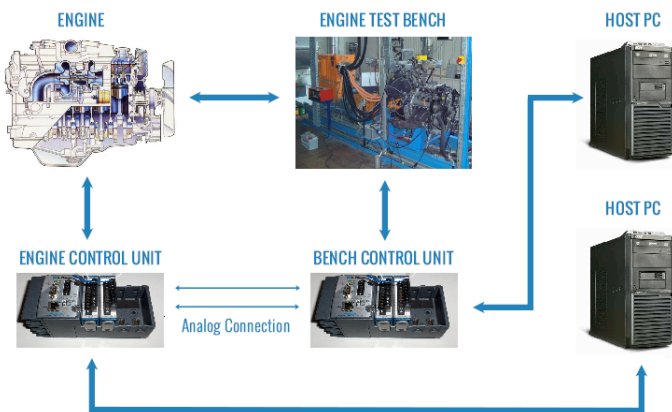# modeFRONTIER for LabVIEW: mF4LV at Alma Automotive
Applying optimization techniques to the automatic calibration of ECUs to reduce costs and development time

Quote:
"The tight integration between the Alma Automotive test environment, based on NI CompactRIO and NI LabVIEW, and the ESTECO optimization framework, helped us quickly create a demonstrator to automatically tune two ECU subsystems."
- **Enrico Corti, ALMA AUTOMOTIVE**

Figure 1: Test environment for the automatic calibration system

The Challenge:
In tight cooperation with ESTECO, Alma Automotive addressed the challenge of implementing an automatic calibration system for an engine control unit (ECU) on a test bench that focuses on fuel-film dynamics in a port fuel injection (PFI) internal combustion engine.

The Solution:
The high flexibility of National Instruments devices granted the complete control of the engine and the test bed, while mF4LV advanced algorithms allowed to quickly and efficiently reach the targets. The environment allowed test engineers to exploit the real-time processing characteristics of CompactRIO and the optimization algorithms included in mF4LV. The communication between systems is achieved by the combined use of LabVIEW and mF4LV, making the connection fast and simple.

About the LabVIEW Tools Network
NI Alliance Partners accelerate developer productivity by creating LabVIEW software add-ons and applications that receive a Compatible with LabVIEW certification and are distributed through the LabVIEW Tools Network.

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