This white paper examines whether self-driving vehicles should be subjected to a licensing test as people are, and if so, whether the licensing process should be analogous to the current graduated driver licensing (GDL) systems for novice young drivers.

There are several arguments in support of the need for self-driving vehicles to pass a licensing test that would allow them to operate in all driving situations:

1. Sensing hardware, spatial maps, and software algorithms will vary among manufacturers of self-driving vehicles, resulting in variability of on-road performance—as is the case with humans.
4. Current self-driving vehicles have not yet been tested thoroughly under a variety of demanding conditions (e.g., in snow).
5. On-road performance of some current self-driving vehicles is not yet perfect, even in good weather.
6. Self-driving vehicles will face, on rare occasions, ethical dilemmas in their decision-making.

For self-driving vehicles, in contrast to novice human drivers, experience under one set of conditions that requires certain hardware or software capabilities does not improve performance under a different set of conditions that requires different hardware or software capabilities. Thus, the underlying logic for the use of GDL systems with novice young drivers does not apply to self-driving vehicles: A self-driving vehicle either has the hardware and software to deal with a particular situation, or it does not. If it does not, experience in other situations will not be of benefit.

On the other hand, the GDL approach would be applicable should a manufacturer explicitly decide to limit the operation of its vehicles to certain conditions, until improved hardware or software become available. For example, a manufacturer might feel confident that its vehicles could handle all situations except nighttime and snow. In such a situation, after passing a licensing test related to the limited conditions, the vehicle would be given a provisional license that would exclude nighttime driving and driving in snow. A full license could then be obtained once future updates to hardware or software are developed and made available, and the updated vehicle passes an unrestricted licensing test.