

Thesis
B.Sc.

Thesis
M.Sc.

IDP,
Guided
Research

Testbed- Driven Vibe Researching

Introduction

The Model Context Protocol (MCP) is a standardized way to expose resources and interfaces to large language models (LLMs). The goal of this research project is to develop an MCP server for the testbed orchestration system, which is used in the European SLICES initiative.

With that, experiments can be vibecoded. There is an expected speed up in necessary infrastructure work before and during experimentation. It takes away the burden of writing boiler plate code from researchers and makes the testbed more accessible to everyone. As a result, there is a stronger focus on the actual research question and it is easier to achieve reproducible science.

Tasks

- get familiar with the pos testbed controller
- develop an MCP server
- conduct case studies

Related Work

- [1] Scientific Large Scale Infrastructure for Computing/Communication Experimental Studies, 2026. <https://www.slices-ri.eu/>.
- [2] SLICES-DE, 2026. <https://slices-de.org/>.
- [3] L. Projects. What is the Model Context Protocol (MCP)?, 2026. <https://modelcontextprotocol.io/docs/getting-started/intro>.
- [4] H. Stubbe, S. Gallenmüller, and G. Carle. The pos experiment controller: Reproducible & portable network experiments. In *2024 19th Wireless On-Demand Network Systems and Services Conference (WONS)*, pages 1–8, 2024.

Requirements

- experience with Linux, Bash, and Python
- creative thinking

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