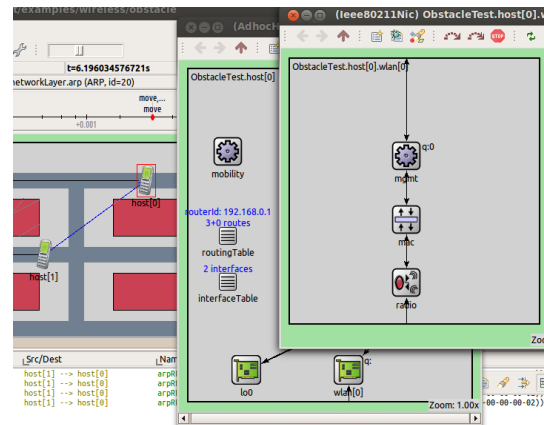


## Bachelor's / Master's Thesis

# A Comparative Study of Medium Access and Physical Layer Models for the Simulative Performance Evaluation of Wireless LANs

### Description:

Wireless LAN (WLAN), most commonly known from the Wi-Fi brand, is a ubiquitous technology to connect today's devices, from personal computers and mobile devices to embedded systems in appliances and vehicles. The performance of systems relying on WLAN for communication is routinely evaluated by means of simulation and a large variety of different simulation tools have been designed for this task. All of these tools take different approaches to capturing the behavior of the Medium Access and Physical Layer in a simulation model. Each takes different steps to capture real world effects and each abstracts away from others. This raises questions of comparability and to what degree results obtained in one tool can be reproduced with another.



### Tasks:

This thesis will compare and contrast the different approaches that popular simulation tools take when modeling the Medium Access and Physical Layers of WLAN NICs, as well as investigate the comparability of results obtained with these tools.

After choosing a set of different simulation tools and getting familiar with their structure and overall approach to modeling, a set of reference scenarios will be designed and implemented in their context. The investigation will conclude with a critical comparison of results obtained in these scenarios, depending on the employed simulation tool.

### Keywords:

C++, Wireless LANs, Network Simulation, OMNeT++

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