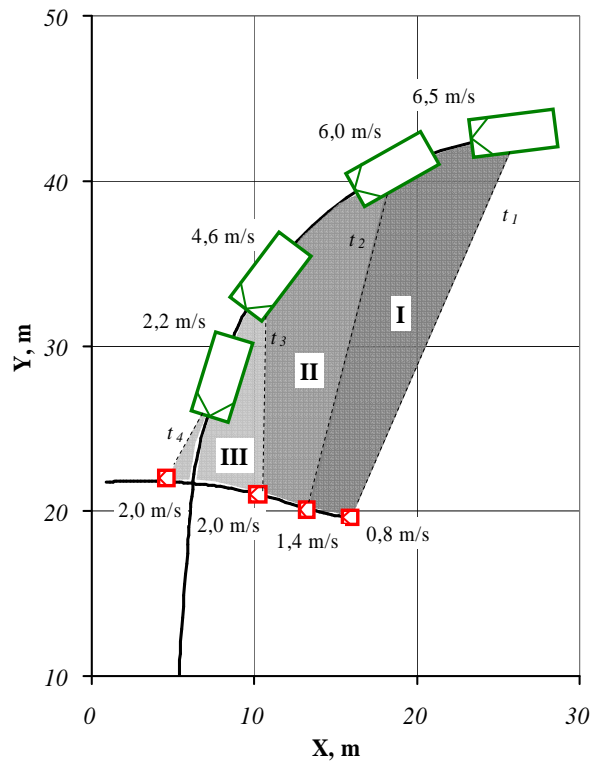
Å. Svensson, 1998



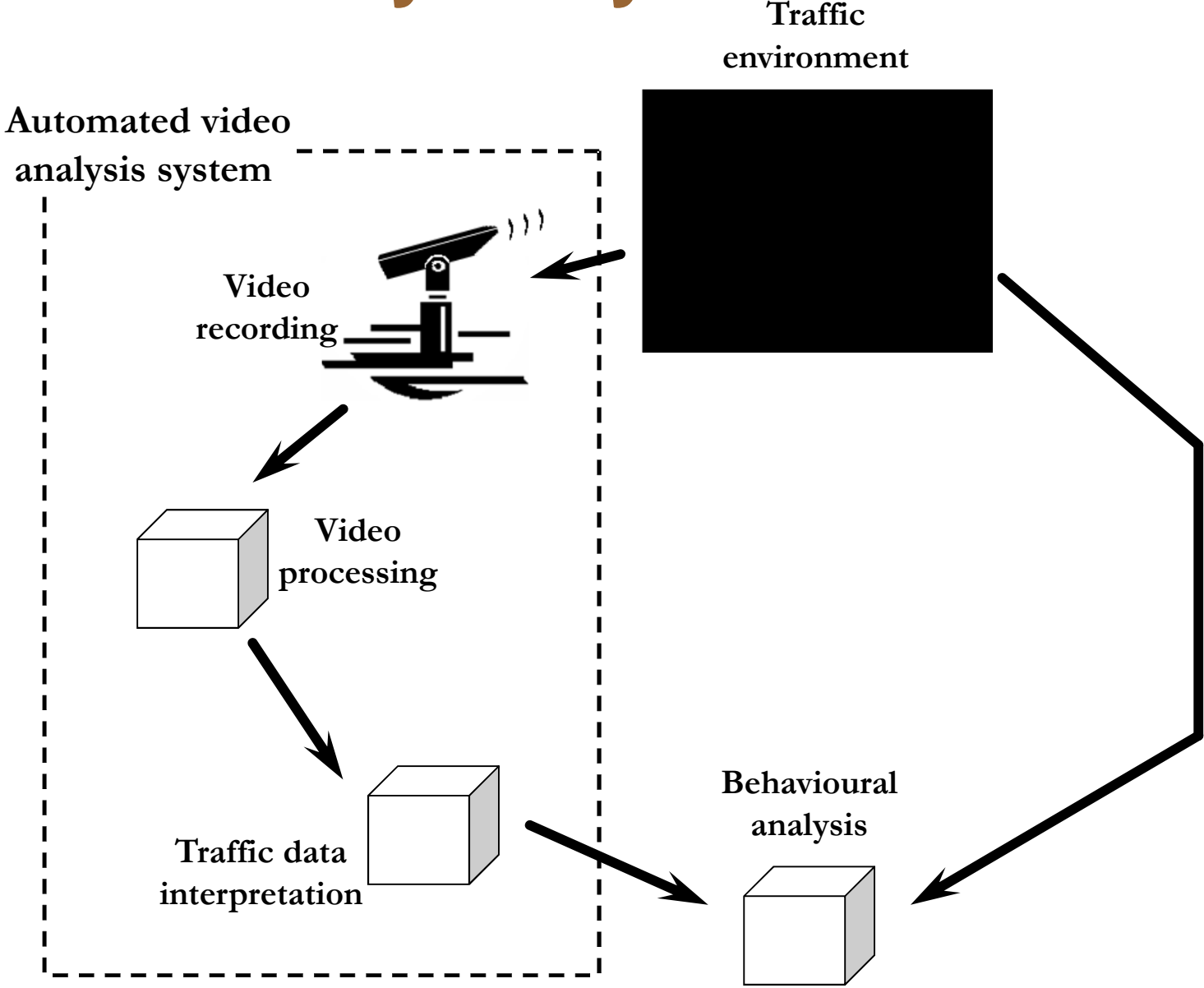
Interaction typology



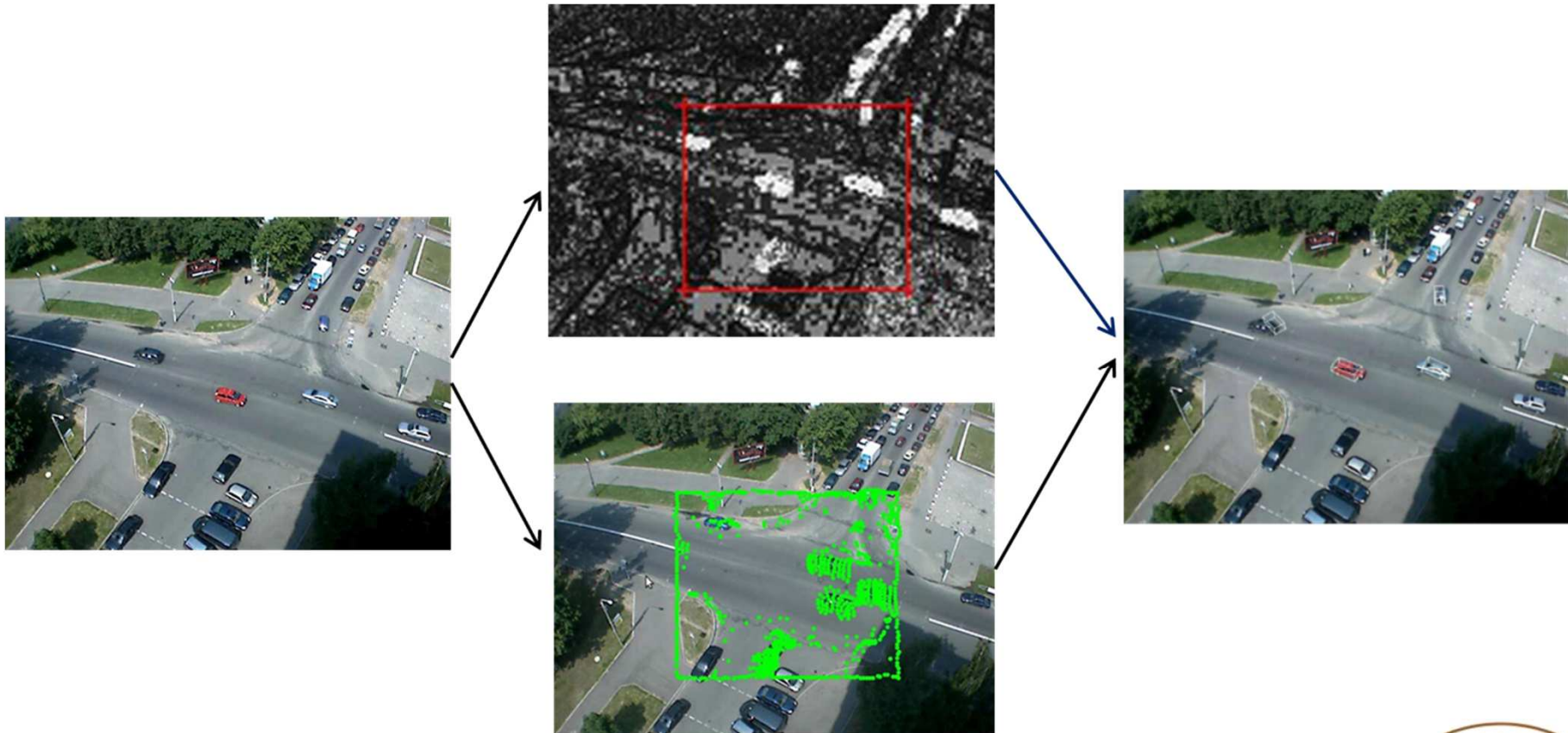
Process of an interaction



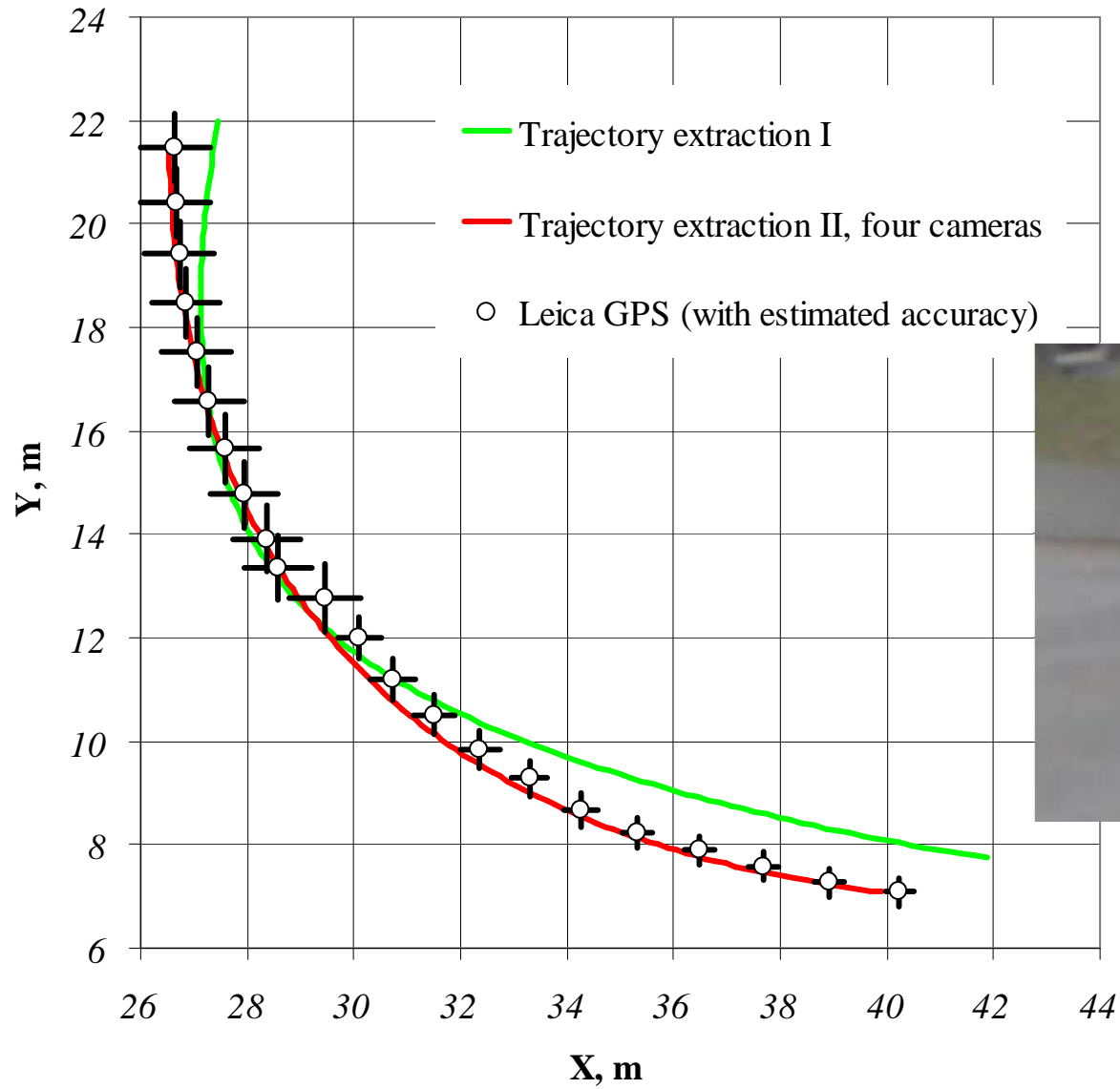
Video analysis system



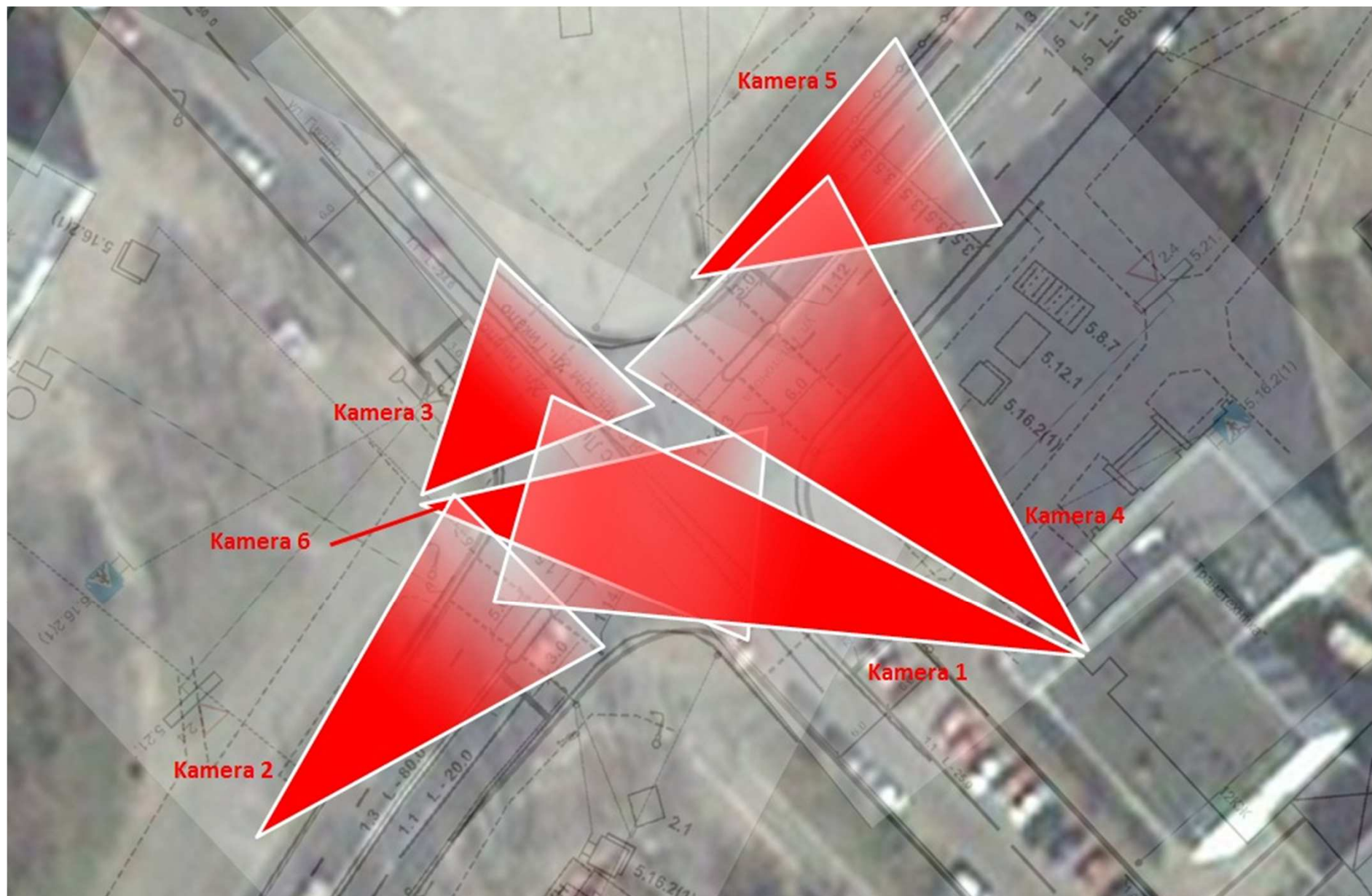
Video processing steps



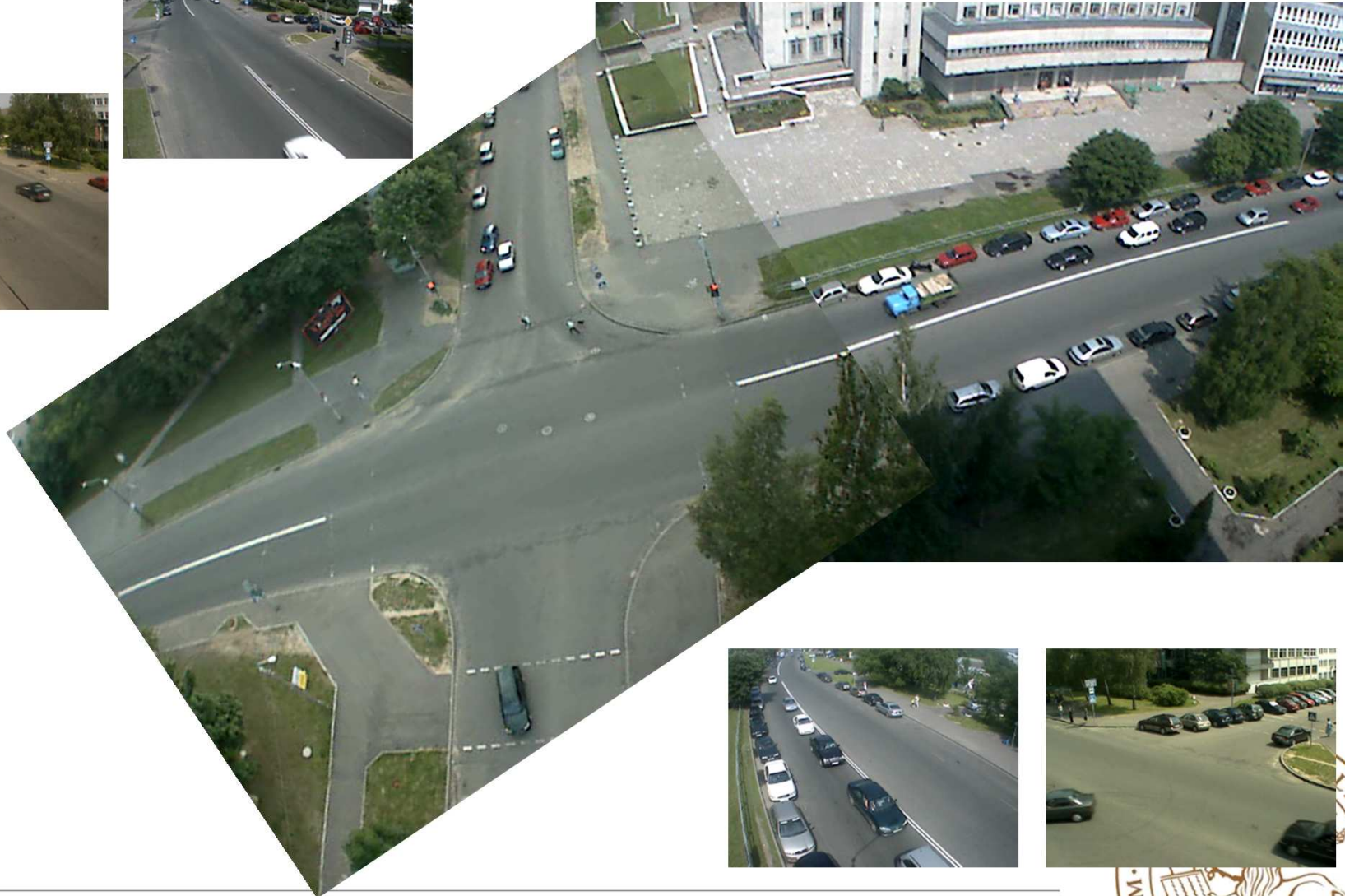
3D-shape



To cover larger area ...

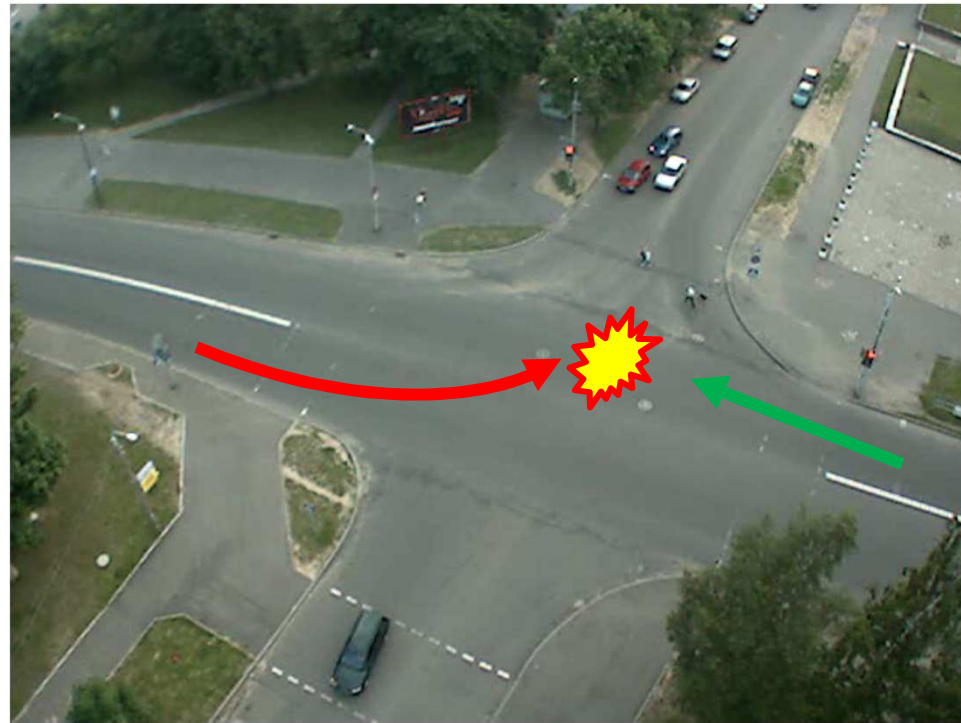
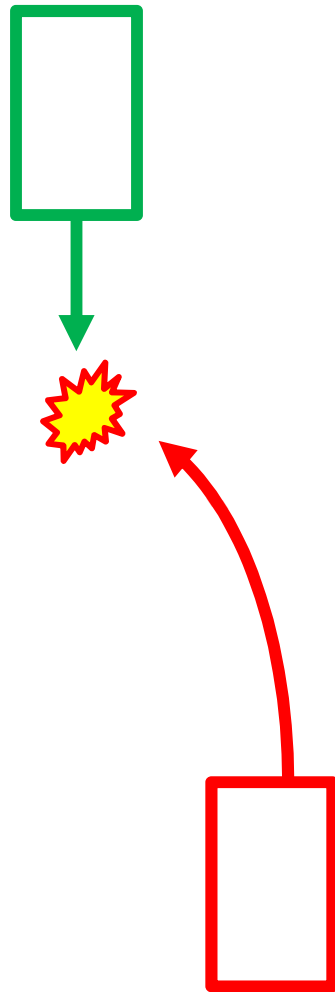


To cover larger area ...





Watch-dog test



4 x 30 minuter

off-peak traffic



Watch-dog test

Automated video analysis			Human observer	
Detection criterion	Detections, total	Relevant interaction	Left-turning vehicles	Relevant interactions
Left turn	94	40	102	42
Left turn + meeting	101	37		
Left turn + meeting + time	47	21		



Conclusions

1. Interactions on a micro-level provide important information about both safety and efficiency.
2. An interaction is a process and should be treated so (continuous indicators).
3. Video analysis has potential to collect continuous micro-level behaviour data.



Conclusions, *cont.*

4. But watching by a human observer is still very important
5. Further improvements in detection and positioning accuracy is an urgent matter.



Thank you!



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