

## **MEMS-based lidar for autonomous driving**

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### **Abstract**

Lidar, the acronym of light detection and ranging, has received much attention for the automotive industry as a key component for high level automated driving systems due to their high resolution and highly accurate 3D imaging of the surroundings under various weather conditions. However, the price and resolution of lidar sensors still do not meet the target values for the automotive market to be accepted as a basic sensor for ensuring safe autonomous driving. Recent work has focused on MEMS scanning mirrors as a potential solution for affordable long range lidar systems. This paper discusses current developments and research on MEMS-based lidars and introduces LiDcAR project for bringing precise and reliable MEMS-based lidars to enable safe and reliable autonomous driving. As a part of development in this project, a test bench for the characterization and performance evaluation of MEMS mirror is introduced. A recently developed MEMS-based lidar will be evaluated by various levels of tests including field tests based on realistic scenarios, aiming for safe and reliable autonomous driving in future automotive industry.

**Keywords:** *lidar, MEMS scanning mirror, autonomous driving, metrology platform*

### **References**

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### **Biography**

He received BS at Yonsei University in 2005 and MS in electrical engineering at Seoul National University in 2007. He worked in Samsung Advanced Institute of Technology and Samsung Electronics for low power digital RF and algorithms for reliability of multi-level non-volatile memories. He received Ph.D. from TU Delft, Netherlands, about adaptive optics and optomechanics for confocal microscopy. Currently, he is a postdoctoral researcher at the ACIN at TU Wien, Austria.