Small Urban and Rural Transit Center (SURTC)

- Research
- Education
- Training
## Research

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Data Challenges

• Rural NTD limited

• Demand-Response/flexible fixed-route level of service

• NHTS sporadic

• Rural transit use
  – Trip purpose
  – Alternatives

• Appropriate performance measures
Evaluating Ride Quality with Smartphone Data
Evaluating Ride Quality with Smartphone Data

- **TRQ** (Total Ride Quality)
- **VIF** (Vehicle Impact Factor)
  - **RIF** (Road Impact Factor)
  - **DIF** (Driver Impact Factor)
- **VRI** (Vertical Roughness Index)
- **LRI** (Lateral Roughness Index)
- **ORI** (Longitudinal Roughness Index)

Signal Transforms

- Accelerometer, Gyroscope, Velocity Sensor, Timer
- Resultant Acceleration Signal Samples in Three Orthogonal Directions
Other Recent UGPTI Research

- Local Road Surface Selection Tool
- Building a Sustainable GIS Framework for Supporting a Tribal Transportation Problem
- Data-Driven Freeway Performance Evaluation Framework for Project Prioritization and Decision Making
- Remote Sensing of Multimodal Transportation Systems
- A Sensor Fusion Approach to Assess Pavement Condition and Maintenance Effectiveness
Questions & Answers Session 1

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Director, CMISST
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Core Faculty, Michigan Institute for Data Science
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