



Global Center for Automotive Performance Simulation

Virginia Tech Transportation Institute

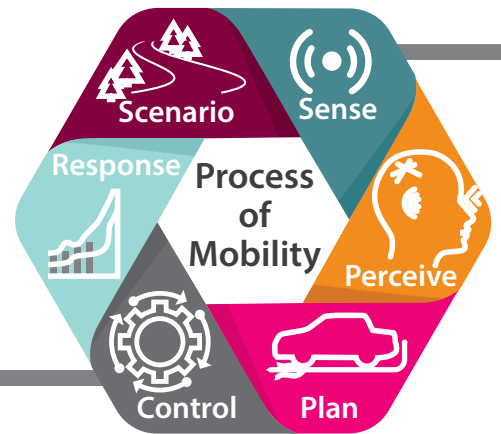
GCAPS is revolutionizing the automotive industry.

About Us

We are driven to find solutions to mobility challenges that will benefit our clients and society. The GCAPS team provides predictive modeling, simulation, and scenario development to the full spectrum of the mobility industry and other industry clients. GCAPS works with ADS technology developers to improve the knowledge, confidence, and performance of their products. With expertise ranging from physics and machine learning, to controls and tire mechanics, our multidisciplinary team of problem solvers can meet the growing challenges in ADS technology development and beyond.

Our Services

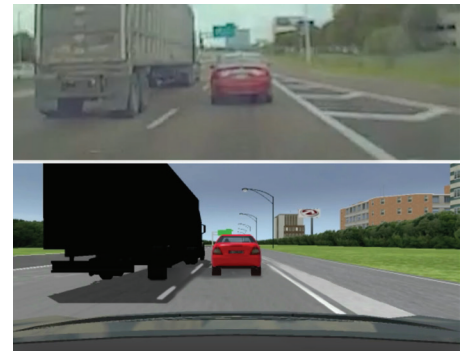
Our services focus on the process of mobility and innovation. Through physical data reduction, interpretation, and analysis, GCAPS provides services to improve your simulations and performance assessments. Our work complements activities performed by global vehicle manufacturers, tire manufacturers, suppliers, and motorsports teams.



Vehicular events are decomposed and converted into tool agnostic parameterized files for use in a variety of simulations.



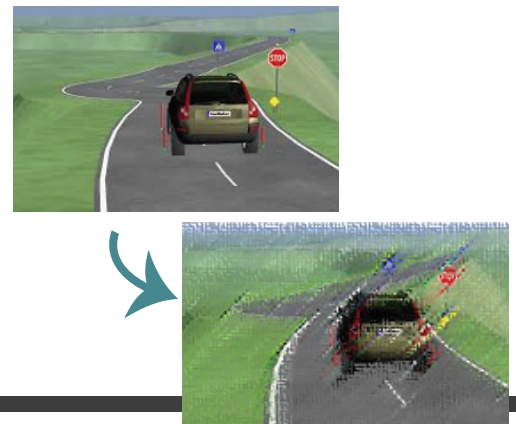
- Event Replication & Decomposition
- Event Variation
- Intelligent Sampling



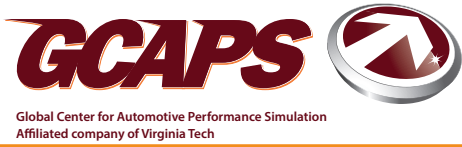
GCAPS understands the limitations of technologies, such as effects from artificial and natural degradation, and applies this to virtual development that is critical for robust products.



- Naturalistic Sensor Characterization
- Sensor Modeling



Inspired Simulations Through Analytics



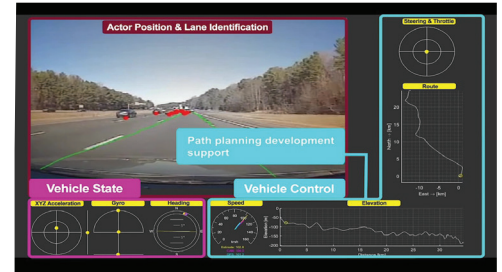
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We utilize sophisticated sensors with fusion algorithms, with results applied to large scale actor annotations, cyber security, and infrastructure assessment.



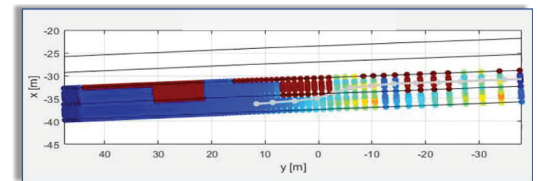
- Sensor Fusion
- Automated Annotations
- Detection Algorithms



Human behavior is critical to planning algorithms. Our knowledge of human and vehicle dynamics provides the physical bounds of the vehicles and is applied to our algorithms.



- Behavioral Based Modeling
- Safety Modeling & Assurance
- Vehicle Dynamics Modeling & Simulation
- Tire Testing & Modeling

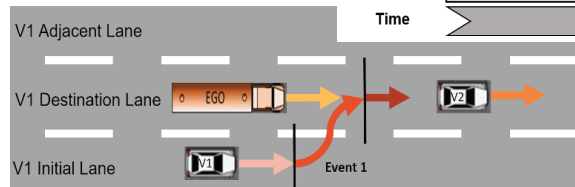


Services include real time or offline assessment of vehicle responses, which can be conducted both physically and virtually.



- Behavioral Competency
- Safety Assurance
- Vehicle Testing

EGO	A (straight)		
V1	A (straight)	B (to left) Event 1	C (straight)
V2	A (straight)		
Road Type	Four-lane Highway		
Weather	Clear, sunny		
Time	→		



About GCAPS

GCAPS is an affiliated company of Virginia Tech and VTTI. For 35 years, VTTI has been conducting research to save lives, time, and money and protect the environment. In our world-class facilities, we investigate, invent, design, develop, refine, and test transportation systems of the future. As one of seven premier research institutes created by Virginia Tech to answer national challenges, VTTI is continually advancing transportation through innovation and has affected public policy on national and international levels.

To learn more about our work and get more involved, please contact us at:

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Advancing Transportation Through Innovation