

## Master's Thesis

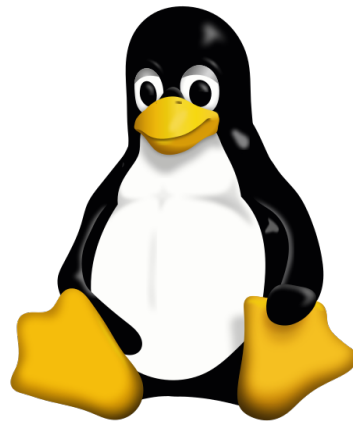
# WiFi Kernel Hacking: Integrating the Tactile Coordination Function into Linux

All modern computer networks today aim more and more towards latency reduction. Latency, often referred to as "Delay" or "Lag", is mostly perceived as a disturbing component in Augmented Reality (AR) and other real-time applications, when the system's response seems softened and dull, and appears delayed to the user's actions. This effect is closely related to the so-called AR sickness.

We at ComSys have developed some Low-Latency extensions [1] to the common and well known WiFi technology (IEEE 802.11, [2]), which currently lacks many features for real low-latency support. The goal of this project is to implement our WiFi extensions to the open source WiFi Stack of the Linux operating system in order to evaluate them outside of network simulations. The thesis includes the conceptional work needed to implement our ideas into the Kernel, possibly creating a new subsystem, and also possibly proposing new extensions according to the Kernel's WiFi architecture.

### Prerequisites

- Curiosity and affinity to dive into Linux Kernel development
- Good C programming skills
- Attended the lectures "Mobile Communications" and "Technische Informatik 2"
- Maybe some first encounter with Kernel or driver code



CC0 by Larry Ewing and The GIMP

### References

- [1] Engelhardt, F.; Rong, C.; Güneş, M.: Towards Tactile Wireless Multi-Hop Networks - The Tactile Coordination Function as EDCA Supplement. 2019 Wireless Telecommunications Symposium (WTS 2019)
- [2] IEEE Std 802.11-2016: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications, IEEE Standard, 2016

**Projektart** Master's Thesis  
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**Sprache(n)** English, German  
**Bereich** Computer Science



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