

Background and Motivation

- As an important part of the business process of a laser shooting experiment, laser driver state estimation is to evaluate physical experiment results and driver performances.
- Due to problems such as inconsistent data formats, absences of data, abnormal data and complex data relationships, data pre-processing consumes a lot of time, and application systems involving experimental data processing and analysis reveal common problems, such as slow development progress, repeated processing of experimental data, low computational efficiency, and uncertain analysis results.
- Data governance aims to improve the efficiency and quality of data analysis.

Data Governance

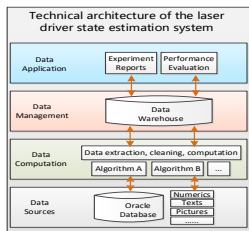


Fig 2. Technical architecture of the laser driver state estimation system.

- Data specification: addressing the issue of inconsistent data formats.
- Data cleaning: mainly refers to the integrity and anomaly detection of the original measurement data.
- Data exchange: a data governance service is established.
- Data integration: utilizing the data replication method, constructs the data warehouse of driver state evaluation.

Laser Driver State Estimation

- By utilizing experimental data, we evaluate experiment results and driver performances.

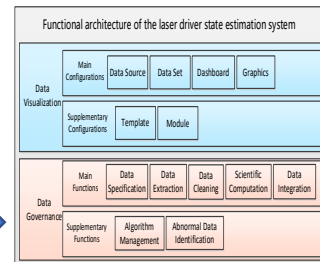
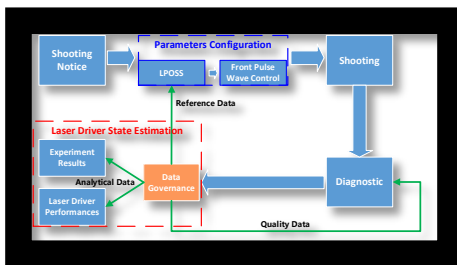


Fig 1. Functional architecture of the laser driver state estimation system.

Algorithm Integration

- Data governance involves various data processing algorithms.
- Current: algorithms → DLLs.
- Future: artificial intelligence algorithms → services.

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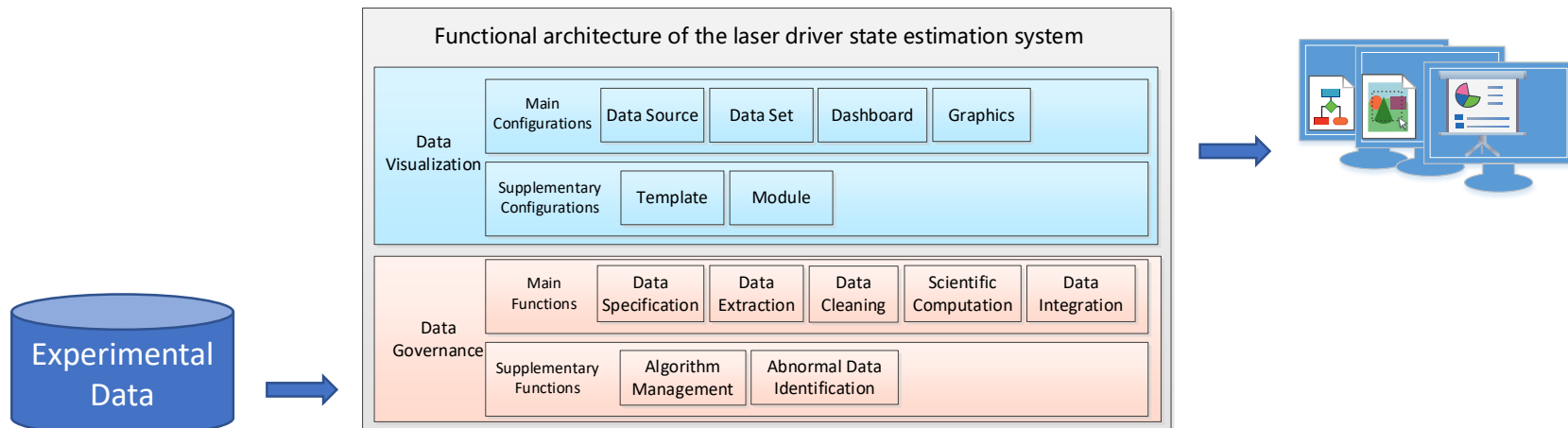
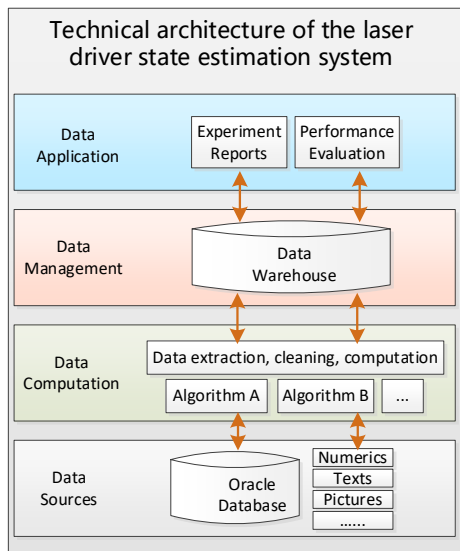


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