

# Bachelor / Master Thesis:

## Exploring Novel LiDAR Concepts: From 3D-printed Systems to Efficiency Optimization

LiDAR (Light Detection and Ranging) plays a pivotal role in various fields such as autonomous driving, environmental monitoring or industrial metrology. The technology has witnessed a remarkable growth, however, continuous advancements are essential to meet evolving demands.

Miniaturized systems based on 3D-printed structures or photonic integrated circuits (PICs) offer a promising platform for significantly enhancing the application potential of LiDAR technology, making them much smaller, more energy efficient and cheaper to produce.

The goal of the associated theses is to explore, implement, and demonstrate novel LiDAR concepts and components, using e.g. 3D-printing or PIC-based approaches.

### Your tasks may include:

- Design, fabrication and optimization of 3D-printed structures
- Demonstration of PIC-based LiDAR systems
- Performance evaluation of novel LiDAR concepts

### For detailed information contact:

M.Sc. David Reichenbacher

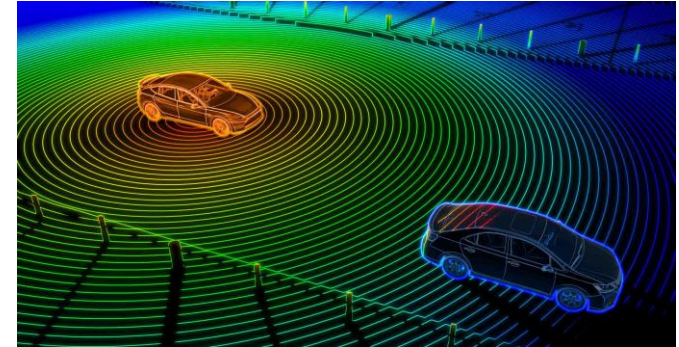
[David.reichenbacher@kit.edu](mailto:David.reichenbacher@kit.edu)

Tel. 0721-608-48954

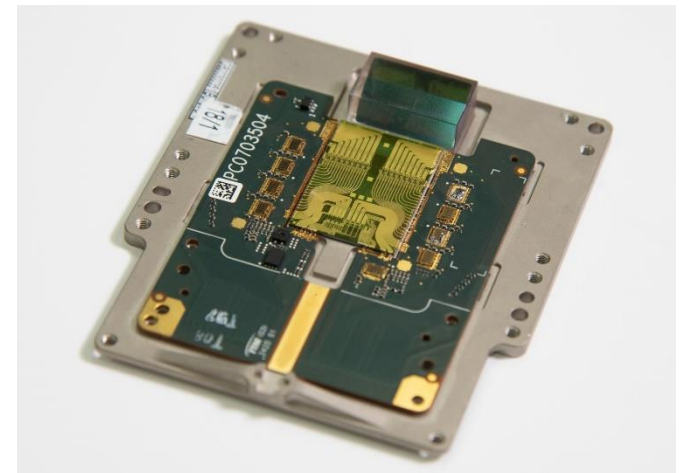
Prof. Dr. Christian Koos

[Christian.koos@kit.edu](mailto:Christian.koos@kit.edu)

Tel. 0721-608-42481



Lidar technology enables recognition of environment for autonomous cars. [1]



PIC for FMCW-Lidar presented by intel and mobileye in 2021 [2]

[1] [denso-x.com/stories/how-lidar-technology-is-shaping-our-lives/](https://denso-x.com/stories/how-lidar-technology-is-shaping-our-lives/)

[2] Optical Connections Magazine (Q1 2021), p.7  
([online.flippingbook.com/view/46753577/6/](https://online.flippingbook.com/view/46753577/6/))