ITS-NY
Intelligent Transportation Society of New York

SEMPACT
USDOT Region 2 University Transportation Center
New Jersey | New York | Puerto Rico | US Virgin Islands

Enhancing Vulnerable Road User Safety with Data-Driven Insights

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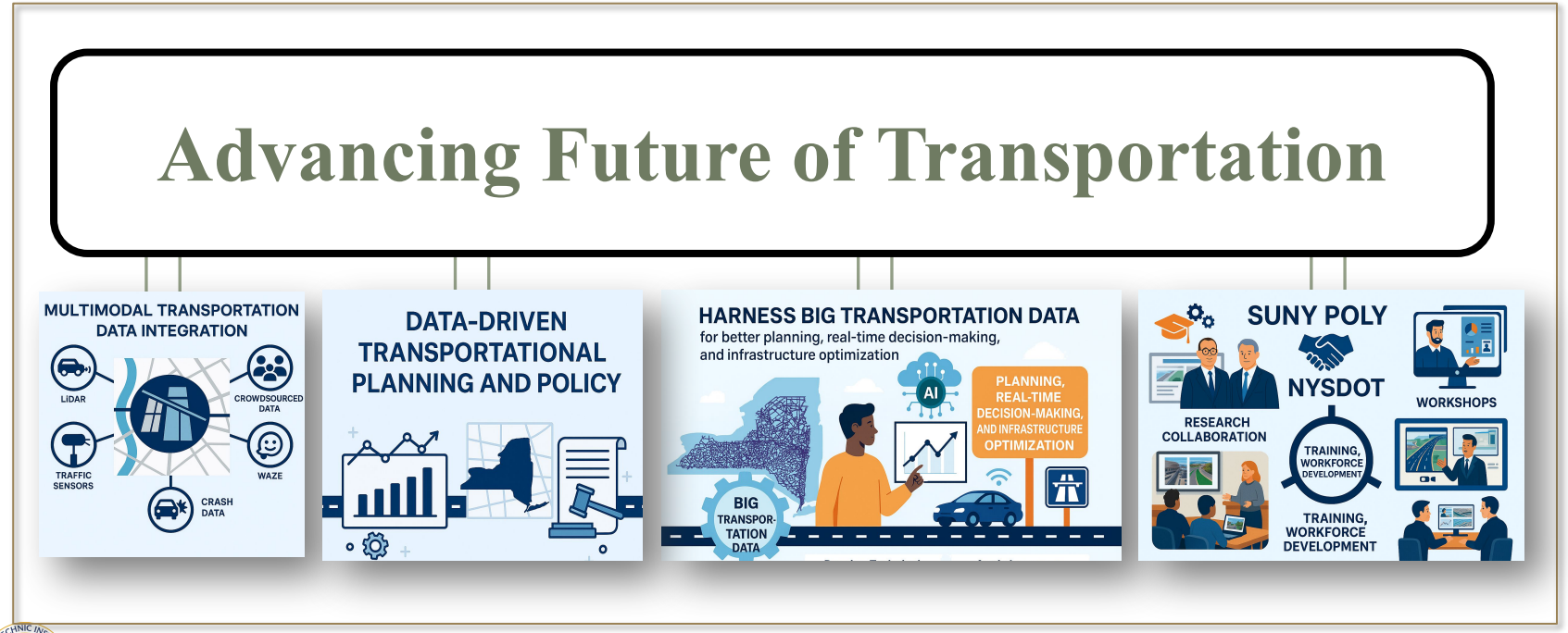
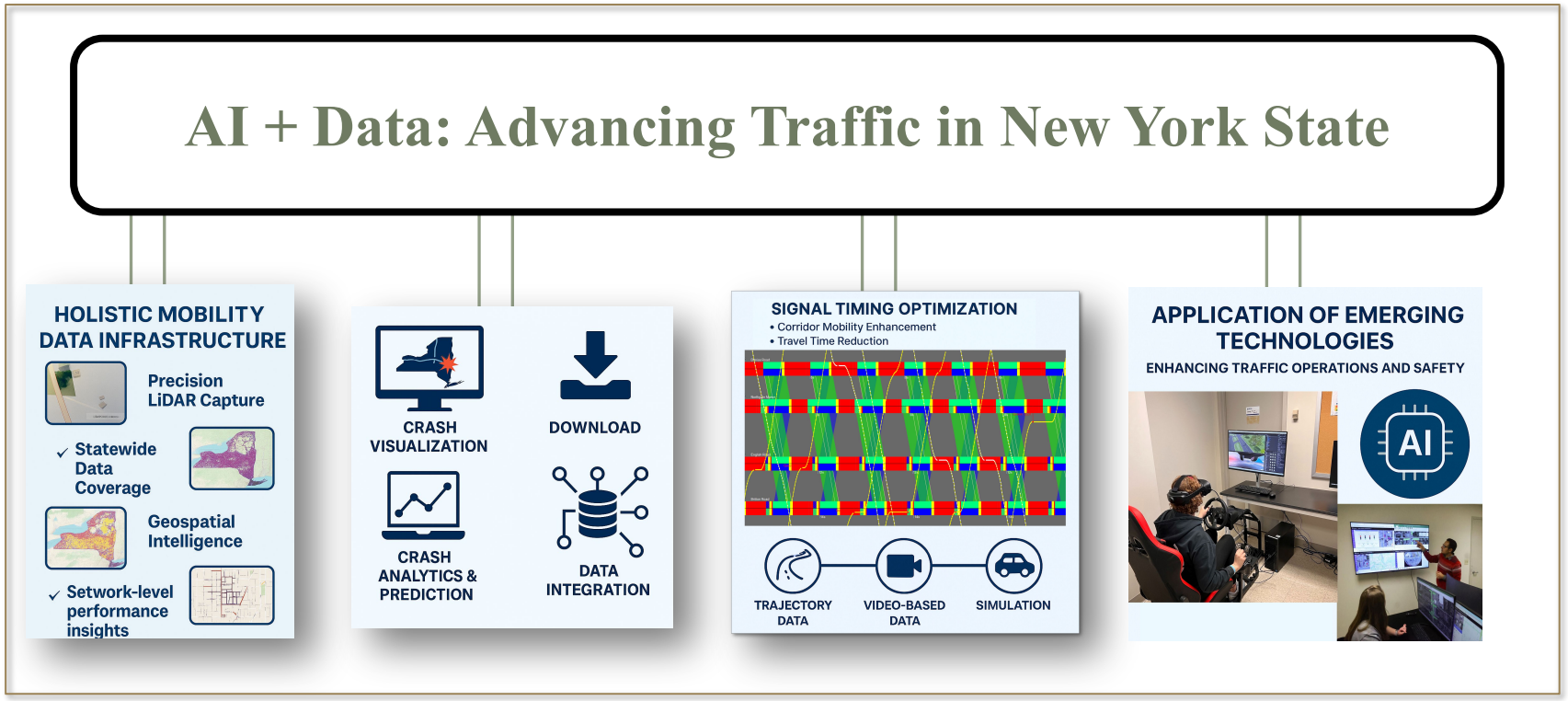
SUNY POLY & NYSDOT

- **SUNY Polytechnic Institute** and **New York State Department of Transportation** are advancing the future of transportation through a dynamic, data-driven partnership. Together, we leverage **multimodal data fusion**, **AI-powered traffic management**, and **predictive tools** to address real-world challenges across New York State.



TRAIL @ SUNY POLY

Sample Projects



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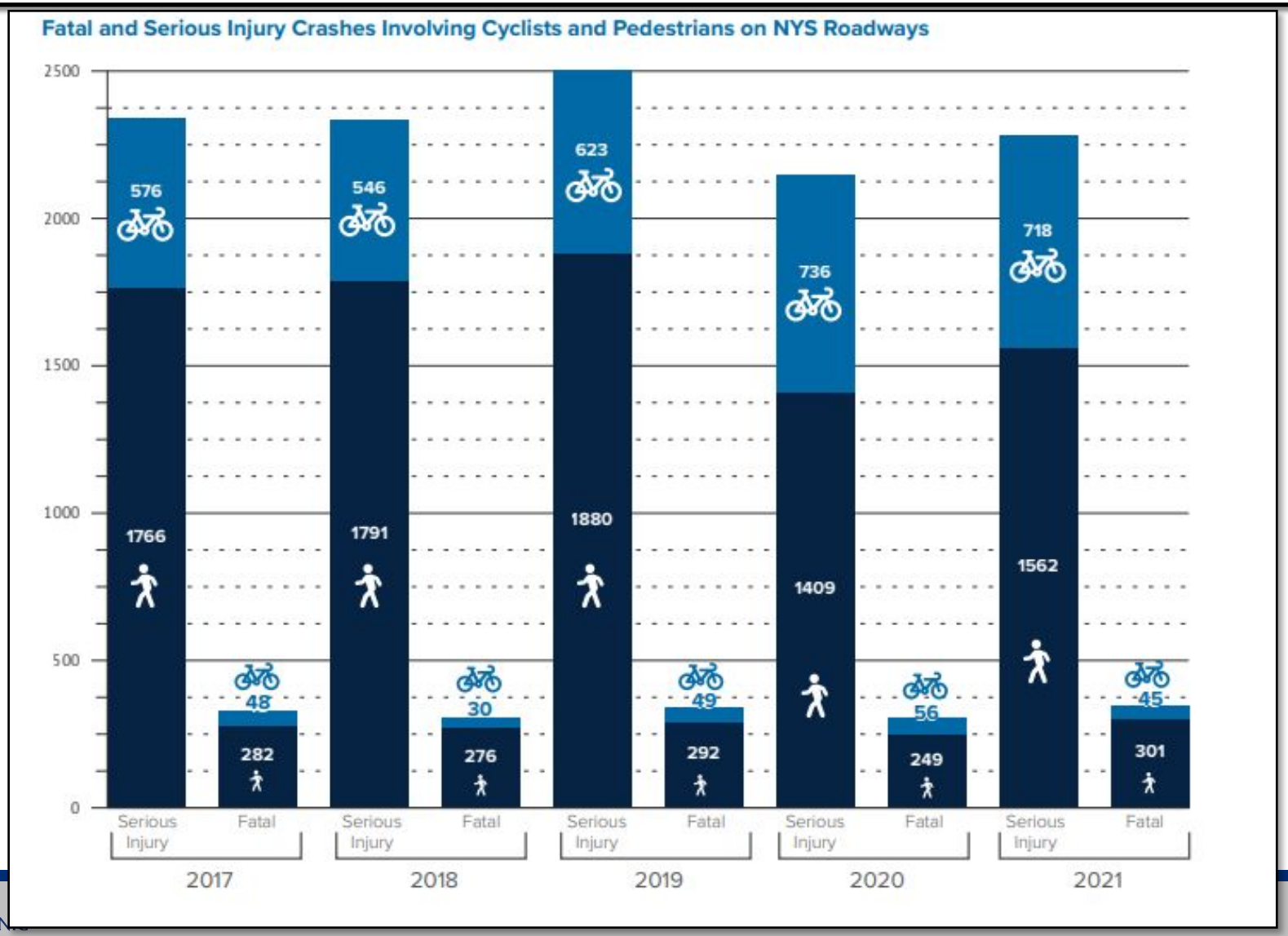
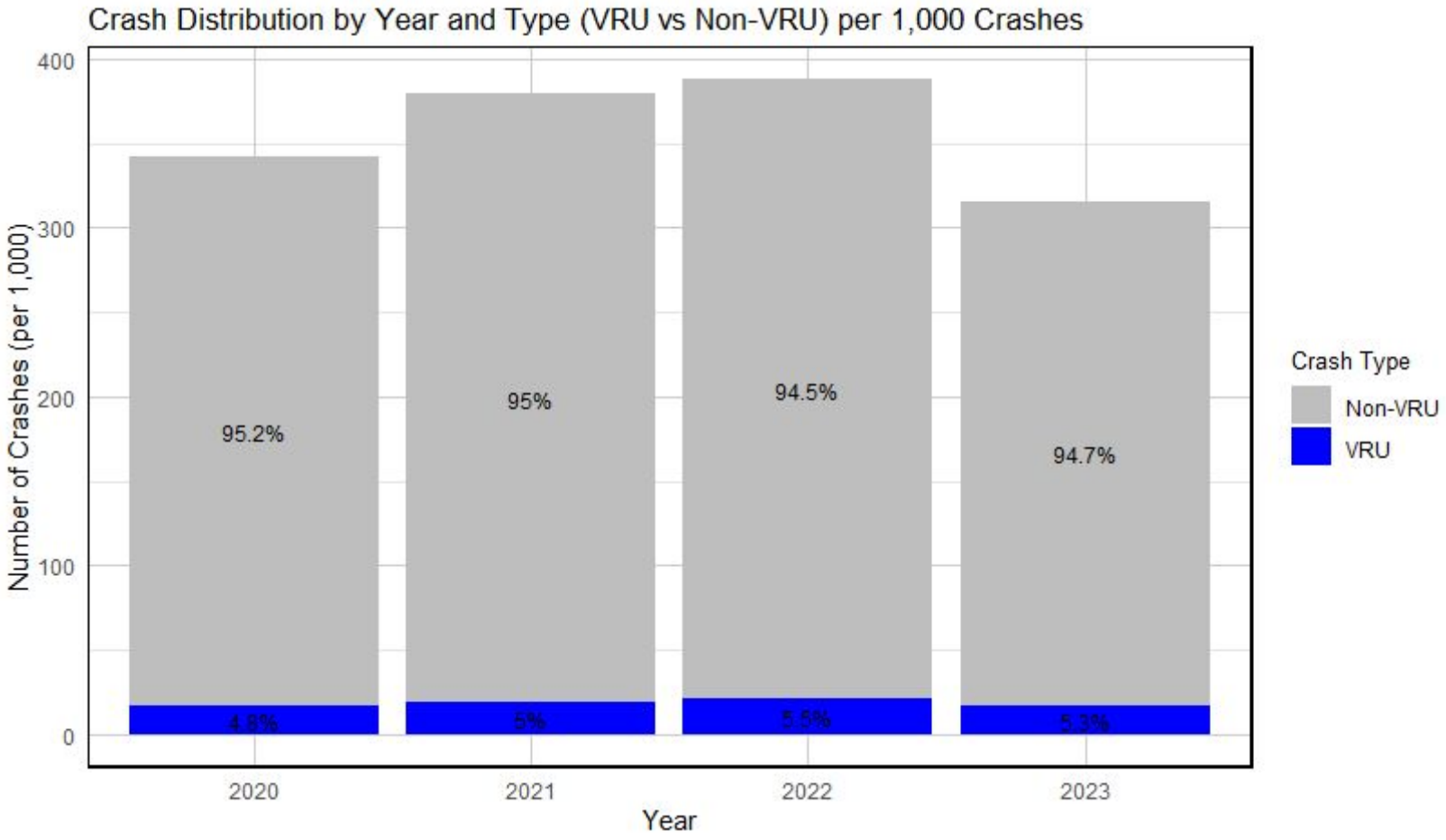

Fatal and Serious Injury Crashes Involving Cyclists and Pedestrians on NYS Roadways
2500
2000
1500
1000
500
0
576
1766
48
282
546
1791
30
276
623
1880
49
292
736
1409
56
249
718
1562
45
301
Serious Injury
Fatal
2017
2018
2019
2020
2021

Data from 2020-2023

Background



Investigating Current State Policies and Regulations

State	Method	Notes
Arkansas 2015-2021	Sliding Window Method	Little Rock had the most dangerous streets, followed by Hot Springs and Jonesboro.
Kansas 2014-2021	Three-step process with High-Injury and High-Risk Networks	Rural crashes far from a trauma center were more likely to result in death rather than serious injury.
Montana 2017-2021	Attempts at High-Risk Networks and Crash Rate Analysis	Both failed due to Montana's extremely low density.
Massachusetts 2016-2020	Crash-based and risk-based	Crash-based and risk-based analysis of segments and intersections. Risk-based analysis of towns
New Mexico 2012-2022	Geographic-based High Injury Network	Priority locations were found based on Crash Severity Index and Equity scores.
New York 2017-2021	Nine-step process based on # of crashes, potential for improvement, and equity.	129 census tracts are considered "high-risk" (in the top 5% for risk).
Arizona 2013-2022	Developed a 5-step VRU Safety Assessment	Combination of VRU crash data, equity data of underserved communities, and demographics

Potential Gaps

Lack of Dynamic Assessment

- The majority of the VRU safety plan is static and lacks real-time or continuously updated evaluation.

Missing Data Inputs

- Current assessments do not incorporate mobility patterns or equity-related data such as social justice indicators.

No Predictive Capability

- The plan lacks a predictive modeling framework to proactively identify future high-risk areas.

AI-Enabled Safety Platform

- Demo

Next Steps

- Enhance predictive modeling:
  - Multiscale Geographically Weighted Regression (MGWR)
- Develop and enhance the web platform for AI-integrated real-time safety analytics

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Thank you! Questions?

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