



Near Crashes Workshop

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Background information

- ↪ DACOTA:
 - Monitoring (what is happening) vs research (why is it happening)
- ↪ EuroFOT discussions
- ↪ FOT-Net roundtable in Busan on incident and event definition



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Glossary



- ↪ Near-Crash
- ↪ Situation
- ↪ Incident
- ↪ Accidents
- ↪ Events
- ↪ Triggers


<http://wiki.fot-net.eu>



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Definition of near-crashes




- ↪ Current definitions are rather qualitative
- ↪ Quantitative metrics are needed
- ↪ Categorisation is important
 - **Linked to situation, crash scenario or system**
 - **Frequency, severity, injury risk, avoidance success, related combined human errors**
- ↪ New behaviour-safety relationship




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What kind of observation?



- ↪ Radar, CAN, video logging
 - Need to take into account possible bias due to experiment
- ↪ NC observation only give 50% of the data as other vehicles are not observed



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Recommend Large scale monitoring



- ↪ Need higher level of instrumentation
- ↪ Normal driving or triggered event
- ↪ We do not need accidents to improve safety
 - Understand behaviour-safety relations



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Near Crashes – operational definition



- ↪ Operational definition of near-crash
 - Combination of Data triggers
 - Video confirmation of triggered events
 - Not always have video nor students
- ↪ Link near-crash to given crash scenario
 - **Classes: Behavior(Driver)-Environment-Device(Vehicle)**
 - Environment triggers: TTC, Deceleration
 - Behaviour triggers: hard braking, hard steering
 - Device triggers: warning algorithm
- ↪ Tuning
 - No general set of triggers: Tuning adapted to scenario
 - Look at non-near-crashes to tune your triggers
 - Some triggers seem to mark the difference between crash and near-crash



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What DAS is needed



- ↪ Study of False events is also relevant
 - Thousands of events
 - 12 000 000 events recorded by DriveCam
 - 2500 serious crashes
 - JARI study
 - Study of pre-crash phase is most informative
- ↪ System categories
 - Commercial NDS, Research NDS, FOT, Experimental
- ↪ Market-ready logging systems
 - DriveRecorder.co.uk
- ↪ Events are not the main source: Importance of data enrichment
 - Map data, driver ID, questionnaires



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DAS recommendations



- ↪ Video is a must:
 - Validation of crash related event
 - Validate scenarios
 - Driver state and gaze direction
 - Discard false alarm



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Predictive value of near-crashes



- ↪ Relation between speed and TTA is one of the only one validate by accident data
- ↪ Proportion of conflicts vs accidents is constant
- ↪ Combination of sensors is relevant (radar and video)
- ↪ Detecting near-crashes is minimum requirement to understanding the near-crashes and getting insides into the safety process




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Accident database and events

- SAFETYNET and DREAM (Driver Reliability and Error Analysis)
- List of contributing factors exist from literature
- Apply the accident causation theory to the incidents detected in the NDS
- DREAMi is re-using the events detected in SeMiFOT to find out the links with accident database

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Related activity – next

- FOT-Net support for creation of WG with mission to dig in specific aspects to the FESTA methodology
 - WG on incident and event definition
- SeMiFOT2 WP1 on development of quantitative definition of crash relevant-event severity
- DACOTA

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