	Files	Description
	Master_Thesis.Rproj	R Project file
	mth_functions.R	R-file with self-written R functions in the framework of the master's thesis
	.gitignore	Gitignore file in which all folders are named which are to be ignored to upload on github
	Folder: Pre_Processing	**Description**
Quarto files	basement_simulations.qmd	Quarto-file simulating all discharge scenarios of eight river sections using a self-written function from "mth_functions.R"
	hydrodynamic_model_results.qmd	Quarto-file reading all basement simulation results and converting them into single attribute rasters (in the raster_files folder) and stacked rasters (in the rasters_stacked folder) using a self-written function from "mth_functions.R"
	reconstruct_discharges.qmd	Quarto-file reconstructing hydraulic conditions on the days of macroinvertebrate sampling
	prepro_data.qmd	Quarto-file reconstructing and joining abiotic, GPS and macroinvertebrate sampling data into one .csv file
	index_calculation.qmd	Quarto-file calculating all macroinvertebrate indices and constructing/combining the calculated indices with all environmental predictors needed for the machine learning models (one data frame per environmental predictor set used in the machine learning models)
	added_variables_hdm.qmd	Quarto-file constructing variables selected based on literature (altitude, ecomorphological class, bioregion, phosphor, nitrogen, velocity and water depth) as raster files of eight river sections, masking each raster for each discharge scenario considered (in the raster_files folder) and stacking all variables into a raster stack (in the rasters_stacked folder) using self-written functions from "mth_functions.R"
	add_parameters_hdm.qmd	Quarto-file calculating additional parameters (Froude, stream power and shear stress) and saving them as raster files (in the raster_files folder) and stacked rasters (in the rasters_stacked folder)
Folders → *Hidden in github*	abiotic_mi_sampling	Contains all .csv and .txt files used in the Quartos "index_calculation.qmd" and "prepro_data.qmd" and result .csv files from the Quartos "index_calculation.qmd", "prepro_data.qmd" and "reconstruct_discharges.qmd"
	hdm_models	Contains all hydrodynamic model files of eight river sections used and resulting from the Quarto "basement_simulations.qmd" and used in "hydrodynamic_model_results.qmd"
	raster_files	Contains all raster files represented by a single attribute (velocity, water depth, Froude, altitude etc.) for each discharge of a total of eight river sections
	rasters_stacked	Contains all stacked raster files represented by a bundle of attributes (velocity, water depth, Froude, altitude etc.) combined in one raster stack for each discharge of a total of eight river sections
	Folder: HSC_model	**Description**
Quarto files	foen_regr_data.qmd	Quarto-file obtaining observed and simulated values for a regression analysis in Stat_Analysis, using a self-written function from "mth_functions.R"
	hsc_plot.qmd	Quarto-file constructing a plot of the HSC for the masters thesis
	metric_results.qmd	Quarto-file calculating all evaluation metrics also used for machine learning models
	habitat_model_foen_qmd	Quarto-file calculating raster files using an univariate HSC from "HSC_MI", using a self-written function from "mth_functions.R"
Folders → *Hidden in github*	HSC_MI	Contains the .csv file of the HSC and a plot of the HSC used in the masters thesis
	results_foen	Contains resulting raster and .csv files from "foen_regr_data.qmd" and "habitat_model_foen.qmd"

	Folder: ML_model	Description
Quarto-files	BRT_model.qmd	Quarto-file containing the whole procedure described in the masters thesis modelling MI indices using BRT algorithms
	RF_model.qmd	Quarto-file containing the whole procedure described in the masters thesis modelling MI indices using RF algorithms
	BRT_model_add.qmd	Quarto-file containing the whole procedure described in the masters thesis modelling MI indices using BRT algorithms and added parameters which were excluded due to the principle of parsimony
	RF_model_add.qmd	Quarto-file containing the whole procedure described in the masters thesis modelling MI indices using RF algorithms and added parameters which were excluded due to the principle of parsimony
	pdp_plots.qmd	Quarto-file obtaining all PDPs from the best-performing ML model obtained from the workflow
Folders → *Hidden in github*	plots	Contains all PDPs from the best-performing ML model constructed in "pdp_plots.qmd"
	var_imp	Contains all .csv files with variable importance from the best-performing ML model from the workflow
	pdp_data	Contains all .csv files to construct PDPs in "pdp_plots.qmd" from the best-performing ML model from the workflow
	scenarios	Contains all rasters of predicted MI response variable for each discharge scenario using the best-performing ML model. Additionally, this folder contains the QGIS project constructing spatial maps for the thesis
	Folder: Stat_Analysis	**Description**
Quarto-files	hdm_mi_analysis.qmd	Quarto-file analysing reconstructed hydraulic conditions using regression analysis and calculating evaluation metrics
	statistical_analysis.qmd	Quarto-file conducting regression analyses of all ML models and obtained regression plots
	plots.qmd	Quarto-file obtaining all plots needed within the Stat_Analysis folder
Folders → *Hidden in github*	regr_plots	All regression plots obtained in "hdm_mi_analysis.qmd" and "statistical_analysis.qmd"
	stat_analysis_data	All csv. files resulting from the ML models, "hdm_mi_analysis.qmd" and "statistical_analysis.qmd"
	plots	All other plots obtained in "plots.qmd"
	data	All csv. files obtained from raster files and used to obtain boxplots and conduct statistical analysis