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| Immagine | Moving Picture, Audio and Data Coding  by Artificial Intelligence  www.mpai.community |

**Public document**

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| **N1411** | 2023/09/29 |
| **Source** | Requirements (SPG) |
| **Title** | MPAI-SPG Status report |
| **Target** | MPAI Members |

# Progresses

No updates to report on the Pong Use Case (UC)

Development of metrics to assess the quality of the predictions within the use case context. Based on these metrics we evaluated the trained architecture and discovered that those performing better with the validation dataset (lower Mean Absolute Error) did not yield always the best results in the real use case. Thanks to these metrics we were able to identify the most suitable network to deploy for the users testing.

Development of the networked game with the MPAI-SPG prediction module working between server and clients.

Definition of the user study experimental protocol to evaluate the early results of the implemented solution, quantitatively and qualitatively. In the experiment users are asked to play several runs of the Racing Game against 4 self-driving cars. In each run the MPAI-SPG server-side prediction can be activated with different levels of intensity (L0, L1, L2). Each intensity level is defined by an amplitude (i.e., the duration of the prediction) and frequency (i.e., how often the prediction is performed on a given client). At the end of each run users complete a questionnaire to assess their perception of the quality of the game and its graphical fidelity. To quantitatively evaluate the quality of the predictions we record for each play run data from the car driven by the user and its predicted version.

The user testing application and all the data analysis notebooks are ready. We performed several preliminary tests to verify the correctness and soundness of the protocol.

We released the first draft of the document Technical Report: Mitigation of data loss and cheating in online multiplayer gaming WD0.1

# Future Plans

* Perform user testing.
* Process and Analyze the collected data
* Prepare a report on the results from the user study.
* Make progress in the Technical Report document.