# D&P, LLC

A CFD SOFTWARE LICENSING AND SERVICE COMPANY

MISSION

D&P, LLC is a small Computational Fluid Dynamics (CFD) firm in Phoenix, Arizona to develop and license the CFD software, *FlowSimulator*™, and to provide CFD consulting services to various government agencies and private companies. Our goal is to deliver high-quality products and services and to exceed our customers' expectations on time and every time.

COMPANY HISTORY

D&P, LLC is a Phoenix, Arizona based corporation founded in 2006. The company is specialized in CFD methodology and software development and has several cutting-edge technologies to distinguish itself from other competitors. This is evidenced by the fact that since its establishment, the company has secured many highly competitive contracts from US Navy, US Air Force, Defense Advanced Research Projects Agency (DARPA), National Science Foundation (NSF), and NASA. Using these funding sources, the company has developed a cross-platform (Windows, Linux, Mac) CFD software, *FlowSimulator*™, to allow the design engineers to perform intensive CFD simulations not only on high-performance computing facilities but also on regular laptops/desktops.
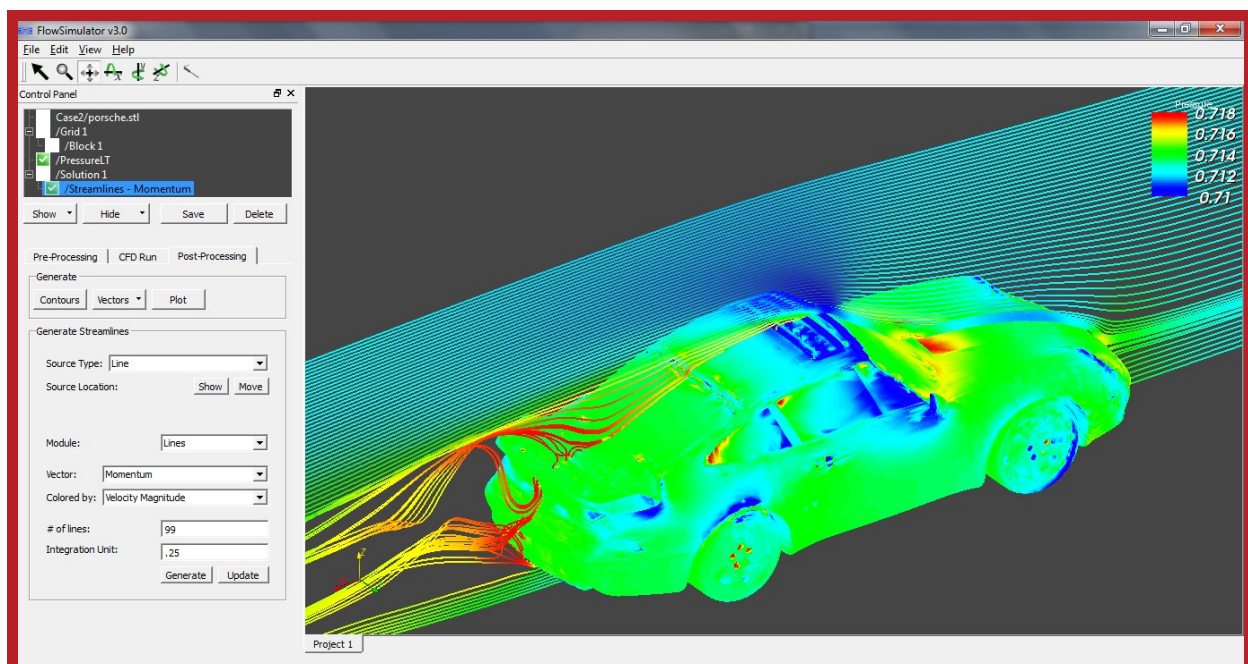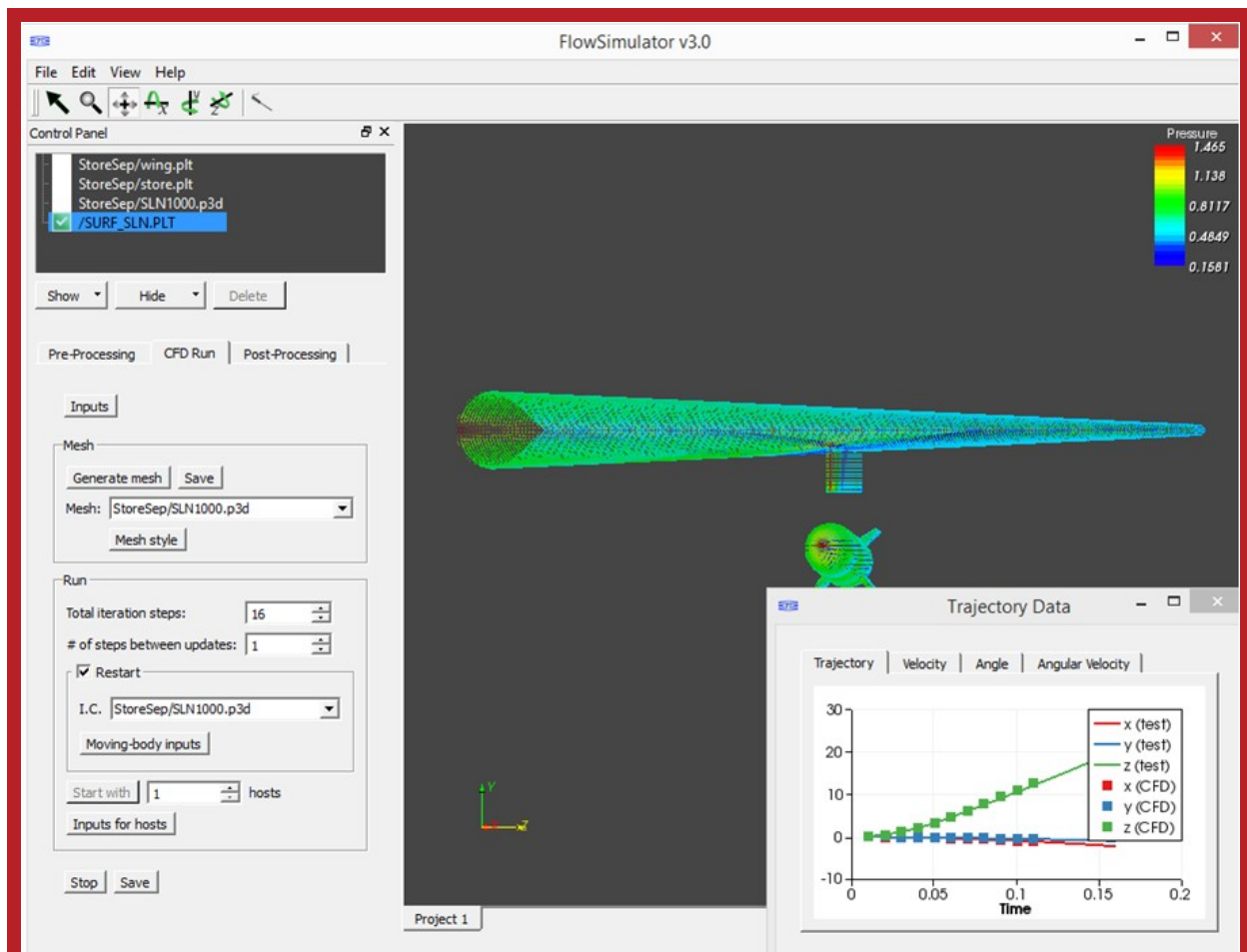

Car simulation running on a Windows-based laptop
(less than 5 minutes from reading the CAD file to performing CFD simulation)

PRODUCTS

D&P has several products aimed at solving critical issues related to flow analysis. These products find applications in multiple scenarios in both military and private sectors; such as, aerospace, mechanical and chemical engineering, building/bridge engineering, and biofluid dynamics, etc.

FlowSimulator™

FlowSimulator™ is an all-in-one CFD software that packages fully automated mesh generator, flow solvers, 6-degrees-of-freedom (DOF) analysis, and visualization all together. It is cross-platform and has been extensively tested on both Windows and Linux systems. The software runs on Os X system too.

Eglin store separation case running on a Windows-based laptop (fully-automated moving-body treatment/real-time comparison with measured trajectory data)

Helicopter rotor case running on a Linux-based desktop
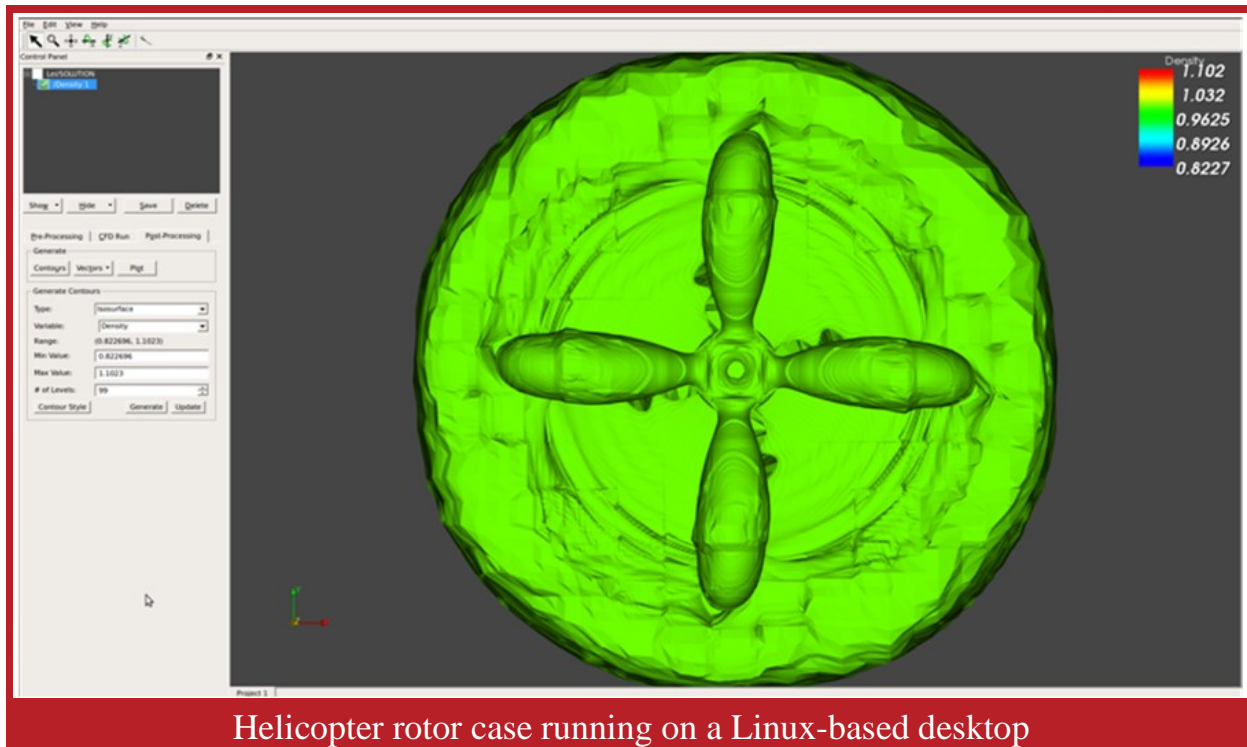
FEATURES, ADVANTAGES, AND BENEFITS

FEATURE	ADVANTAGE	BENEFIT
Automated conversion of CAD files into surface mesh	No need for another CAD reader	Significantly reduce the complexity and effort to generate surface mesh
Multi-block Cartesian mesh approach	Fully automated volume mesh generation; local mesh refinement; robust moving-body handling capability; high accuracy; low computational cost per cell	Significantly reduce the complexity and effort to set up a CFD simulation
Accurate shock-capturing approach	Robust to handle shock-related problems without large numerical diffusion	Allow users to handle a wider range of problems
Vorticity-confinement method	Accurate simulation of rotor tip vortices without excessive mesh refinement	Significantly reduce the computational effort for accurate simulation of rotor tip vortices
Embedded 6-DOF capability	Tight coupling of CFD and 6-DOF analysis	Significantly reduce the complexity of handling moving-body problems
All-in-one capability	Single software from reading CAD files to post-processing	Save efforts to learn multiple software and transfer/convert data files

ROM™

ROM™ is developed to construct an accurate reduced-order model from the CFD solution database, which will be used in the design and optimization, control, and real-time simulation environments.

CUSTOMERS/PARTNERS

» Raytheon
» Purdue University
» North Carolina State University
» U.S. Navy

» U.S. Air Force
» Defense Advanced Research Projects Agency (DARPA)
» National Science Foundation (NSF)
» NASA

D&P, LLC

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