

FPGA Firmware and Tools as a PUNCH and NFDI Service,  
Connections to ErUM-Data, DAPHNE  
PUNCH4NFDI TA5 - XFEL Joint Workshop on Machine Learning and Data Processing  
on FPGAs

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INSTITUTE OF  
NUCLEAR AND  
PARTICLE PHYSICS





- Share code
- Can be used to mirror private institute repositories  
→ Suitable for model architectures, framework code

- Direct or group chat communication

- Recommended for sharing of small amounts of data
- Online editing of shared documents using Onlyoffice  
→ Suitable for model architectures, trained models (weights files), compiled firmware

PUNCH services for large data: Compute4Punch + Storage4Punch for sharing training data?

# Challenges of sharing work

## Frameworks and Tools

- Use established frameworks
- Adapt own frameworks for general use
  - Generalization and documentation
- Create own common frameworks
- Training, Firmware conversion, ...
  - Most challenging, but necessary to offer ML on FPGA as Punch service

## Models

- Project specific
- Common formats
- Architecture, trained models, ...
- Design strategies

## Training data

- Common formats
- Methods of data generation



- General effort for exchange about data processing in particle/astrophysics
- General workshops on deep learning
- ML on FPGA?
- Interest in ML on FPGA?