

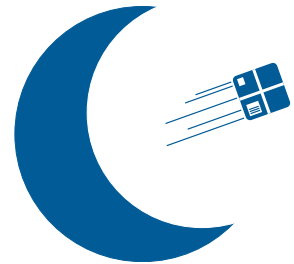
Thesis  
B.Sc.

IDP

# MoonGen - Implementation of a Testing Toolchain

## Motivation

MoonGen [1] is a high-performance network measurement tool developed at our chair. The DPDK framework [2] is used to control network cards directly, yielding data rates of up to 100G. Direct access to the hardware also allows for advanced features like latency measurements with sub-microsecond precision and accurate rate limiting.



Direct interaction with different hardware features often leads to unexpected bugs. Additionally, updates to the underlying DPDK library and other changes may lead to broken functionality or performance degradation.

This thesis aims to implement and automate functional and performance tests for MoonGen. At our chair, we run a testbed managed by the software pos [3]. The developed toolchain should combine the GitLab CI feature with our testbed to automatically run tests and create performance reports. Finally, the implemented toolchain should be used to compare the performance of different versions of MoonGen.

## Your Task

- Get familiar with MoonGen, the testbed, and GitLab CI
- Implement a toolchain that integrates GitLab CI with our testbed
- Implement functional and performance tests for MoonGen
- Evaluate the performance of different MoonGen versions

## Literature

- [1] Emmerich, Paul, et al. "Moongen: A scriptable high-speed packet generator."
- [2] <https://www.dpdk.org>
- [3] Gallenmüller, Sebastian, et al. "The pos framework: a methodology and toolchain for reproducible network experiments"

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