# ROUSH®

COMPUTATIONAL FLUID DYNAMICS

Roush provides Computational Fluid Dynamics (CFD) consulting services to deliver the optimal flow and/or thermal solution at any stage in the product development cycle.

Our CFD team uses a variety of commercial CFD, thermal and optimization software packages to provide insightful design feedback that can truly redefine a product's performance. We are highly flexible in our modeling process, utilizing the industry's most cutting-edge simulation methods to ensure our clients' success.

For more information, please click here.
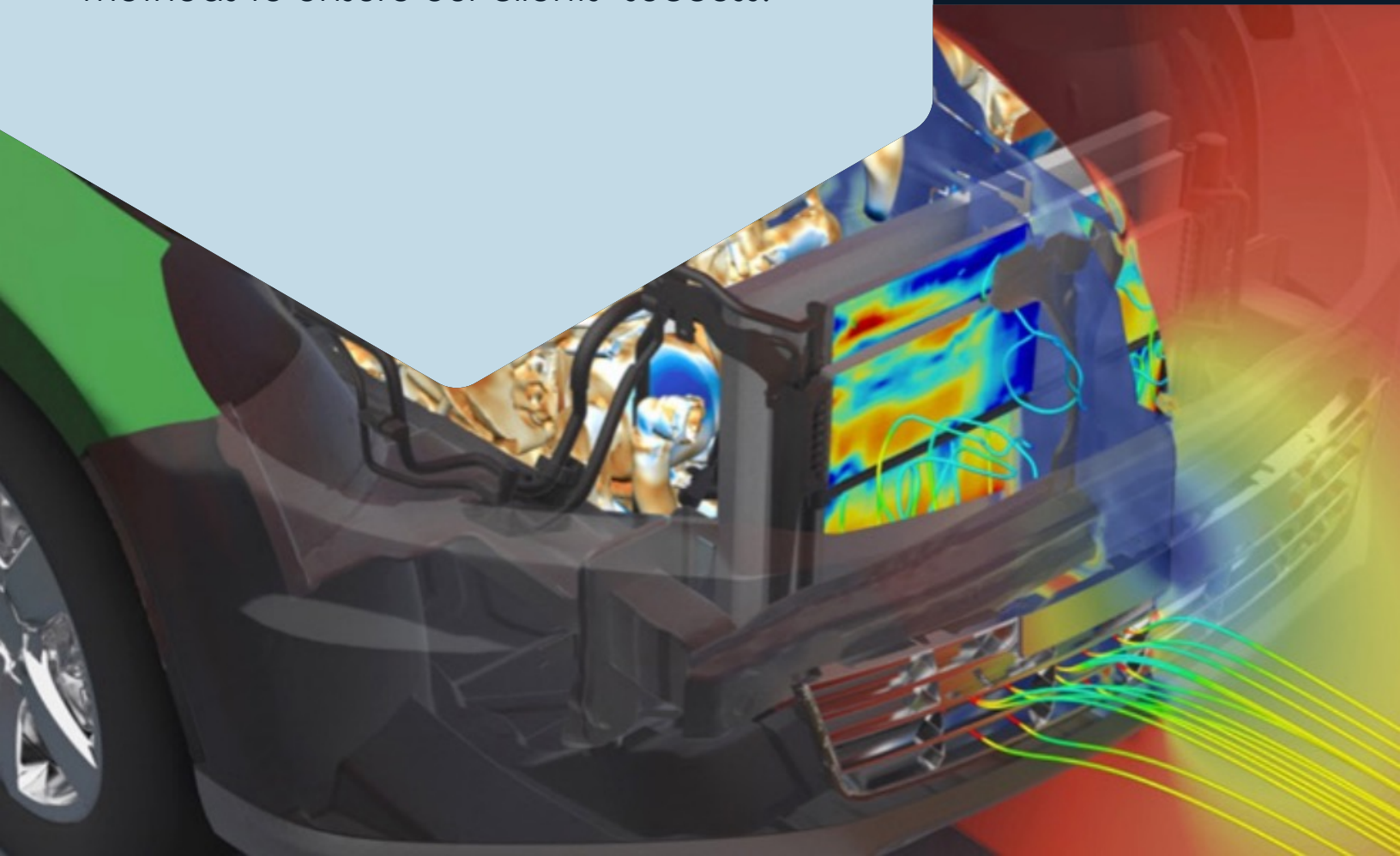
INDUSTRIES SERVED:

- Aerospace
- Alternative Fuels
- Automotive
- Consumer
- Defense
- Electronics
- Energy
- Entertainment
- Lighting
- Marine

Our CAE team houses its own 700+ core High Performance Computing Cluster. Not bound by hardware restrictions, we are able to cut down on simulation cost and turnaround time for our clients.

To complement its CFD simulation capabilities, Roush also boasts a repertoire of engineering capabilities including Design Services, Product Development, Testing, Prototyping and Manufacturing.

Whether you are a pioneering inventor designing a novel product, or a large corporation troubleshooting product launch issues, Roush technical experts are here to share their vast industry knowledge and help you get your product to market faster.

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AERODYNAMICS

- Vehicle Drag & Downforce Assessment
- Conceptual Design Studies
- Adjoint & Parametric Shape Optimization
- Product Design Validation
- Wind Tunnel Testing
- CFD Model Correlation
- Wind Loading on External Structures
- Horizontal & Vertical Axis Wind Turbines
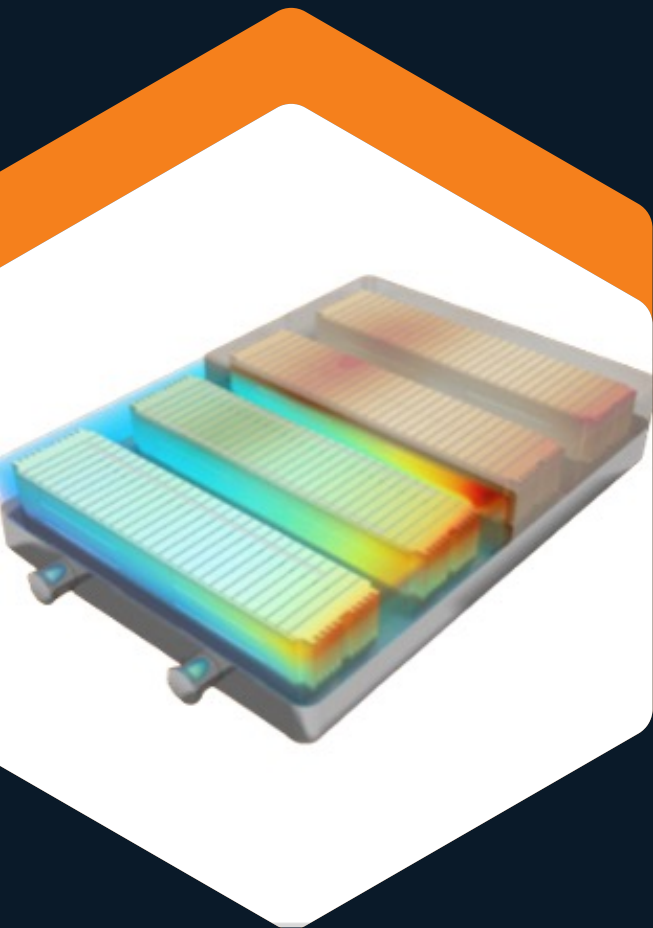
THERMAL MANAGEMENT

- Internal Combustion Engines
- Intake & Exhaust Systems
- Superchargers & Turbochargers
- Vehicle Underhood
- Electronics
- Climate Control Systems
- Human Thermal Comfort
- Data Centers

ELECTRIFICATION

- Battery Liquid Cooling Strategy Development
- Battery Air Cooling Strategy Development
- Cell Thermal Analysis (Prismatic, Cylindrical, Pouch)
- Pack-Level Thermal Analysis
- Full Vehicle Thermal Analysis
- Cabin Airflow Effects on Battery Air Cooling
- Exhaust Radiation Effects on Battery Performance
- Transient Vehicle Hot Shutdown Analysis
- Transient Thermal Soak Analysis

MULTIPHASE & MULTIPHYSICS

- Continuous Phase Flows
- Dispersed Phase Flows
- Multi-Component Mixing
- Liquid Phase Change
- Lubrication Analysis
- Defrost & Defog Analysis
- Aeroacoustics
- Fluid-Structure Interaction
- Thermal Stress

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