

# Traineeship Proposal

**Title:** Simulation of the Exhaust Noise of Aircraft Engines

**Company:**

Free Field Technologies (FFT) is based in Louvain-La-Neuve, very close to Brussels in the heart of Belgium. The main activity of FFT is the development of ACTRAN, family of simulation tools based on the finite element method and dedicated to the analysis of acoustics, vibro-acoustics and aero-acoustics. FFT also provides support, training and engineering services dealing with the use of ACTRAN. The company employs about 30 engineers.

**Objectives and Work Description:**

In the frame of his final year traineeship, the student will model and simulate the acoustic noise generated by the exhaust of an aircraft engine. The student will use the very new software of the ACTRAN family based on the Euler Equations.

The first objective of the traineeship is a better understanding of the phenomena at the bypass exit. The second objective is the optimization of the method. This will be achieved by investigating the influence of several parameters like the quality of the aerodynamic flow, the size of the physical domains or the mesh refinement. 2D and 3D validations cases will be set-up and studied.

**Student Profile:**

In last year of a master degree in mechanical engineering, the student must be a strong team player. A good knowledge of English and a strong interest in the simulation techniques are mandatory. A basic knowledge in acoustics, in numerical methods, in fluid mechanics and in meshing environments is considered as an advantage.

**Keywords:** Aero-acoustics; simulation, finite elements, Euler equations

Cécile Vandenplas

Responsable administrative

Free Field Technologies

Axis Park Louvain-la-Neuve

Rue Emile Francqui, 1 - 1435 Mont-Saint-Guibert

BELGIUM / BELGE

Tél direct : +32.10.49.51.44

Tél général : +32.10.45.12.26

Fax : +32.10.45.46.26

Mail to : cecile.vandenplas@fft.be

<http://www.fft.be>