

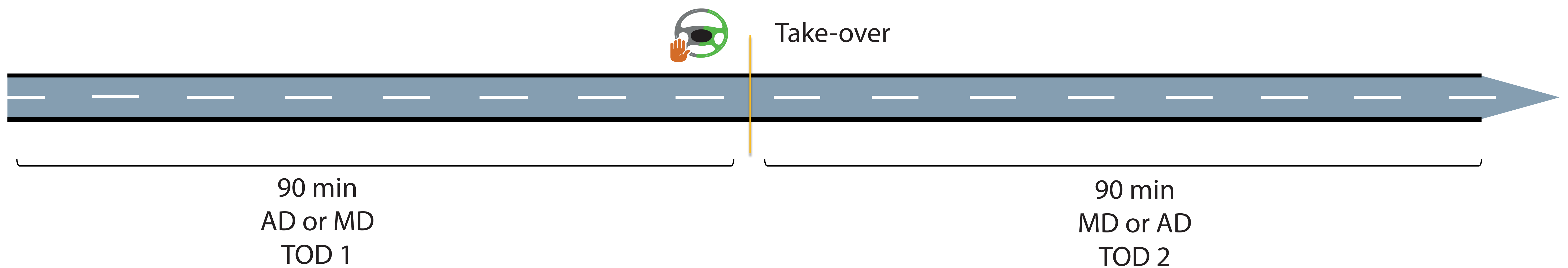
HADRIAN Database: A multi-modal data collection in an high-fidelity driving simulation setting

HADRIAN

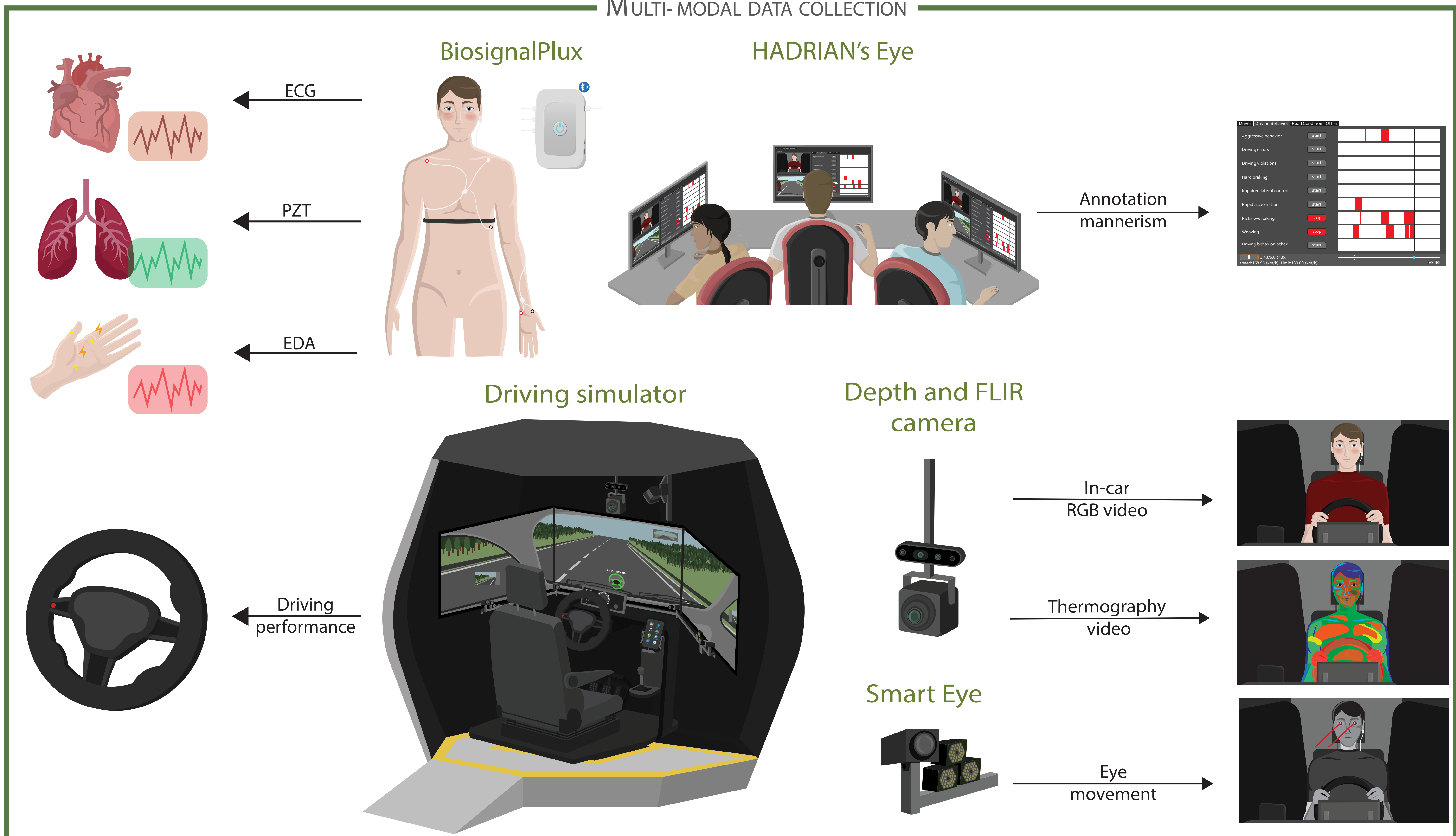
Holistic Approach for Driver Role Integration and Automation Allocation for European Mobility Needs

EXPERIMENT DESIGN

We present an open source database obtained from a within-subjects design with the Time-On-Driving (TOD) and Automated Driving Level (ADL, manual vs. automated ADL 3+) as independent variables. 21 professional drivers performed 1 driving session consisting of two 90-min TOD blocks. They did not rest between the TOD blocks. A fixed-time (15 seconds of lead time) take-over signal to perform the transition between automated [AD] and manual driving [MD] or vice versa was presented after 90-min of driving.



MULTI-MODAL DATA COLLECTION



PUBLIC HADRIAN DATABASE

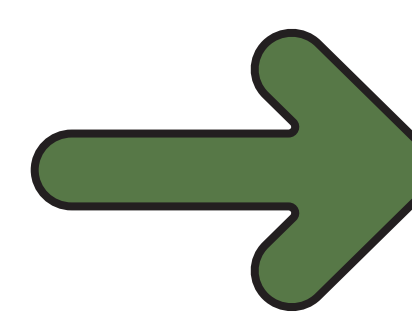
The resulting HADRIAN dataset contains 21 sets of valid multi-modal data, totaling about 300 GB of raw data (~ 4000 min of driving). Moreover, we presented auxiliary information about the experiment including participants' health-related data, and subjective measures. All the data were pre-processed to accomplish de-identification. The database will be available on Figshare platform.



~300 GB of raw data publicly available



~4000 min of recorded driving simulation



DATA COLLECTION MODULE	SHARED RAW DATA
DRIVING SIMULATOR	Speed, Steering angle, Lane lateral shift, ...
BIOSIGNALPLUX	Electrocardiogram, electrodermal activity,...
SMART EYE	Gaze direction, Head position, Blink, ...
DEPTH AND FLIR CAMERA	Video and metadata (e.g., temperature)
HADRIAN'S EYE	Punctual and indefinite mannerisms

ACKNOWLEDGMENTS



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DEMONSTRATOR VIDEO OF HADRIAN
EXPERIMENTAL STUDIES



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