

GENERAL INFORMATIONS

- **Duration:** 6-8 months
- **Timing:** 2022-2023
- **Site:** PWT's offices (Turin)
- **Compensation:** Meals, Travel exp.

CONTACTS:

POWERTECH Engineering S.r.l.

Via Carolina Invernizio 6, 10127 Torino

www.pwt-eng.com

info@pwt-eng.com

DESCRIPTION:

Powertech Engineering is a leading company in engineering services for powertrain simulation. Working with several OEMs and Tier1 supplier, PWT is a partner of choice for companies that are involved in the design, development and validation of internal combustion engines, hybrid powertrains, electric drives and their control.

Following the electrification trend, PWT and Garrett are investing resources in developing methodologies for Electric Powertrain simulation, analysis and design. In this context, Gamma Technologies, a US-based software house developing the system level simulation platform GT-Suite, for which PWT is the Italian technical representative^[1], recently released GT-FEMAG^[2]. GT-FEMAG is a 2D FE Electromagnetic solver able to perform steady-state performance analysis of various types of electric machines.

The aim of the thesis activity is to assess the performance of this new tool on a Garrett case study.

[1] - <https://www.gtisoft.com/simulation-service-providers/>

[2] - <https://www.gtisoft.com/gt-femag/>

Thesis Proposal – Electromagnetic FE Analysis

Aim:

- Assess performance and capabilities of GT-FEMAG
- Develop methodologies for 2D FEM analysis on electric motors

Tasks:

The student will be in charge of:

- Analysis of the selected case study to identify all the needed FE models inputs
- Develop methodologies for FE analysis with GT-FEMAG
- Validate model's results with respect to experimental data
- Assess GT-FEMAG capabilities

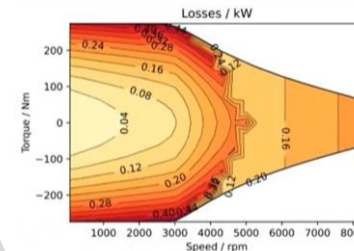
Well known EM in literature or PWT's customer case study



GT-FEMAG



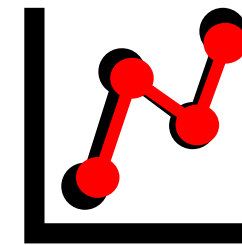
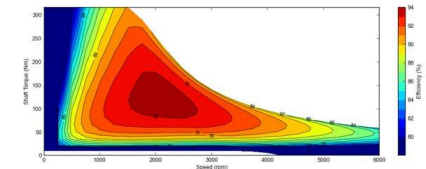
2D FE Analysis



Experimental Data



Measurements



Model Validation