OPENPASS

STEERING COMMITTEE WEBCON, MAY 9, 2019

OPENPASS SC WEBCON – MAY 9

- **Status from latest AC meetings / progress towards v0.6**
  - Webcons in March, April: v0.6 „scenario-based AEB assessment“ planned in Tuleap
  - Next meeting on July 4 in Munich: review v0.6 / plan v0.7?

- **openPASS organization: process, product manager, org next steps (v0.7, v0.8..)**
  - Process from July 2018: active, but in „maintenance mode“, not moderated
  - status Product Manager

  - Possible next steps derived from discussion of v0.6 „scenario-based AEB assessment“
    - action points (consolidation , observation/logging, GUI features, visualisation)
    - additional OpenScenario capability, additional requirements for use of openPASS in Set-Level-4-to-5?
  - Possible next steps => „major release“ V1.0 (?)
    - Still no stronger link to relevant stakeholders e. g. PEARS or rating groups who might use openPASS

IDEAS / REQUIREMENTS: WORLD, DRIVER, SCENARIOS

openPASS provides the **framework and exemplary implementations** of various assessment approaches of ADAS/AD; main prerequisite: **a valid baseline model**, i. e. source of conflict situations

- e. g. „list of PCM cases“ is such a, very simple model; use of accident data as baseline

But openPASS allows **new way of understanding accident research**: full-scale stochastic traffic simulation incorporating accident situations => based on „traffic simulation use case“, but for all traffic

High level requirements:

– World needs to reflect complex infrastructure (see OpenDRIVE incl. acc. types: turning, crossing, VRU…)

– Intelligent/applicable human model: capable of handling complex traffic situations, incorporating human error

– Combination with scenario-based approach: use deterministic behaviour, if behaviour model not yet done

Actions: amend „OSI_World“, start modular driver model architecture, follow „OpenScenario 2.0“ discussion

NEXT STEPS: OPENDRIVE / OSI WORLD

Requirements e.g.:

„Sensor of Agent => World: at crossing - is there an agent on the bicycle lane crossing my left-turn path?“

Questions (=> next AC, BMW/in-tech):

Are there plans in v0.6 to extend the OSI_World?

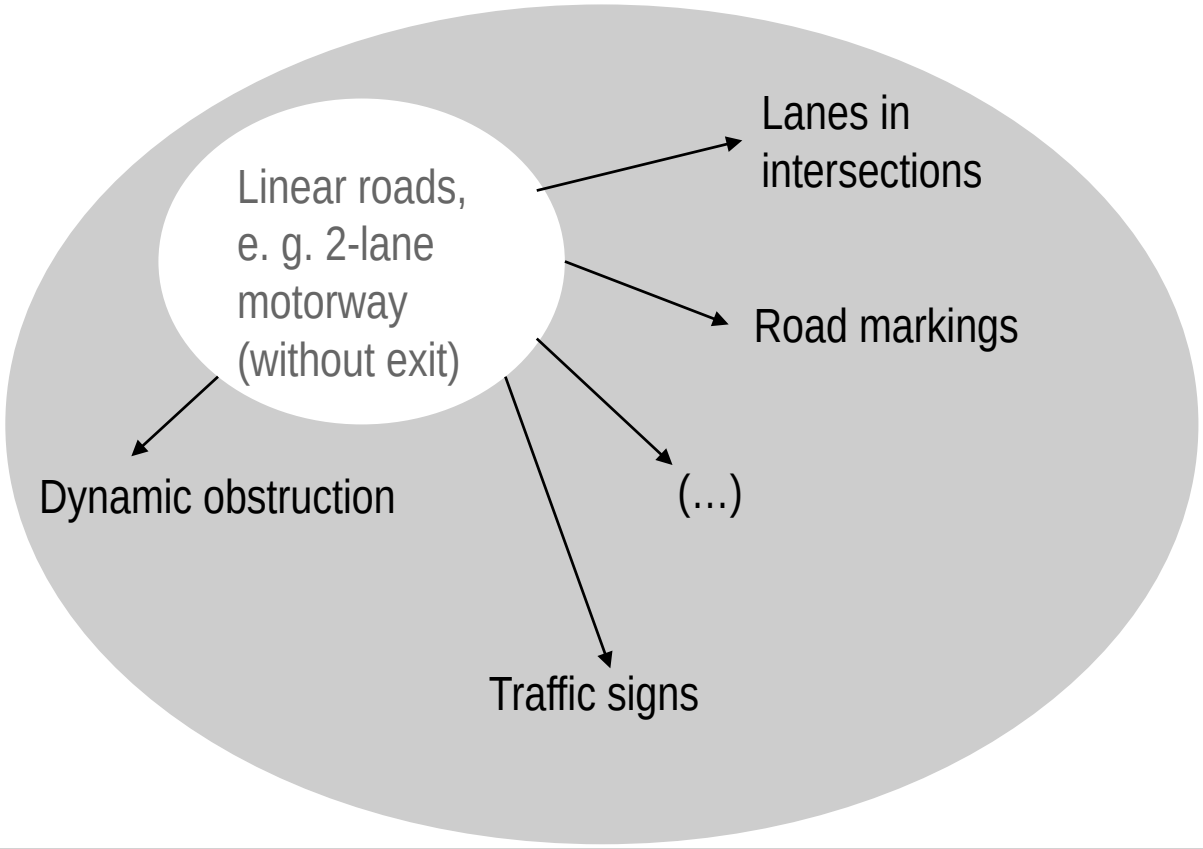
Are there any constraints, e. g. OSI project?

Can other partners contribute to this development?

Actions:

clear documentation (OpenDRIVE, OSI, openPASS)

world amendments reflected in release plan (epic?)



OPENPASS SC WEBCON – MAY 9

– **Guest member TU Dresden (10 min)**
– since early stages of openPASS and PEARS (2016/2017): discussion between founding members to include TU Dresden / AMFD in openPASS developer team, as „scientific partner“
– Role: independent, scientific link to assessment methodology development in general, but mainly: development of human traffic participant behaviour models, applicable for critical situations
– already copyright holder of several components in OSI use case from previous projects
– Current openPASS related projects, e. g. migration of SUMO models, comparison with highD data
– **on working group level:** TU Dresden joined Eclipse as „Associate member“, now we can invite them according to the openPASS Charter to participate in our discussions as guest: **any objections?**
– **on project level: committer vote** => include Konstantin Blenz (already registered in Tuleap)
– Next steps: include TUD in next openPASS meeting July 4 => proposal: modular driver architecture

„EXTERNAL“ COMMITS

- **Process for “external commits” (10 min)**
- Main focus of openPASS development: planned open source commits on behalf of working group members
- Discussion in Feb 2019: how to deal with code from external sources? EPL => copy left effect, so developer has to publish the changes open source anyways
- openPASS repositories should be open for useful amendments

- Proposal for process => review in both SC and AC
  - Get overview on who the developer is and what the developer has done, e. g. one pager
    - Content: is the content of the commit useful for the master branch?
    - Architecture: is the commit e. g. a new, independent component or requires it changes to the interfaces?
  - Reflect selected content in release planning e. g. as user story in Tuleap
  - Commit to new branch => review: check quality, functionality
  - Merge „external commit“ to master branch

EXAMPLE FOR EXTERNAL COMMIT: USER STORY #1075, ONEPAGER „HIGHD OBSERVER“ (GERMAN DRAFT)

Inhalte KAUSAL AP1 2018 - openPASS

Erweiterung Observer „Test-commit“ als erster Beitrag zu openPASS

- „observation_implementation: Ausgabe ausgewählter Observer-Daten analog zum „highD[1]“ Dataset-Format

Example

frame	id	x	y	width	height	xVelocity	yVelocity	xAcceleration	yAcceleration	frontSightDistance	backSightDistance	dhw	thw	ttc	precedingXVelocity
1	1	362.26	21.68	4.95	2.22	40.85	0.00	0.30	0.00	48.05	363.77	0.00	0.00	0.00	0.00
2	1	363.73	21.68	4.95	2.22	40.87	0.00	0.30	0.00	46.54	365.28	0.00	0.00	0.00	0.00
3	1	365.27	21.68	4.95	2.22	40.88	0.00	0.31	0.00	44.87	366.95	0.00	0.00	0.00	0.00
4	1	366.83	21.68	4.95	2.22	40.89	0.00	0.32	0.00	43.25	368.57	0.00	0.00	0.00	0.00
5	1	368.42	21.68	4.95	2.22	40.90	0.01	0.32	0.00	41.64	370.18	0.00	0.00	0.00	0.00
6	1	370.04	21.68	4.95	2.22	40.92	0.01	0.33	0.00	40.07	371.75	0.00	0.00	0.00	0.00
7	1	371.68	21.69	4.95	2.22	40.93	0.01	0.33	0.00	38.25	373.57	0.00	0.00	0.00	0.00
8	1	373.32	21.69	4.95	2.22	40.94	0.01	0.34	0.00	36.63	375.19	0.00	0.00	0.00	0.00
9	1	374.96	21.69	4.95	2.22	40.96	0.01	0.34	0.00	35.02	376.80	0.00	0.00	0.00	0.00
10	1	376.60	21.69	4.95	2.22	40.97	0.01	0.34	0.00	33.35	378.47	0.00	0.00	0.00	0.00
11	1	378.24	21.69	4.95	2.22	40.98	0.01	0.35	0.00	31.63	380.19	0.00	0.00	0.00	0.00

frame	id	precedingId	followingId	leftPrecedingId	leftAlongsideId	leftFollowingId	rightPrecedingId	rightAlongsideId	rightFollowingId	laneId
1	1	0	3	0	0	0	0	0	6	5
2	1	0	14	0	0	0	0	0	6	5
3	1	0	14	0	0	0	0	0	6	5
4	1	0	14	0	0	0	0	0	6	5
5	1	0	14	0	0	0	0	0	6	5
6	1	0	14	0	0	0	0	0	6	5
7	1	0	14	0	0	0	0	0	6	5
8	1	0	14	0	0	0	0	0	6	5
9	1	0	14	0	0	0	0	0	6	5
10	1	0	14	0	0	0	0	0	6	5
11	1	0	14	0	0	0	0	0	6	5

„X_Trajectories.csv“:
frame, Id, typeid, x, y, xVelocity, yVelocity, xAcceleration, yAcceleration, dhw, thw, ttc, precedingId, precedingXVelocity, followingId, laneId, lanechanges

„X_Macro.csv“:
frame, density, flow, numlanechanges, numlanechangesCars, numlanechangesTrucks

- Aus aktuellem AgentInterface
- Erweiterung AgentInterface um „KAUSAL“-Methoden *
- Erweiterung Observer um „KAUSAL“-Methoden