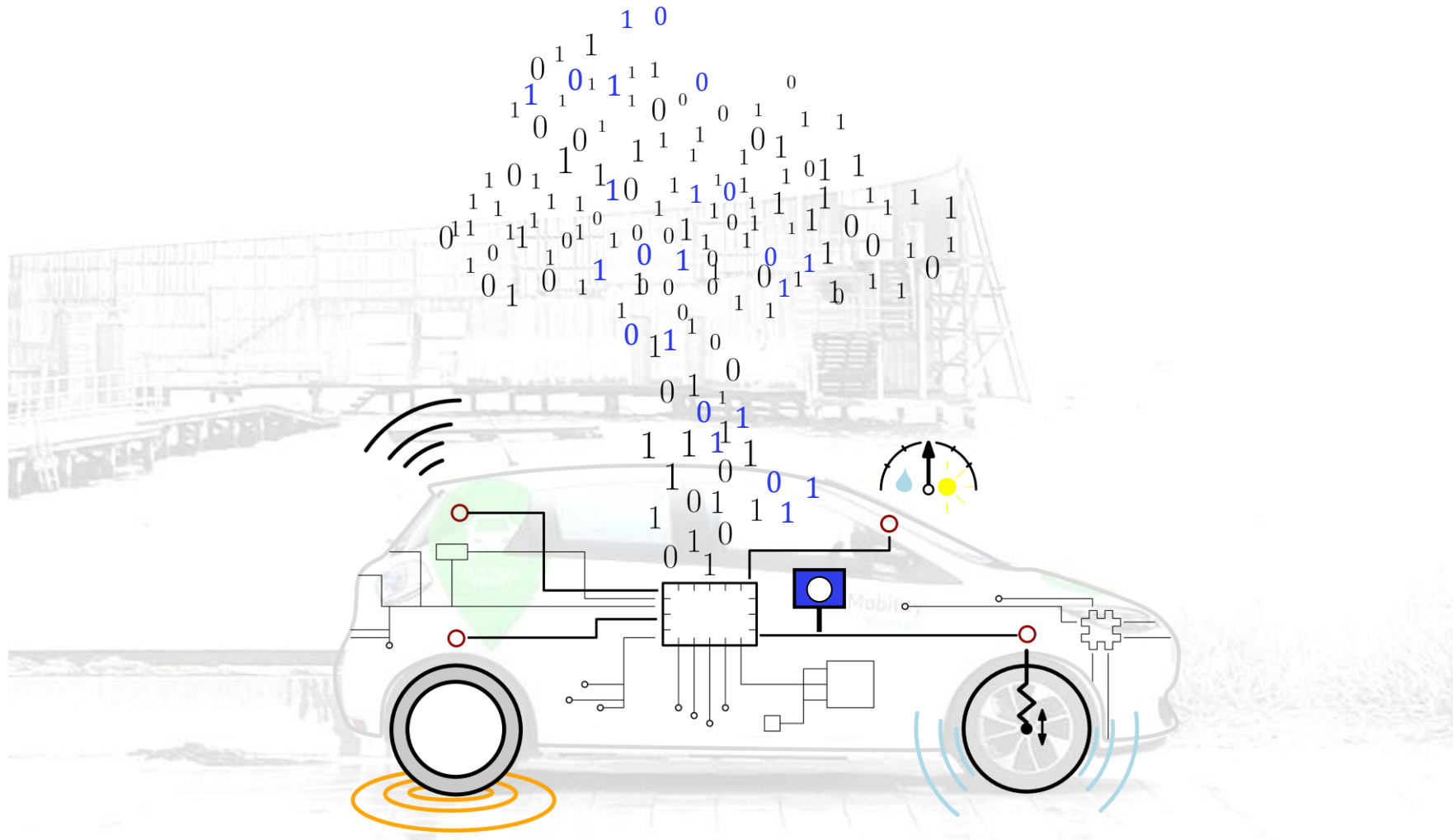


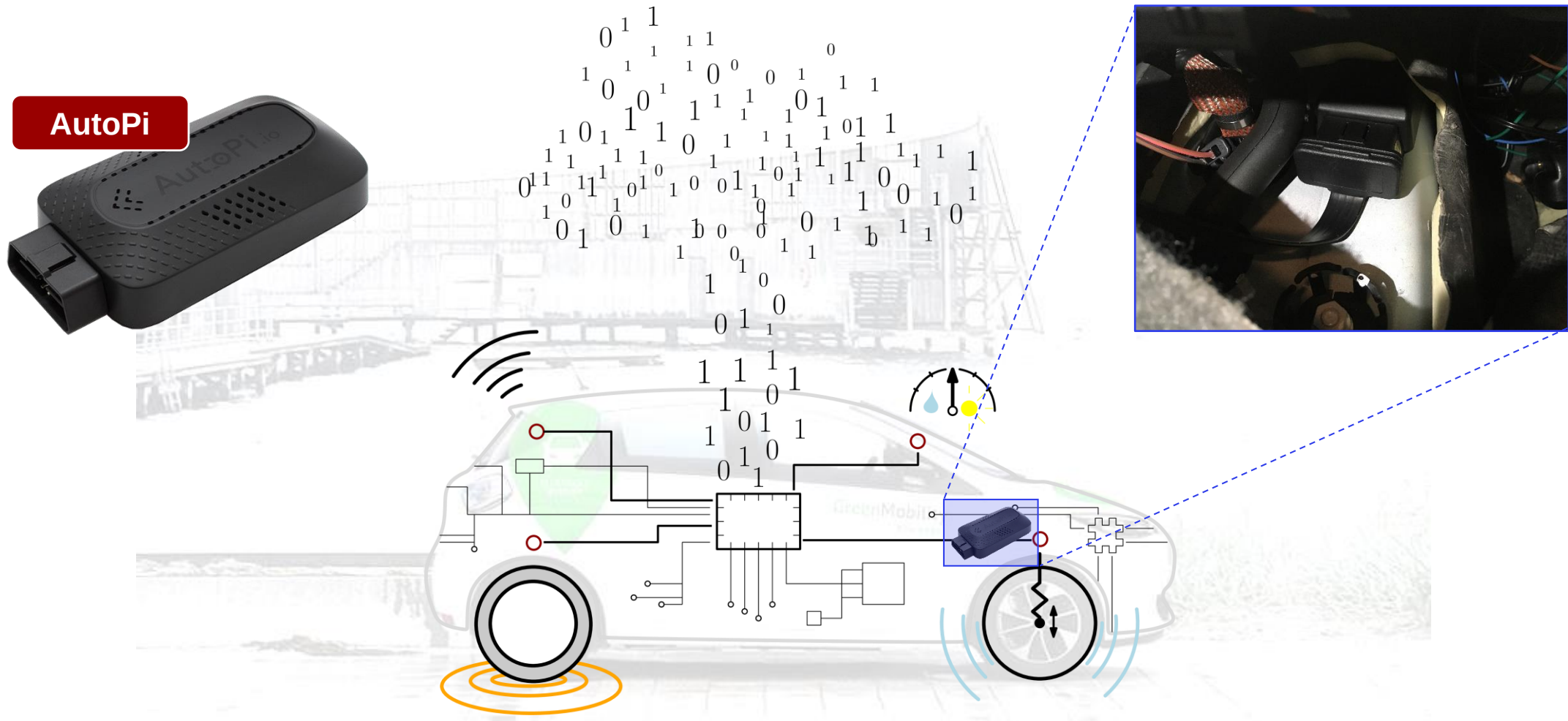
LiRA annual seminar

In-vehicle sensor data: a close view

In-vehicle data



Installation of IoT device



Can bus raw data

Raw data stream

1F8#0204FFEFFE00000D
5DE#0000000001000040
17A#FFFFFFFAA00F031A3
42E#4E3FD0DC6405C039
17E#FFFFFFF00FF4000FF
130#00486FFE009FFEAD
186#00003203200020
12E#C77FFC7FD0FFFF00
242#0200FFEFFE000C

Library

ID (hex)	startBit	endBit	resolution	offset	decimals	unit	options (hex)	see MainActivity for definitions)
0c6	0	15	1	32768	1	°	ff	Steering Position
0c6	16	31	1	32768	1	°/s	ff	Steering Acceleration
0c6	32	47	1	32768	1	°	ff	SteeringWheelAngle_Offset
12e	0	7	1	198	0		ff	LongitudinalAccelerationProc
12e	8	23	1	32768	0		ff	TransversalAcceleration
12e	24	35	0.1	2047	1	deg/s	ff	Yaw rate
130	20	31	1	4094	0	Nm	ff	ElecBrakeWheelsTorqueRequest
130	44	55	-3	4094	0	Nm	ff	DriverBrakeWheelTq_Req
17a	48	63	0.5	12800	1	Nm	ff	Estimated Wheel Torque
186	0	15	0.125	0	2	rpm	ff	Engine RPM
186	16	27	0.5	800	1	Nm	ff	MeanEffectiveTorque

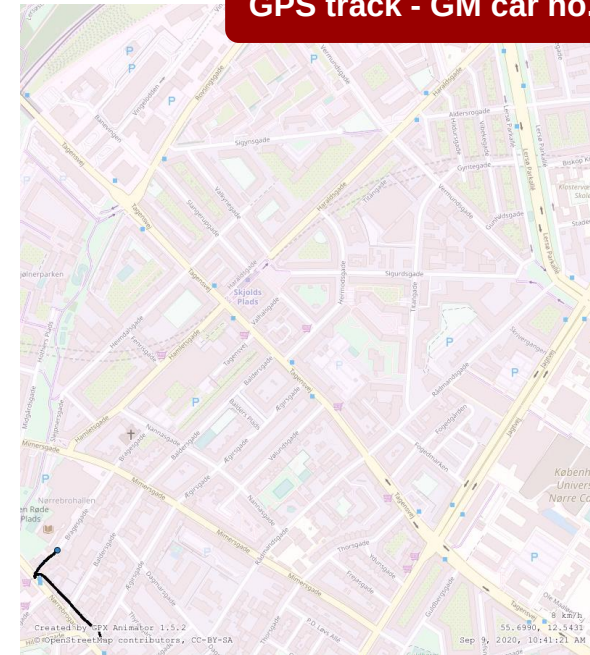
- More than 350 parameters currently available on <https://github.com/fesch/CanZE>
- 50 parameters selected for first phase of LIRA
- Sensor location and configuration not always known

Car data collection

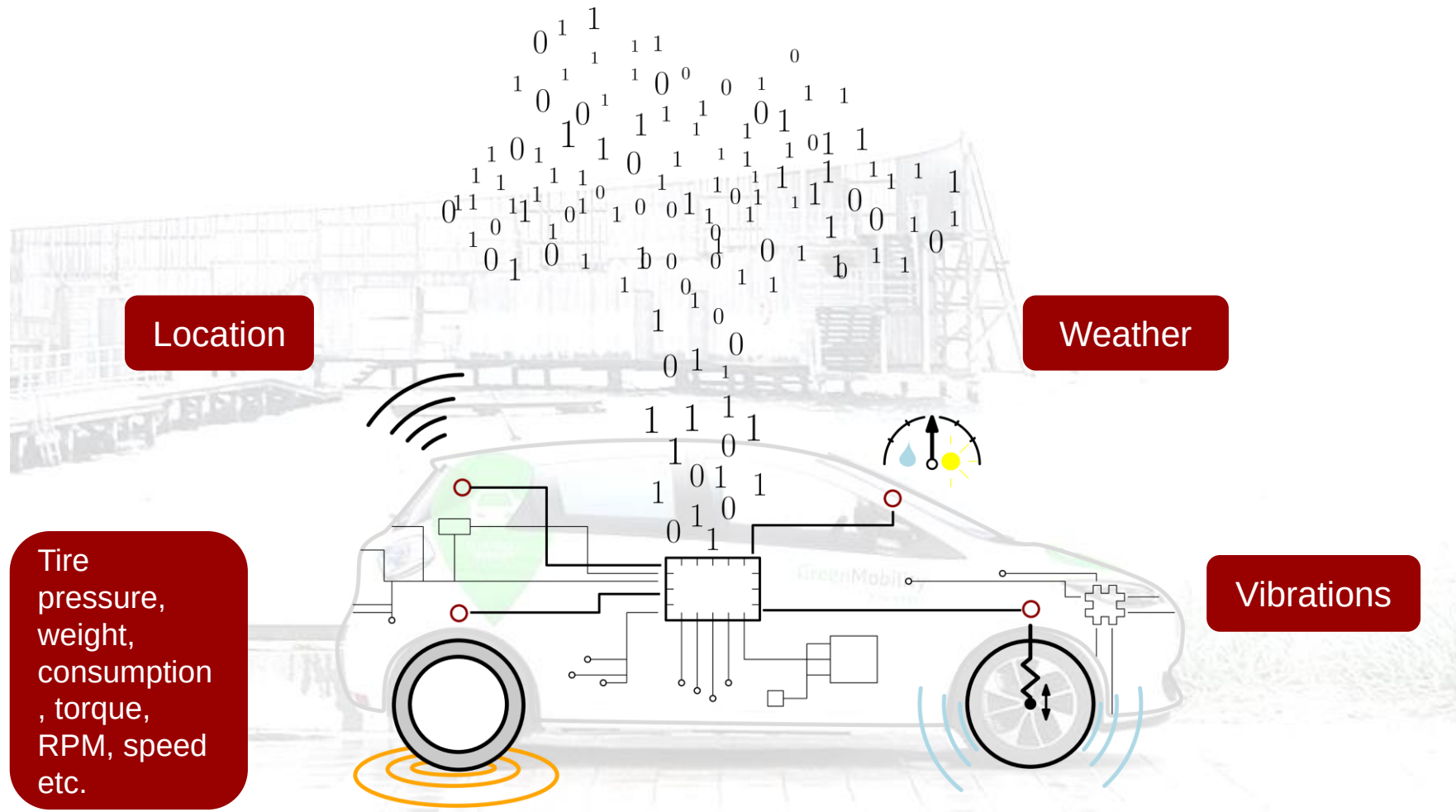


- 2.5 km section in the City of Copenhagen
- Three GM cars driving as a platoon behind the P79 profilometer
- External sensors for validation and analysis

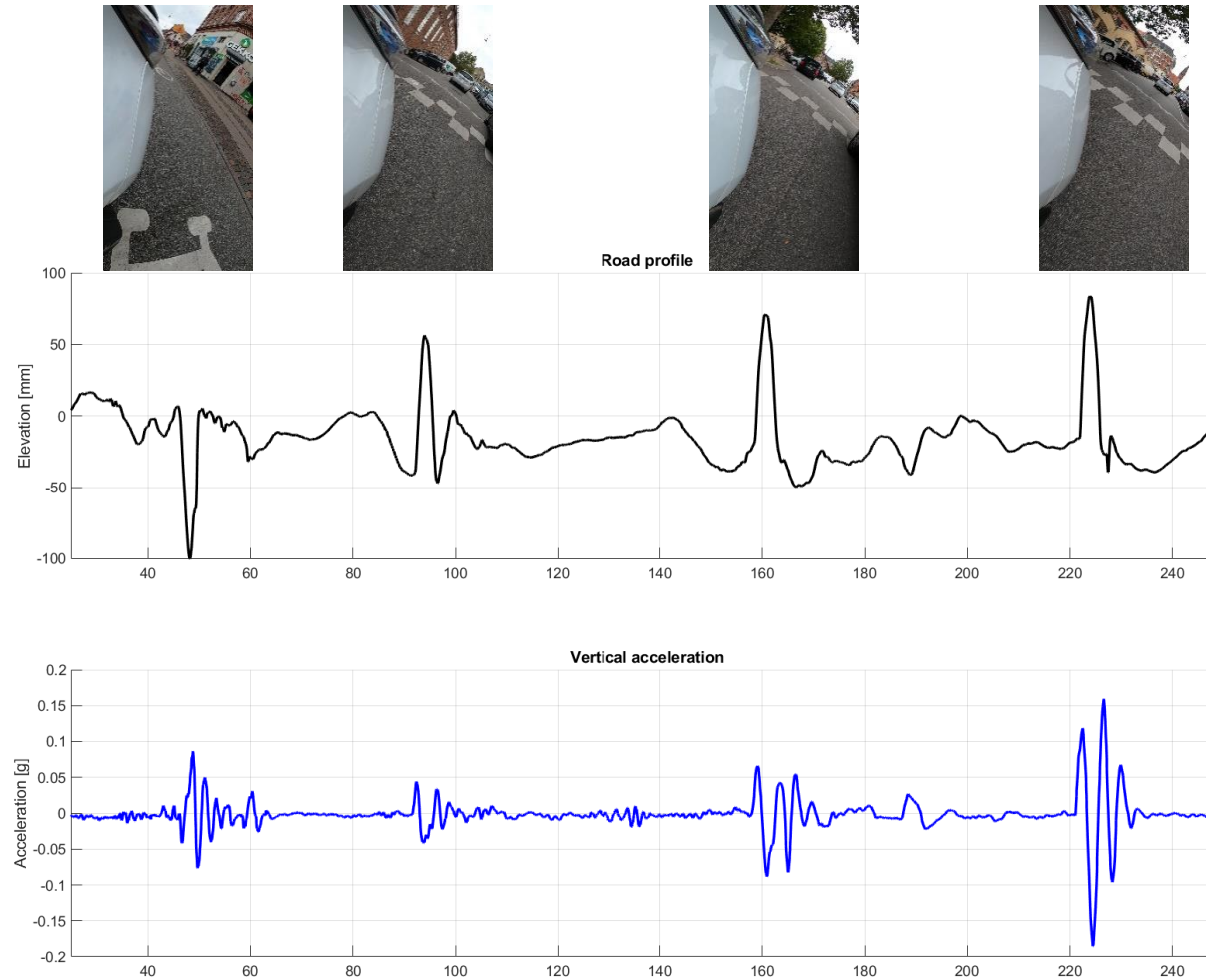
GPS track - GM car no. 2



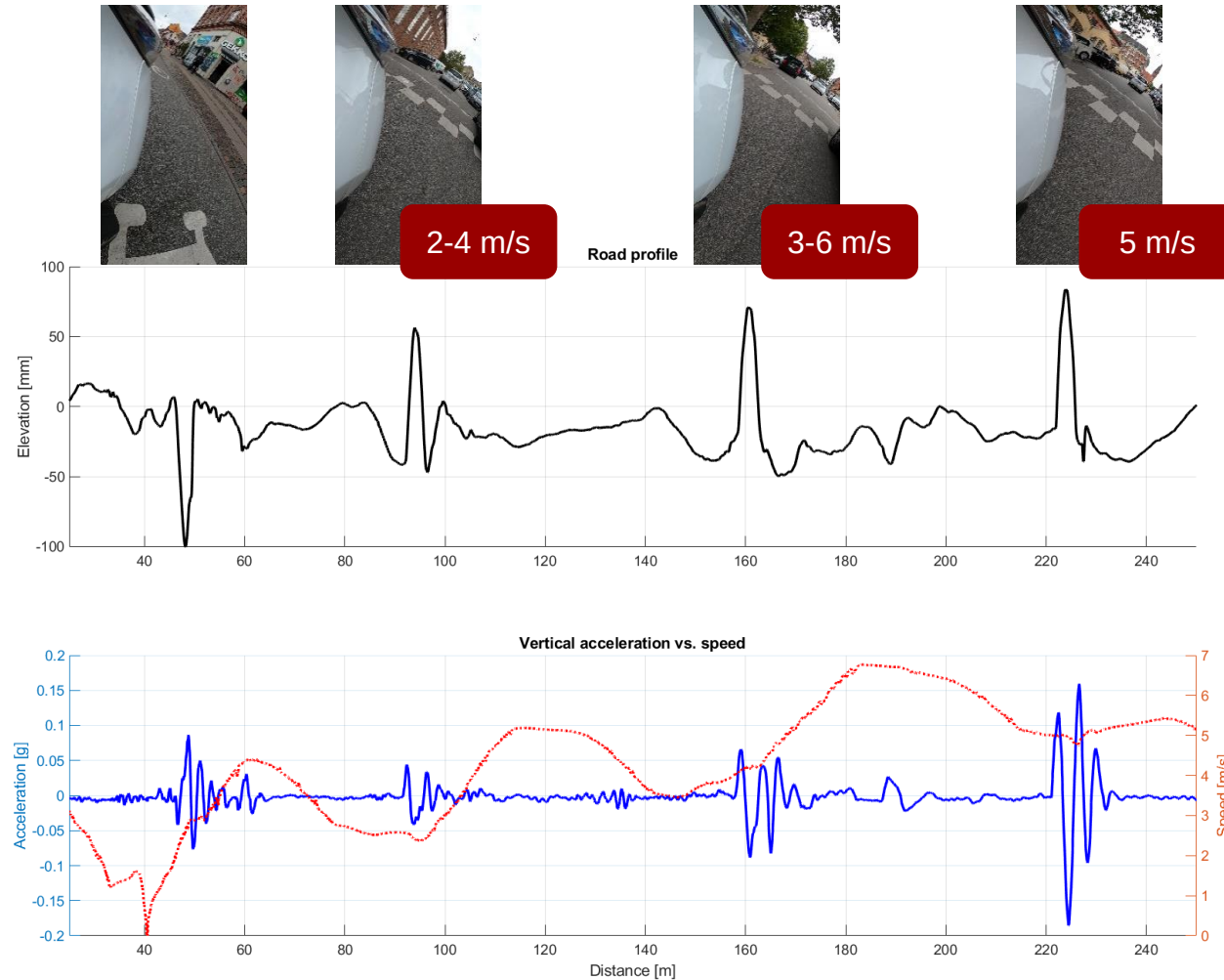
Selecting sensors



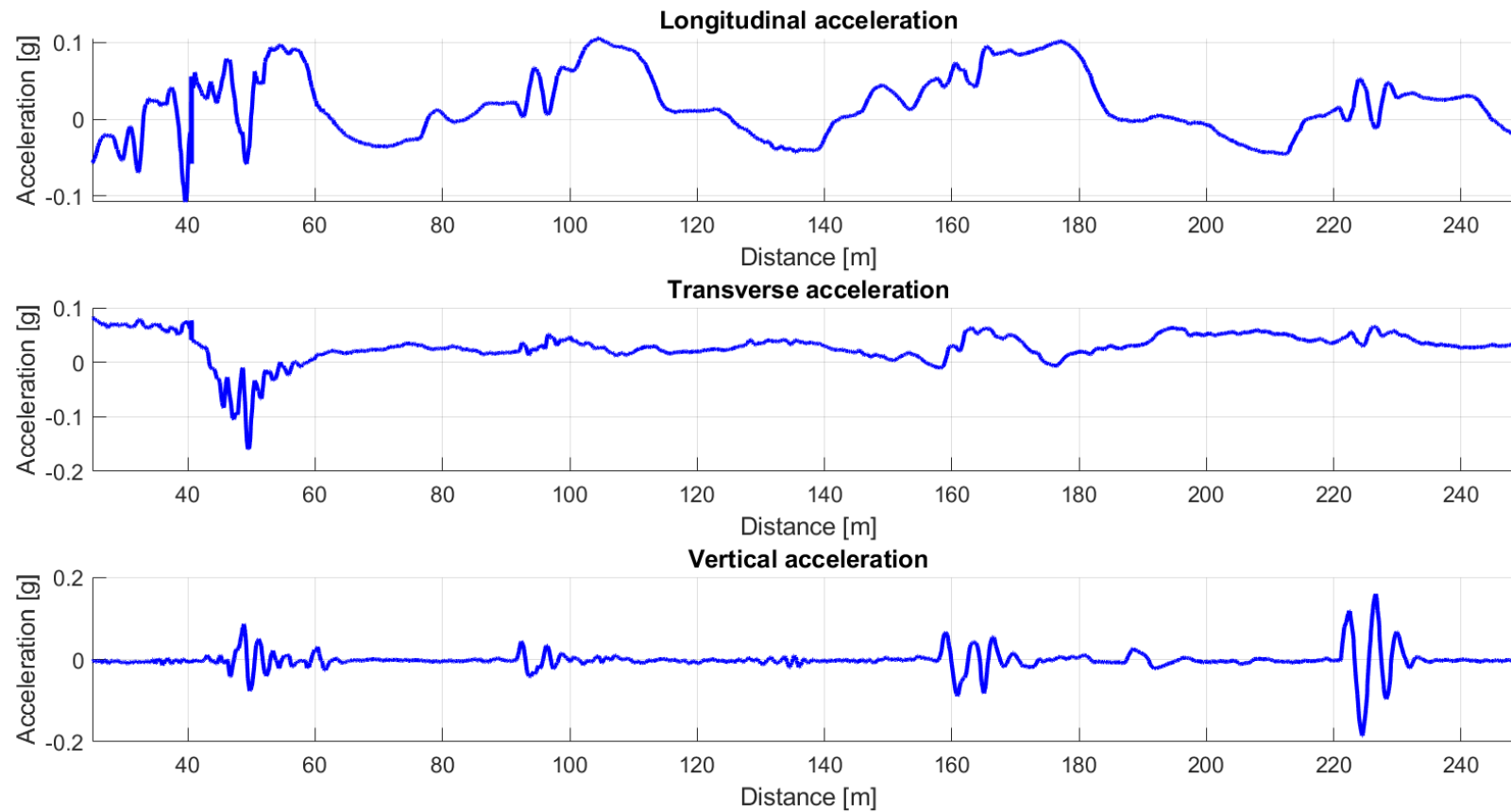
Road profile and vertical acceleration



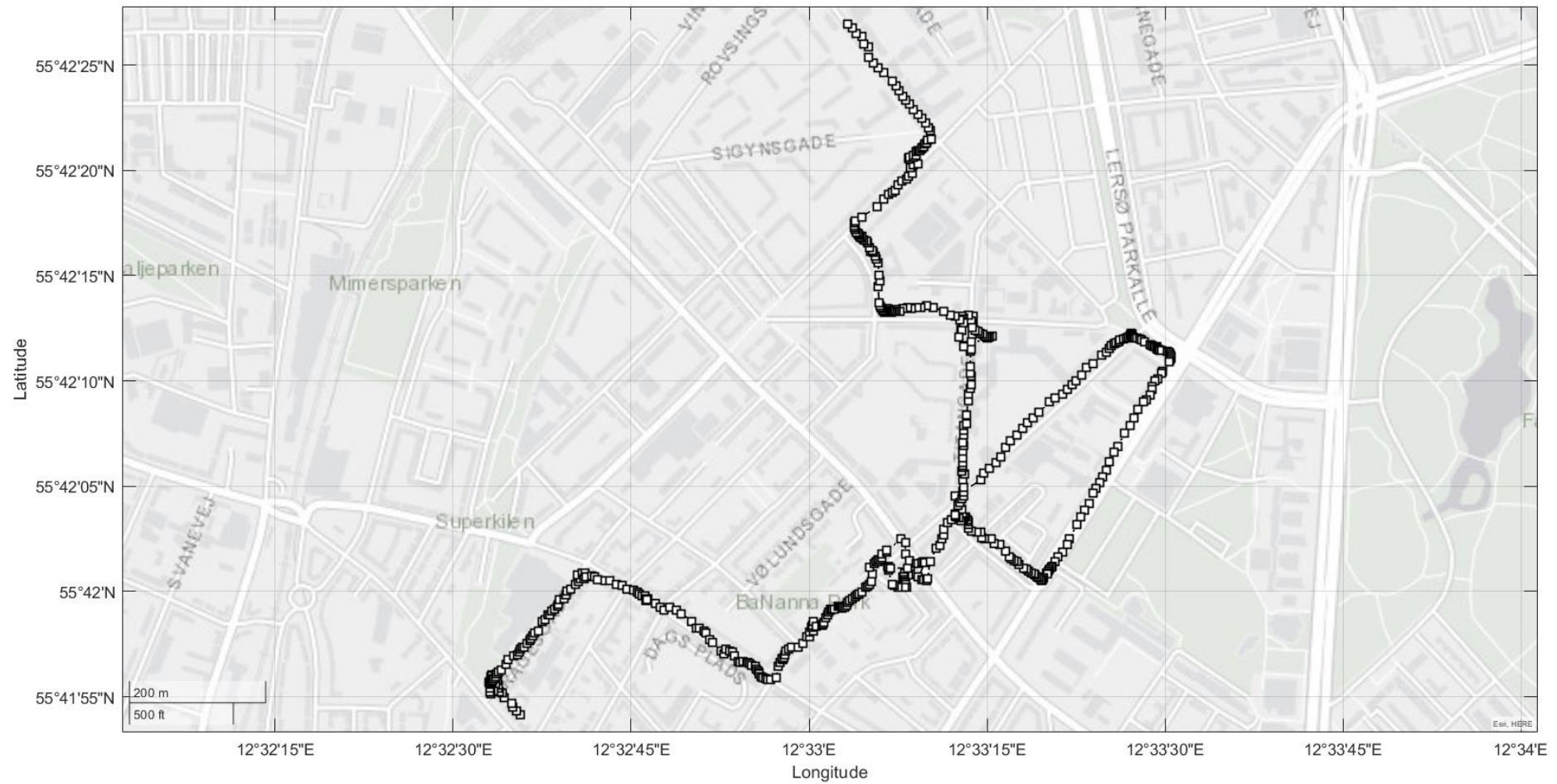
Road profile and vertical acceleration vs. speed



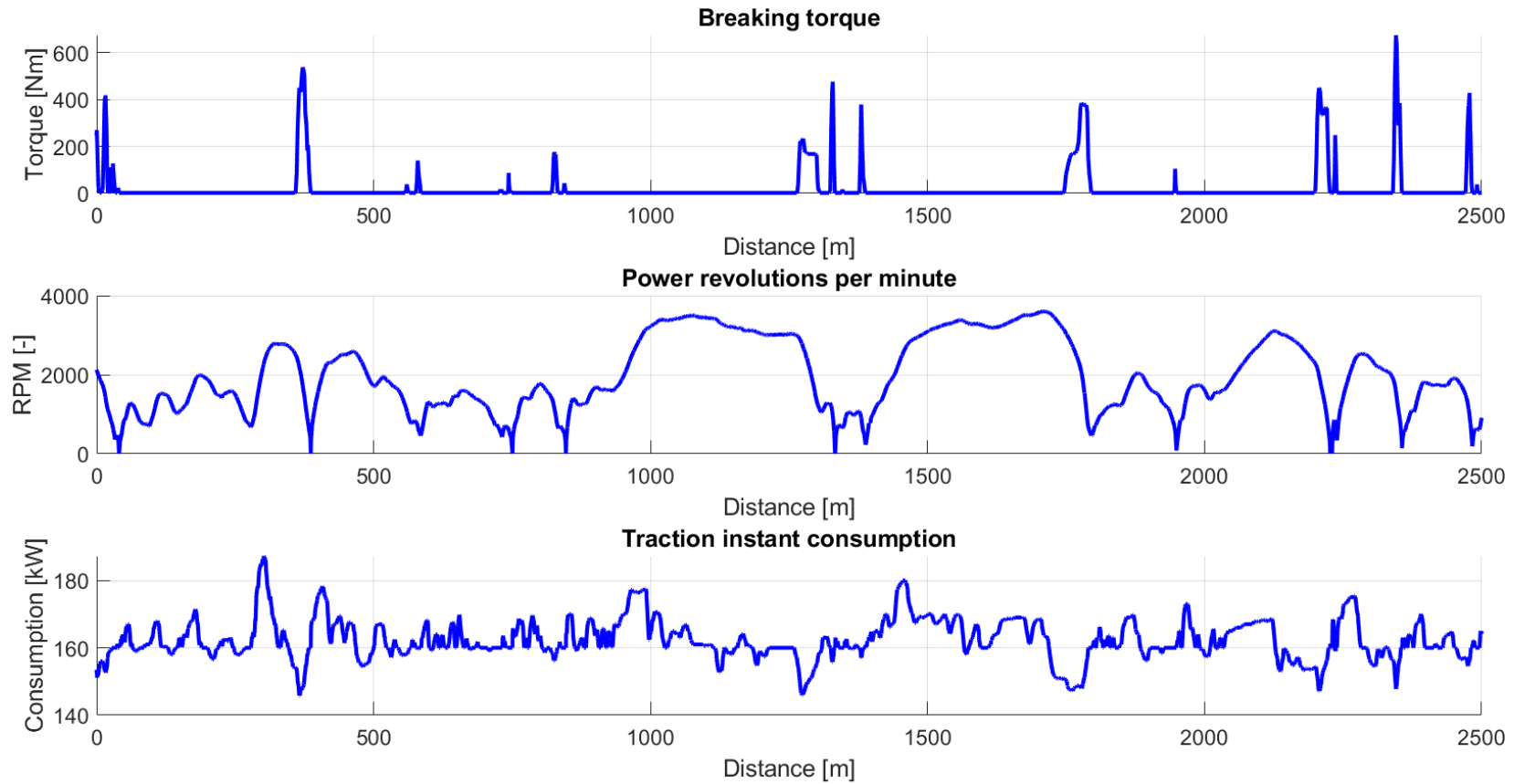
3-axis accelerometer



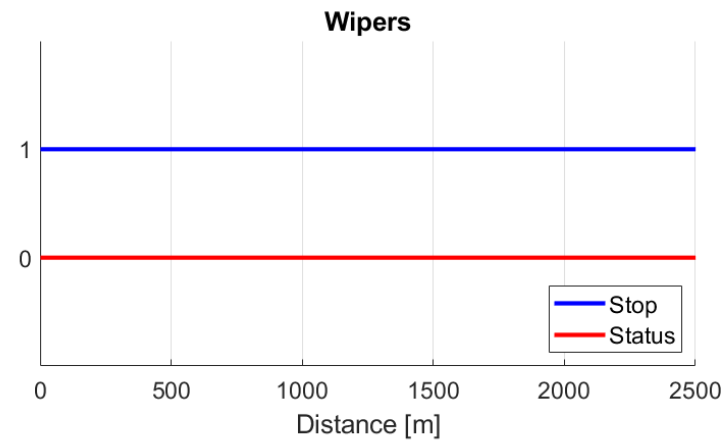
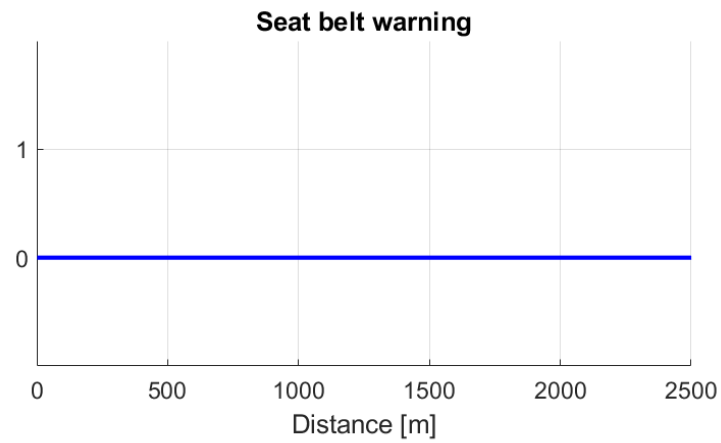
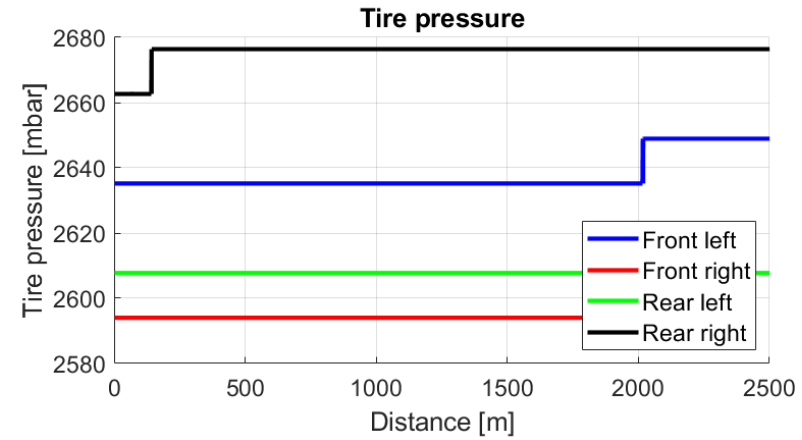
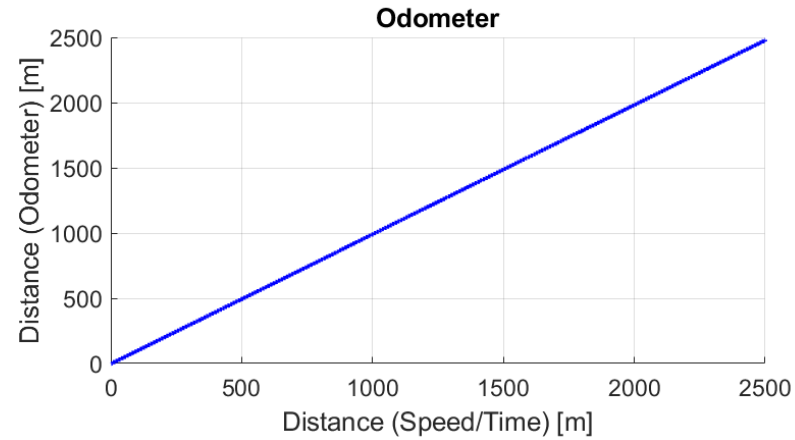
GPS sensor

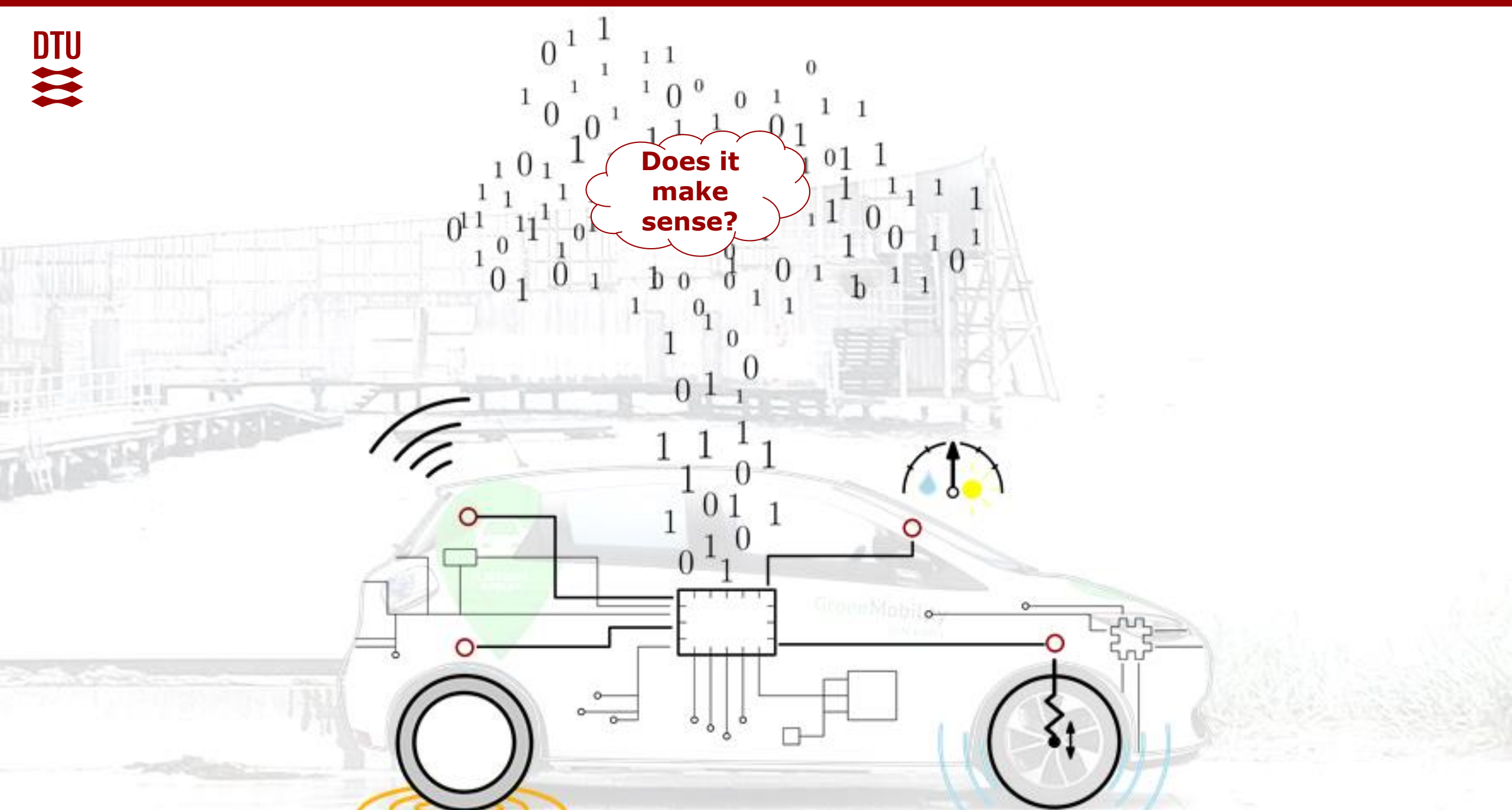


Can bus data_{1/2}

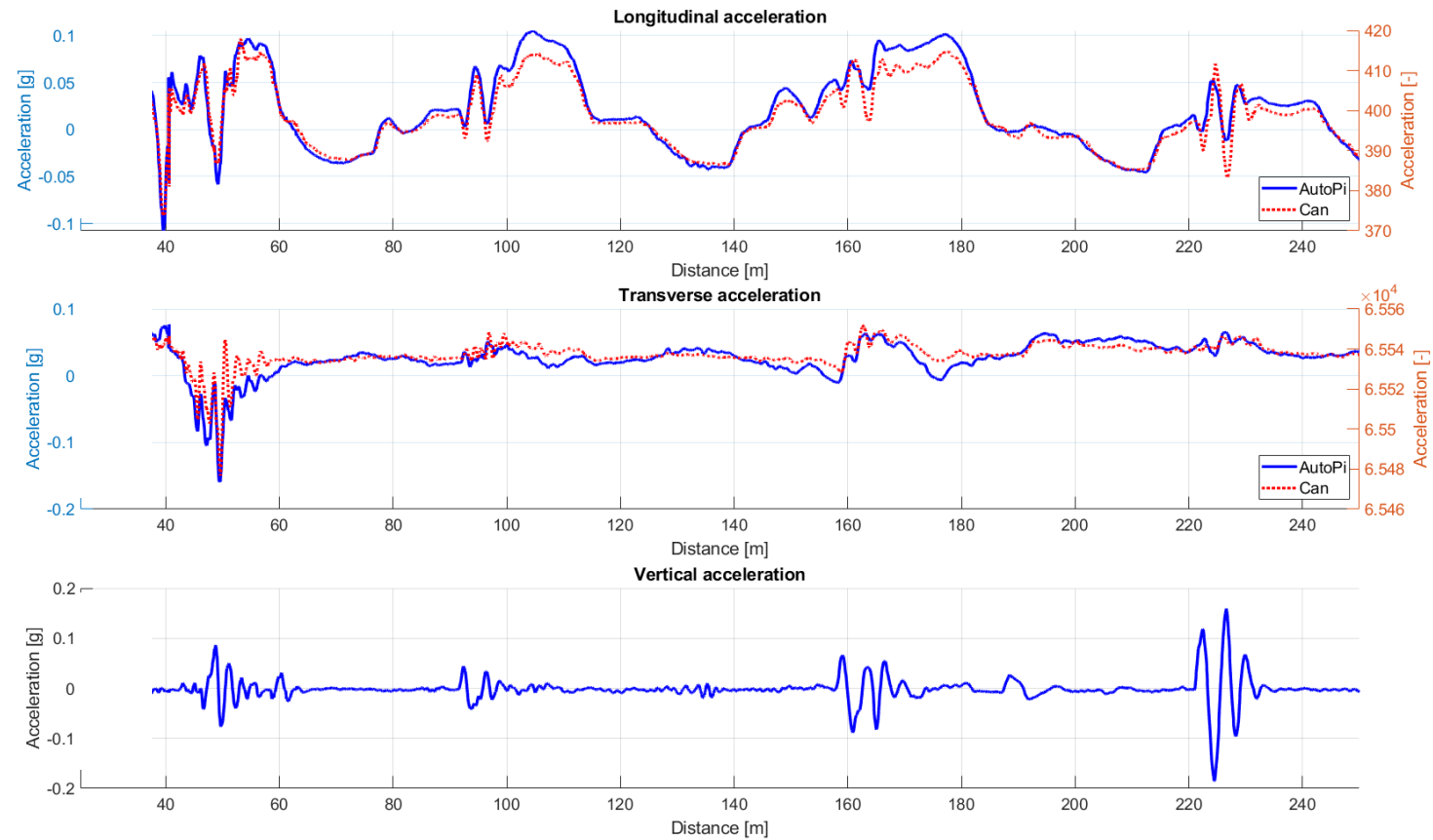


Can bus data_{2/2}

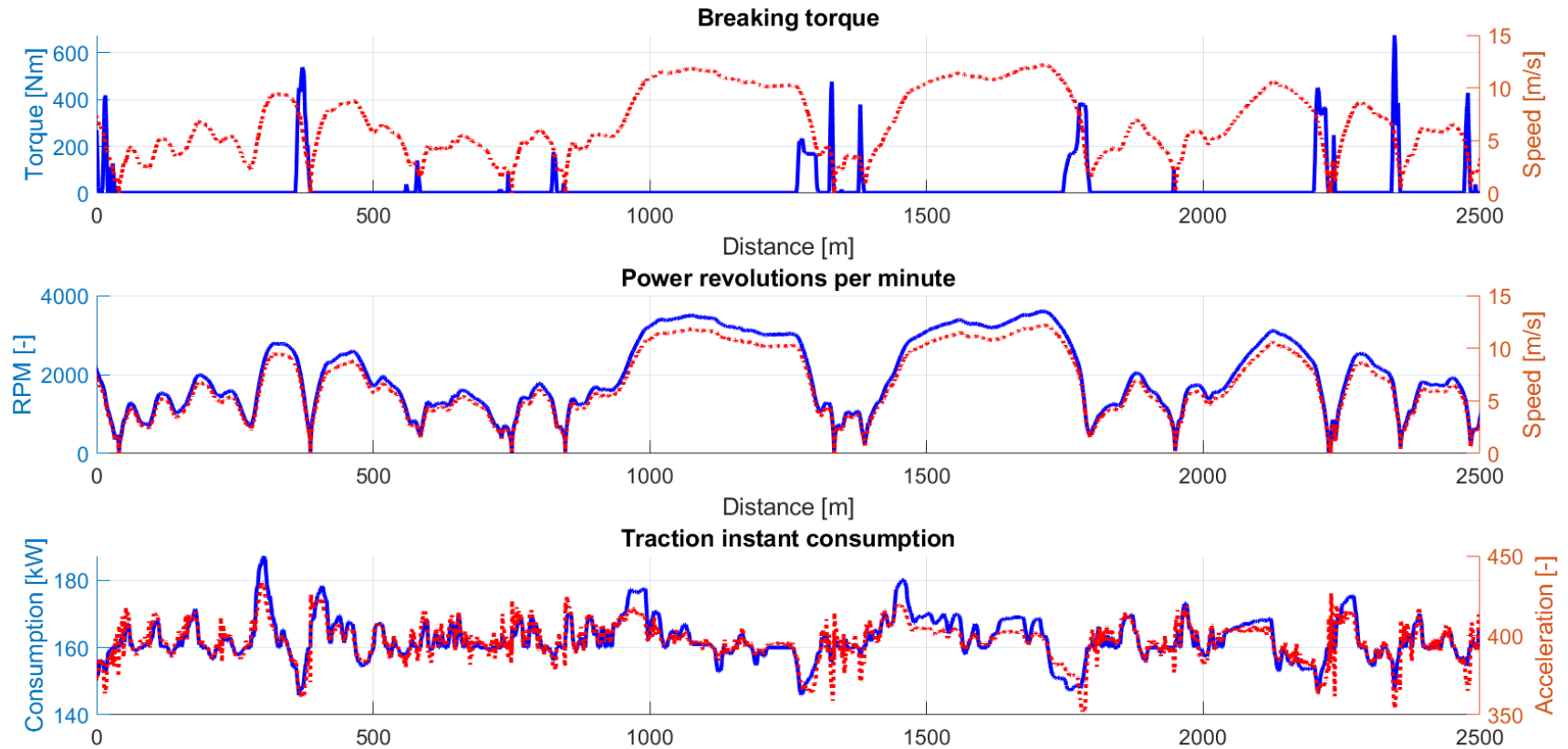




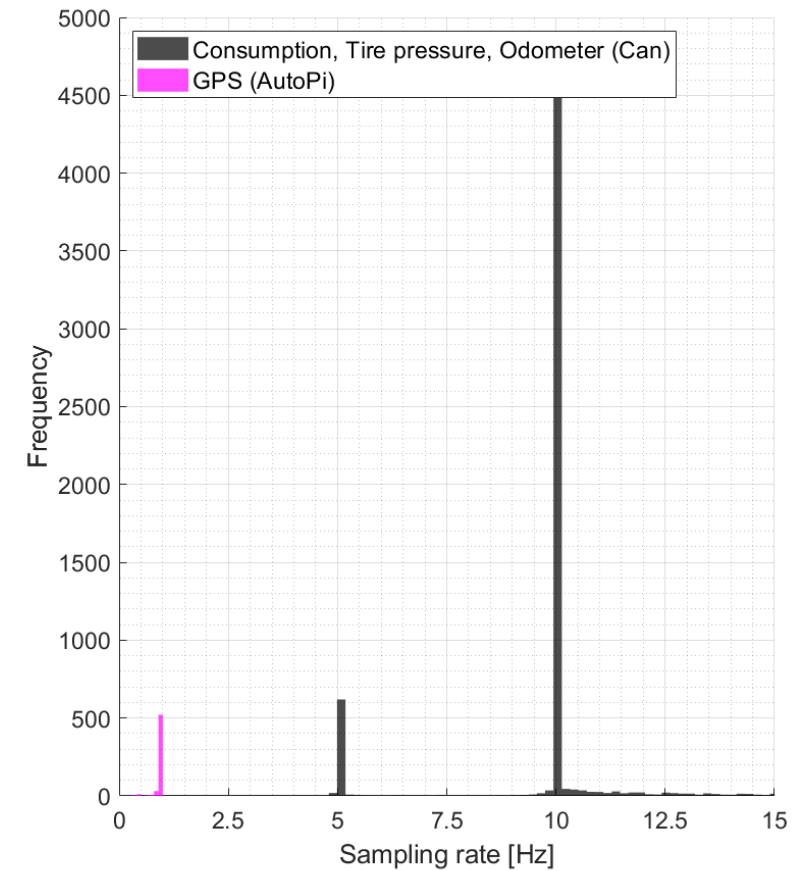
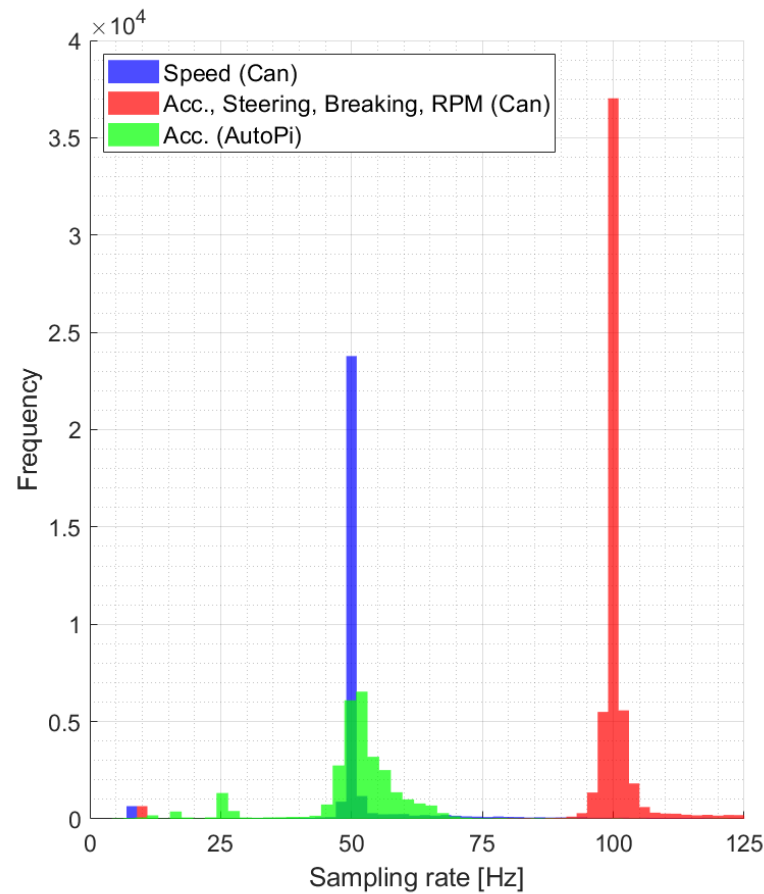
Accelerations (AutoPi versus Can)



Can versus Can data



Sensor sampling rates



Thank you!

