

# ISC Reference Projects in Radar Technology

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# Combined Interferometric- and Doppler-Radar with Variable Aperture

## Innosuisse-Project 33306

1.2.2019 – 1.11.2020

### Partners



RFbeamMicrowave

Innovation project  
supported by



Schweizerische Eidgenossenschaft  
Confédération suisse  
Confederazione Svizzera  
Confederaziun svizra  
Swiss Confederation

Innosuisse – Swiss Innovation Agency

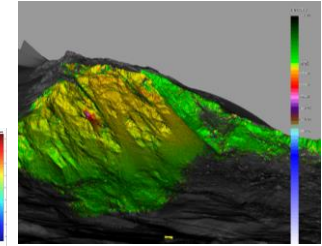
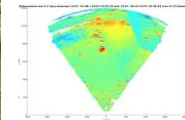
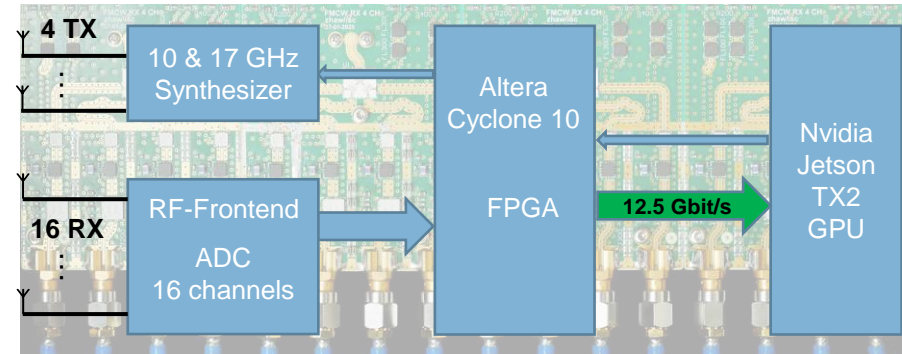
### Abstract

In this project, a ground-based dual-frequency georadar with variable aperture and no moving parts is being developed. The radar allows interferometry and Doppler measurements and is used to monitor a large hazard area from a distance of several kilometers.

## Interferometry- and Doppler-Radar in 1 Device

- Measurement of slow movements mm/day ... mm/year
- Real-time monitoring of fast movements (e.g. rockfall)

### FMCW - 4x16 MIMO - Georadar

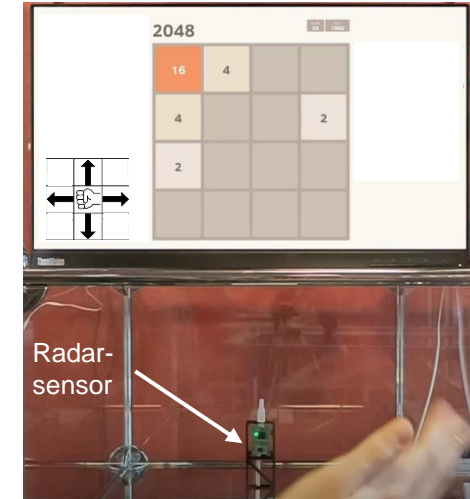
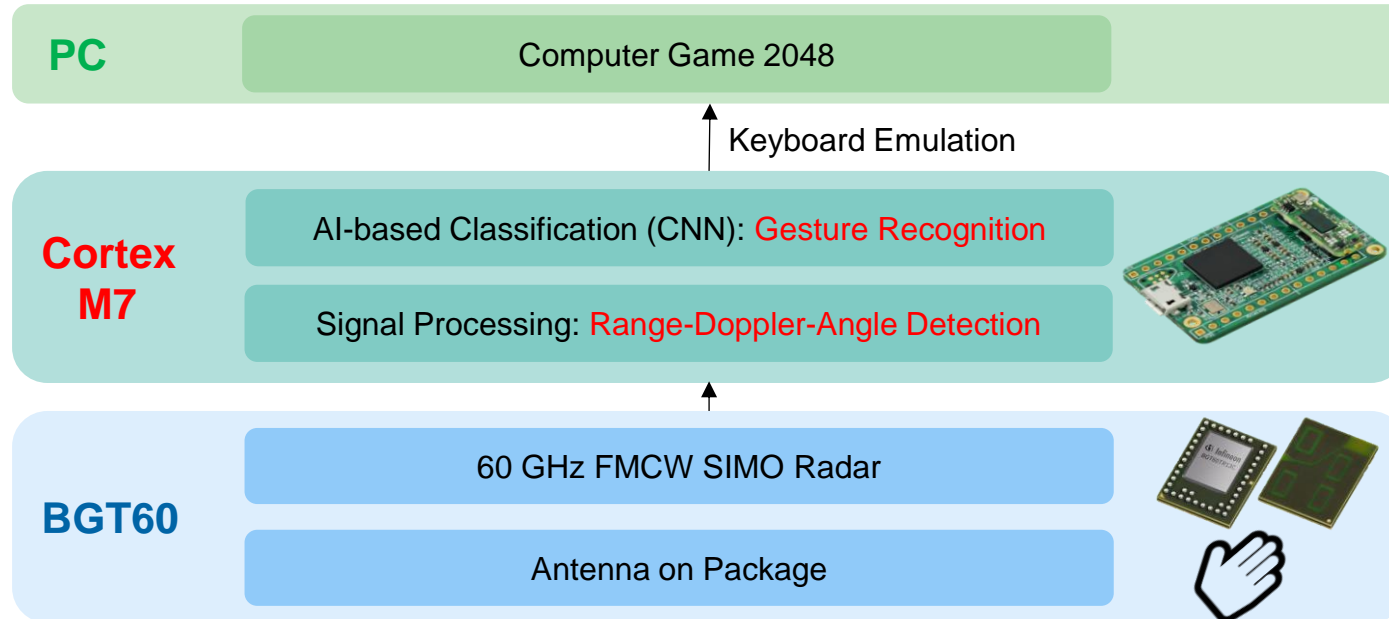


Field test prototype in Brienz/Brinzauls  
with interferogram and data visualization

# Radar Signal Preprocessing and AI-based Recognition of Hand Swipe Gestures

Yannick Wälti, Specialization Project, Master Program, 2022, [Video](#)

Tool-Chain: TensorFlow – TensorFlow Lite – TensorFlow Lite Micro (CMSIS-NN)



60 GHz MIMO-FMCW radar sensor [BGT60TR13C](#) from Infineon)

# Radar-based Tracking and Car-Truck-Classification

Beat Käfer, Specialization Project, Master Program, 2018.

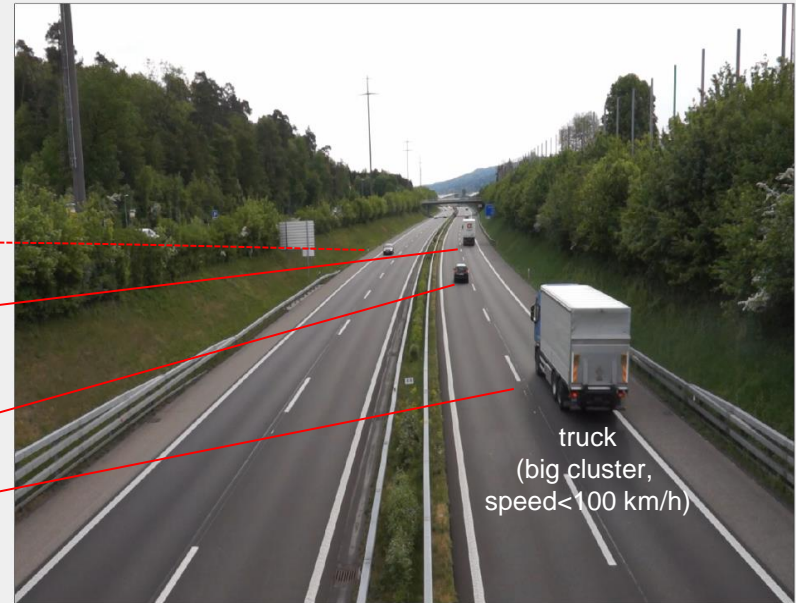
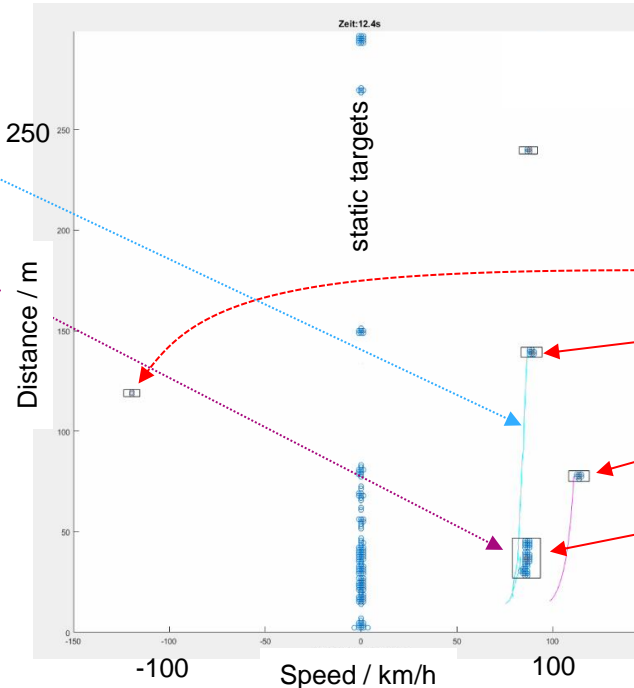
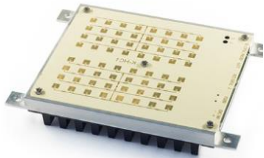
Range-Doppler-Map

[Video](#)

Kalman Tracking  
of clustered targets

DBSCAN-algorithm  
for target clustering

RFbeamMicrowave  
24 GHz FMCW-Radar  
[K-HC1](#)



truck  
(big cluster,  
speed < 100 km/h)

# New Human Presence Sensor

## Innosuisse-Project 51863

1.4.2021 – 1.12.2022

## Partners

Security Alarms & Co. SA, CH-1028 Preverenges

today **ALGORIZED**

## Abstract

This innovation will deliver the disruptive preventative solution in the field of home security and personal safety.

## Through-wall-seeing Short Range Radar

based on Ultra-Wide-Band (UWB) technology

[TV report](#) (TeleZüri)

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supported by



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Confederaziun svizra  
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Innosuisse – Swiss Innovation Agency

