

Improvement of CFD Alignment Methodology through GT-Automation

- Supporting companies: **GammaTech Engineering | Aston Martin Lagonda**

- ❑ Start date: September 2026
- ❑ Project duration: 6÷8 months
- ❑ Site:

- GTE's offices in Turin

- ❑ Compensations: Meals, travel expenses

- ❑ Motivations and Project Scope:

- The existing GT-Automation framework automates underhood calibration on AML's complete vehicle models, following the standard manual calibration process; because the complete model is slow to run, **the framework currently relies on a fast-converging but less powerful optimization algorithm to keep the number of iterations low**, limiting calibration accuracy.

- ❑ Thesis proposal:

- Review the current GT-Automation calibration framework and **identify which underhood components can be isolated from the complete vehicle model**.
 - **Develop an automated procedure to generate standalone underhood models** that run significantly faster than the complete vehicle model while preserving the calibration-relevant behavior.
 - **Replace the current optimization algorithm with a genetic algorithm** (leveraging GT-Optimizer), made practical by the reduced runtime of the standalone models.
 - Compare calibration results between the standalone-model/genetic-algorithm approach and **the current complete-model calibration** to verify accuracy is preserved or improved.
 - **Integrate the standalone-model generation and calibration procedure as new modules** within the existing GT-Automation framework, applicable across AML's vehicle programs.

- ❑ Possible scope extension (if timeline allows):

- Improve the automated PID controller tuning tool
 - Automate part of the cooling status assessment process (e.g., automatic report generation).

