

# Erfahrungsbericht iST Studium

Malte Lenhart



TECHNISCHE  
UNIVERSITÄT  
DARMSTADT



Fachschaft iST  
2015

# > Darmstadt



## > whoami

- BA & MA Studium TU Darmstadt (Größtenteils in Teilzeit)
- Verschiedene HiWi - Stellen
  - Mentoring iST
  - Fraunhofer IGD
  - Robotik
- Fachschaft iST & Gemeinsame Kommission
- Zwanziggrad Fahrradwerkstatt
- 2 Auslandssemester an der KTH Stockholm (inkl. Masterarbeit)
- 4 Publikationen aus BA & MA Thesis
- Nach dem Studium: IT-Sicherheit - Pentesting

## > Bestandteile meines Studiums

**Robotik &  
Regelungstechnik**

**Medizintechnik**

**Sprachen  
(Studium  
Generale)**

**Visual  
Computing**

**Software -  
Engineering**

**Embedded Systems**

**Signalverarbeitung**

**Kommunikationstechnik  
& -systeme**

**Sichere Systeme**

# > HiWi & BA Thesis @ Fraunhofer IGD



## Linoc: A Prototyping Platform for Capacitive and Passive Electrical Field Sensing

Julian von Wilmsdorff<sup>1</sup>, Malte Lenhart<sup>2</sup>, Florian Kirchbuchner<sup>1</sup> and Arjan Kuijper<sup>1</sup>  
<sup>1</sup>Fraunhofer Institute for Computer Graphics Research IGD, Darmstadt, Germany



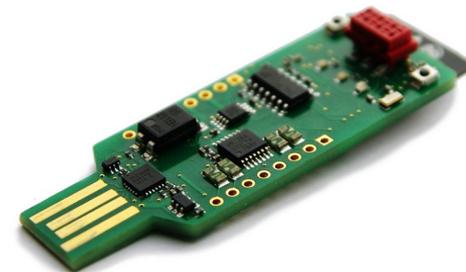
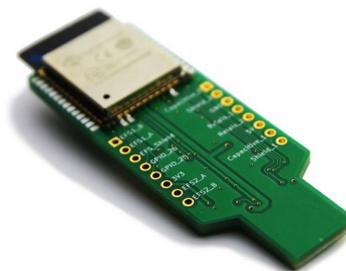
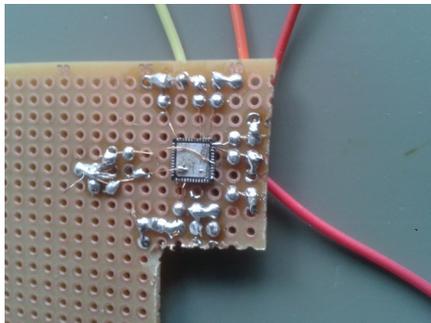
## Acquisition of EFS and Capacitive Measurement Data on Low-Power and Connected IoT Devices

Julian von Wilmsdorff<sup>1</sup> (✉), Malte Lenhart<sup>2</sup> (✉), Florian Kirchbuchner<sup>1</sup> (✉), and Arjan Kuijper<sup>1</sup> (✉)

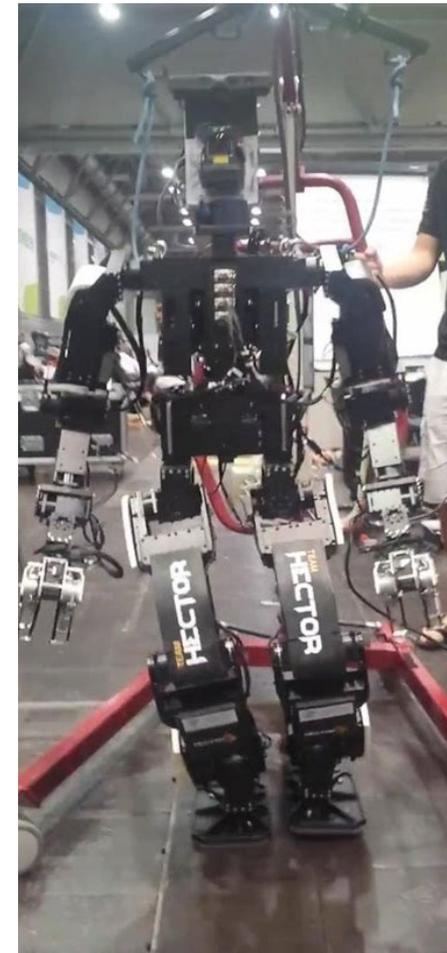
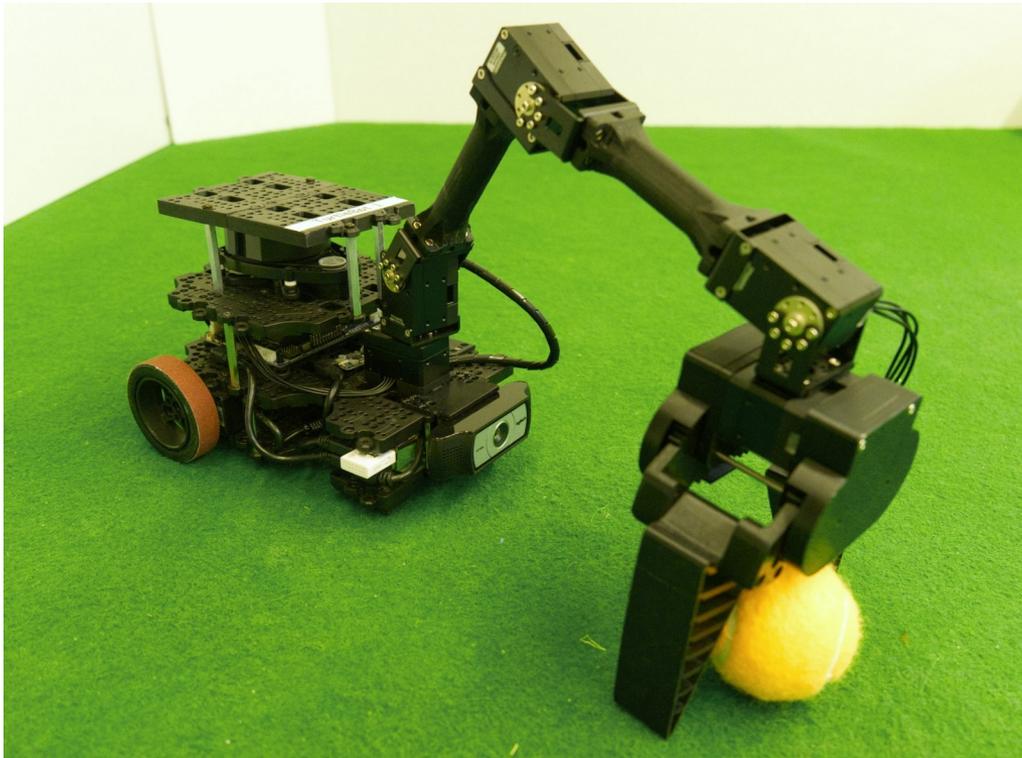
<sup>1</sup> Fraunhofer Institute for Computer Graphics Research IGD, Darmstadt, Germany  
{julian.von.wilmsdorff,florian.kirchbuchner, arjan.kuijper}@igd.fraunhofer.de

<sup>2</sup> Technische Universität Darmstadt, Darmstadt, Germany  
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**Abstract.** In this extended version of the paper “Linoc: A Prototyping Platform for Capacitive and Passive Electrical Field Sensing” [15], the Linoc prototyping toolkit is presented in more detail, accompanied by evaluations and recent adaptations in research projects. Central to the Linoc Toolkit are the two capacitive and the new Electric Potential Sensing (EPS) sensors, new technological work for



## > HiWi @ FG SIM Robotik



# > Schwerpunkt Sichere Systeme



Crisis Communication

Physical Layer Security

Network Security

Secure Mobile Systems

Seminars on Network Security &  
Wireless communication



Ethical Hacking

Advanced Networked  
Systems Security

Master Thesis

*Communication Networks II*

*Signal Processing*

Embedded System  
Security

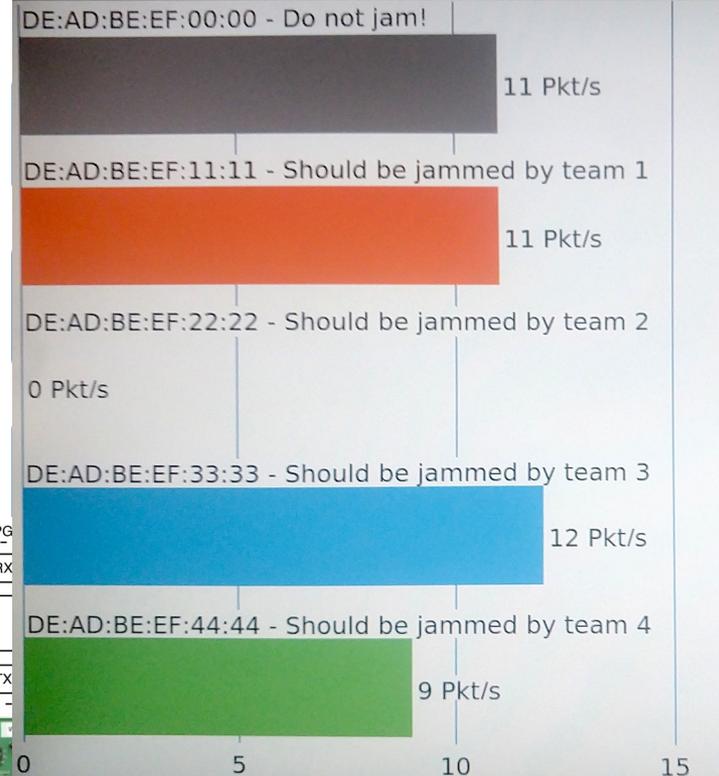
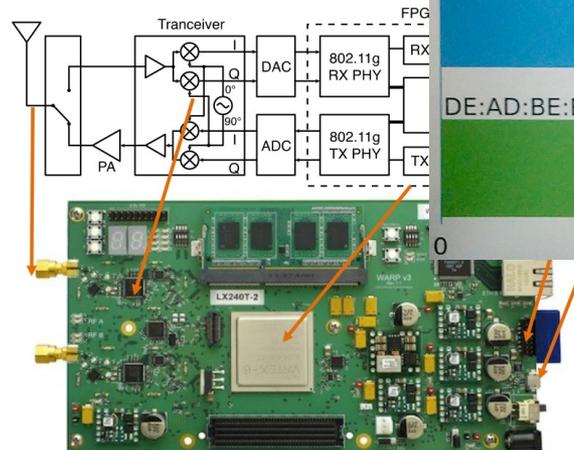


# > Schwerpunkt Sichere Systeme



Crisis Communication

Physical Layer Security



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stem



# > KTH, Stockholm, Erasmus+



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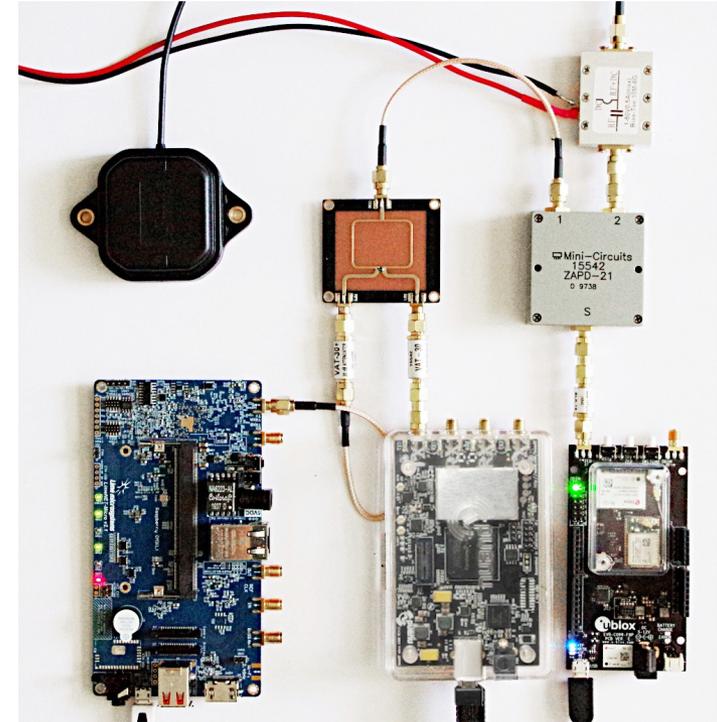
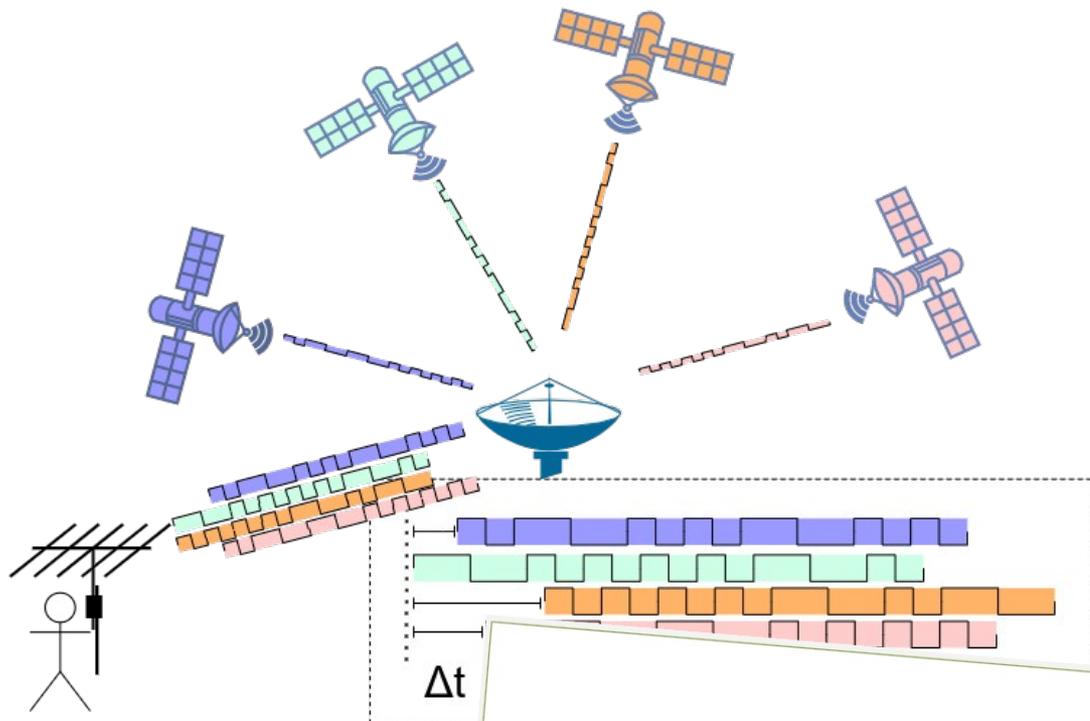
Erfahrungs-  
Bericht:



# > Master Thesis



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Thesis:



## DEMO: Relay/Replay Attacks on GNSS signals

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### ABSTRACT

Global Navigation Satellite Systems (GNSSs) are ubiquitous and rely on precise timing and positioning. They are vulnerable to various attacks, including relay and replay attacks, which can be used to spoof positions and velocities. This paper presents a demo of relay/replay attacks on GNSS signals, showing how a malicious actor can intercept and replay signals to a receiver, causing it to report incorrect positions and velocities. The demo is implemented using a custom-built hardware setup, which is shown in the photograph above.

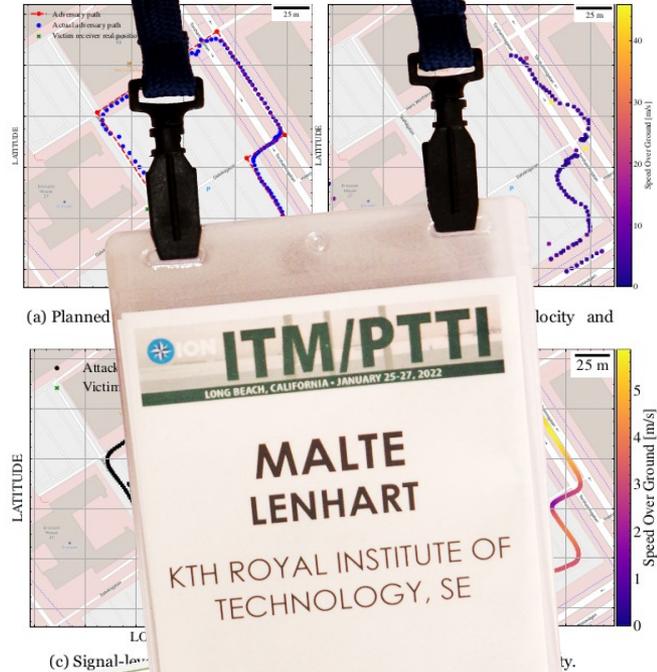
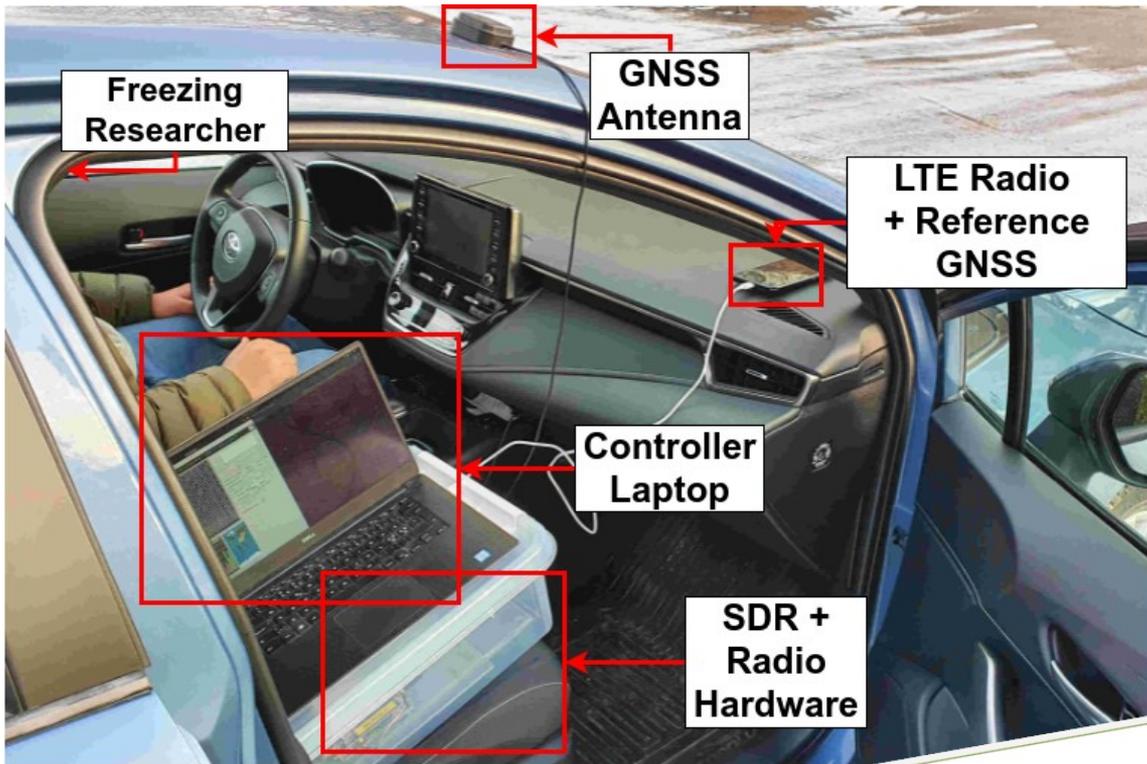
landings [11]. Spoofing attacks



# > Master Thesis



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## Distributed and Mobile Message Level Relaying/Replaying of GNSS Signals

Marco Spanghero, Panos Papadimitratos  
KTH Royal Institute of Technology, Sweden



## > Tipps fürs Studium



Flatten the (learning)  
curve!

Man kann auch zwei  
Übungen besuchen ;-)

“Softskills” mitnehmen

Auslandserfahrungen  
mitnehmen

Nicht von Möglichkeiten  
erschlagen lassen

Studium genießen & Spass haben!