



## Snowplow Driver-Assist System (DAS)

A novel snowplow driver-assist system that provides lane guidance and forward obstacle detection feedback to snowplow operators when clearing snow in low-visibility conditions.



**IP Status:** US Patent Pending; Application No. 18/312,247

### Applications

- Provides obstacle detection and lane guidance for snowplow operators
- Increases driver safety and efficiency

### Technology Overview

Snowplow operators are often tasked with clearing snow from roadways under challenging weather conditions. Low-visibility conditions make it difficult for operators to navigate, stay centered in the lane, and identify upcoming hazards. Researchers at the University of Minnesota have developed a snowplow driver-assist system that provides visual and auditory information to help operators in low-visibility situations. Lane guidance is provided through the use of high-accuracy Global Navigation Satellite System (GNSS) to inform drivers about their lateral positions. Forward-facing radar is used to detect potential hazards in the roadway. The design of the system, and in particular its interface, is guided by extensive user testing to ensure the system is easy to understand and use.

### Phase of Development

**TRL: 5-6**

Prototype developed, tested, and installed on 9 snowplows across Minnesota.

### Desired Partnerships

This technology is now available for:

### Technology ID

2022-221

### Category

Engineering & Physical Sciences/Instrumentation, Sensors & Controls  
Engineering & Physical Sciences/Transportation  
Software & IT/Transportation

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2023

## Researchers

- [Nichole Morris, PhD](#) Research Associate Professor, Director of the Human Factors Safety Laboratory
- [Brian Davis](#) Associate Director, Human Factors Safety Laboratory
- [Max Donath, PhD](#) Professor, Department of Mechanical Engineering

## References

1. Max Donath, Brian Davis, Katelyn Schwieters, Nichole L. Morris(2023) , <https://mdl.mndot.gov/items/202327>