



Technische Universität München



Faculty of Civil, Geo and
Environmental Engineering

Chair of Hydrology and
River Basin Management

Master Thesis – Environmental Engineering

Workload: 30 ECTS, 900 hours

Topic:

**An Exploratory Study on Key Drivers of Predictability Identification
in a CNN-LSTM Seasonal Prediction Model**

03. 2025

Task:

This study aims to apply explainable machine learning to identify the key factors influencing the quality of seasonal streamflow forecasts in the Upper Naryn Catchment, Central Asia.

The CNN-LSTM deep learning model for seasonal runoff prediction has already been trained and tested. To further interpret the model's decision-making process, Shapley additive explanation (SHAP) interaction values will be used to assess the contribution of each features to the prediction outcome in our ML model by identifying both the effects of individual features and their spatial and temporal patterns.

Programming experience with Python and basic statistic knowledge from the candidate is required.

Time:

Since 03.2025

Contact:

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