

# Engineering

## Who is VPAC?

VPAC, a leading, independent Advanced Computing R&D service provider, is a “not-for-profit” registered research agency established in 2000 by a consortium of Victorian Universities.

At VPAC, we provide expert services, training and support in High Performance Computing as well as professional R&D services in the application of Advanced Computing in the fields of Engineering, Geophysics, Health, Life Sciences, Spatial Information and Grid Computing.

VPAC is a trusted collaborator and strategic partner to engineering and research organisations, linking the expertise of the world’s best, state-of-the-art high performance computing infrastructure.

## Engineering @ VPAC

The vision of VPAC’s Virtual Engineering segment is to develop Virtual Product Development strategies that lead to “**zero prototyping**” and greater environmental sustainability by using advanced computing solutions. We have extensive expertise in the design, analysis and application of computational systems for solving multi-physical problems that reduce **time-to-market** and **lower development costs**.

Virtual Engineering is the design and development of integrated computational systems and simulation tools and their application to product design, engineering, manufacturing and testing. Such systems provide comprehensive virtual environments that replicate physical process and enable advanced visualisation, analysis and interpretation

## Capabilities

- **Computational fluid dynamics** (CFD) using commercial and open source solvers such as Fluent and OpenFOAM technology etc.
- **Finite element analysis** (FEA) including non-linear analysis, crashworthiness, drop testing, kinematic & dynamics and fatigue
- **Code Coupling including Fluid-structure interaction** (FSI), Thermal Coupling and Radiation, Thermo-Electrical Interaction and more
- **Design Optimisation Execution and Infrastructure** (MDO)
- **Work flow automation** (Virtuneer)
- **CAD design** and parametric geometry modelling
- **Tool integration** such as plug-in and script development
- **Advanced Visualisation** (real-time, immersive, rendering)
- **Design Space Evaluation**
- **Design Process Mapping**

## Contact

For further information please email [engineering@vpac.org](mailto:engineering@vpac.org).

To view VPAC’s Engineering Case Studies please visit our website [www.vpac.org](http://www.vpac.org)

