HSRW Crunchy Cloud

A central challenge in the practical use of data analysis systems by students is the very heterogeneous IT landscape on their computers. A central provision of online-accessible and uniform development environments for software development for data analysis and numerical modeling would mean a considerable improvement in the process, which should also lower the inhibition threshold for use among students and teachers.

The basics of scientific programming in Python and an introduction to data analysis are interdisciplinary cross-sectional skills and are therefore not limited to individual degree programs. The project is therefore divided into two areas: Firstly, a suitable software environment must be created. **JupyterHub** is an existing software solution for this purpose. **JupyterHub** should enable students and lecturers to access their development environment directly in their browser, regardless of the end device. However, operating **JupyterHub** on your own hardware is a challenge. The project therefore aims to create an OER guide for installation. Using selected sample learning modules, this first **JupyterHub** system will be tested for usability, acceptance and performance in practical use in teaching. This is the second part of the project. In addition to the tests in practical use, further colleagues will be trained in-house to familiarize them with the **JupyterHub and Jupyter Notebook** system and thus help them with the design and practical implementation of subject-specific teaching materials.

General Crunchy Cloud Setup

- Hardware installation
- EOLab Hardware setup and configuration

JupyterHub Documentation

Section 2: Platform

- Platform technologies
- Step by Step Guide
- NFS Storage Setup
- Challenges and Issues
- FAQs

Section 3: JupyterHub

- Introduction
- Step by Step Installation
- Configuration

How to fix common issues

- JupyterHub - Spawn failed - SSL: CERTIFICATE_VERIFY_FAILED

Link to documentation in a Google doc: Crunchy Cloud Setup

OpenDroneMapSetup

Misc

To learn the architecture, esp. kubernetes and containerization, we use Raspberry Pi Clusters:

- PicoCluster Installation (K3s, Ansible, kubectl)
- Kubernetes on Raspberry Pi