Division of Data & Analytics
Virginia Tech Transportation Institute

VIRGINIA TECH
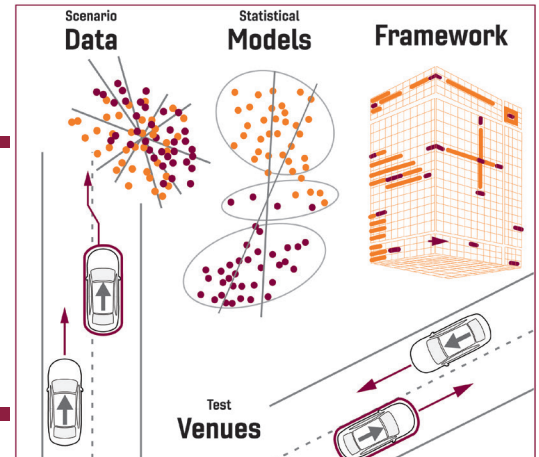TRANSPORTATION INSTITUTE

About Us

The Division of Data & Analytics (DDA) conducts data-driven research that develops and employs sophisticated algorithms, machine learning and statistical methods, innovative data fusion, and visualization techniques to advance transportation.

DDA specializes in collaboration with industry, academic, and government partners to translate large-scale data collections into robust and timely guidance and decisions. The division's research focuses on:

Challenging questions at the intersection of mechanical engineering, physics, computer science, statistics, human behavior and performance, safety, and policy.

Leveraging innovative data fusion approaches, algorithmic labeling processes, and interactive visualizations to translate disparate and highly dimensional data into visible and understandable results.

Providing domain expertise and state-of-the-art data and analytic methods to enable our partners to answer their questions quickly, cost effectively, and with accessible output that is ready to address their most pressing needs.
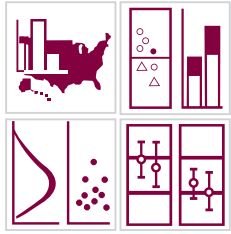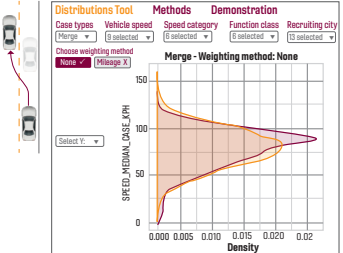

Programs

- **Data Engineering**
- **Motion & Context Analytics**
- **Policy & Qualitative Data Analysis**
- **Advanced Statistical & Intelligent Analytics**

AMP

DDA leads VTTI's Automated Mobility Partnership (AMP) Program, which brings together industry leaders to promote the development of tools, techniques, and data resources to support the rapid advancement of automated driving systems deployment. The AMP research model is partner-driven, rapid cycle, and high influence. Using a library of crashes, near-crashes, and other types of driving cases, the program:

- **Allows users to discover purposefully designed routine and extreme automated driving cases**
- **Uses interactive analytics to describe the frequency of these cases as well as the distribution of measures within cases**
- **Reconstructs driving cases in simulation-ready datasets to support multi-tool platforms**

Continuous Portal Data Feed Releases
- New Level 2 NDD Study
- U.S. National Crash Data
- Revealing New Scenarios

Analytic Enhancements

Scenario-Based Parameterization

Simulation-Ready Datasets Advancements

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Our Impact

Industry Best Practices - Our research findings help inform Society of Automotive Engineers International's best practices for public safety and automated driving system-dedicated vehicles.

Data - *VTTI houses nearly 90% of the continuous naturalistic driving data in the world!* We were awarded a National Academy of Sciences-funded contract to make data from the largest naturalistic driving study ever conducted (the Second Strategic Highway Research Program Naturalistic Driving Study) available to researchers across the automotive and transportation industries.

Innovation - The partner-driven AMP provides members with access to a variety of real-world driving data and a suite of support tools focused on the development and evaluation of automated driving technologies.

Outreach - Our division has conducted several studies focused on educating consumers. Active safety features, especially those associated with forward collision detection and avoidance technologies, have the potential to greatly reduce the number of serious accidents and fatal crashes in the coming years. However, we recognize that consumers will need to be educated on the purpose, benefits, limitations, and proper use of these active safety technologies for this potential to be met.

About 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:

- **540-231-1500** ● **inquiries@vtti.vt.edu** ● **www.vtti.vt.edu**

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Advancing Transportation Through Innovation