Institut für Verteilte Systeme
Institute of Distributed Systems

ulm university universität ulm

Implementation of Targeted Attack on Vehicle-to-Vehicle Communication

Bachelor-arbeit

12 LP

In recent years, much research has been devoted to the design and implementation of vehicle-to-vehicle communication, based on a variety of communication technologies. Current standards foresee an ad-hoc communication architecture, where vehicles interact with other vehicles without the need for infrastructure. A major concern in such a network is the integrity and correctness of the exchanged information. Although solid proposals exist to protect message integrity, the detection of incorrect messages (**misbehaviour detection**) is a domain where there is no agreed-upon solution.

At the institute of distributed systems, we are developing the Maat framework, which is designed to collect messages and apply misbehaviour detection mechanisms to determine which messages are valid. We use techniques from information fusion and trust management to establish trustworthiness of messages and vehicles.

For validation of our framework, we are looking for a student interested in designing novel attacks to test the reliability of our framework. In particular, we are interested in attacks designed to be difficult to detect, either by combining multiple attack strategies or designing new ones. These attack should be developed within the VEINS framework, a C++-based simulation library for vehicle-to-vehicle communication.

This bachelor thesis is suitable for students with an interest in vehicle-to-vehicle communication or computer security.

Experience with C++ is recommended, but not required.
This topic can also be completed in German.

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If your are interested or you need additional details, feel free to contact me or drop by for a non-binding chat.