

Project Name	<i>The name of your project</i> Application of spatial cross-validation to mitigate SAC problem
Project Type	<i>Replication/Research/Applied (choose one or two)</i> Research
Team Name	<i>The name of your team</i> Team 7
Project Team	Ogon Holdings - newbie to ML and Deep Learning Udobang Joshua - Intermediate in ML and novice in DL Mmesomachi Nwachukwu – New to ML and DL with some experience in Pandas, Numpy and some other relevant libraries Okechukwu Okeke – Theoretical knowledge in ML and DL with some experience.
Who suggested	<i>Name Surname</i> <i>(Your team member name or the name of the TA who suggested)</i> Diana Koldasbayeva
Difficulty	<i>Easy/Medium/Hard</i> <i>(Difficulty listed in the project table (for TA's projects) or your own difficulty assessment for project suggested by you)</i> Medium
Proposal	<i>A solid text containing brief description & motivation & general goals. For TAs projects should be based on the fields “Brief Description” and “General Project Goals” of the project topics table. <u>75-150 words</u></i> GIS models often provide optimistically biased prediction performance due to spatial autocorrelation (SAC), which causes the standard cross validation (CV) methods to fail. To overcome this problem, a modified version of the CV method called spatial k-fold cross validation (SKCV), which provides a useful estimate for model prediction performance without optimistic bias due to SAC, could help. We are interested in providing less biased estimates. The goal is to estimate spatial models prediction performance due to spatial cross validation (CV) methods accounted for SAC
Specific Tasks & Expected results	<ul style="list-style-type: none"> ➤ Study the problem SAC and methods of CV which can solve it. ➤ Perform spatial, environmental, and buffered-LOO types of CV. ➤ Use other 1-2 methods to solve SAC problem. ➤ Implement your own method to solve this problem
Relevant papers	<ul style="list-style-type: none"> ➤ https://www.mdpi.com/2227-7390/9/6/691#B15-mathematics-09-00691 ➤ https://www.nature.com/articles/s41467-020-18321-y
Grading Scheme	<i>This field is useful for students to better understand how their work will be graded.</i> <i>The grade A% will be the maximal grade which you might expect if you have done all the tasks listed for it AND prepared a well-structured</i> 1) report,

	<p>2) <i>presentation and video,</i> 3) <i>GitHub repo</i></p> <p><i>satisfying all the guidelines that we provided for projects (see the corresponding canvas page). The final grade for the project will be decided by the responsible TA and might also take into the account the peer-reviews of your project by other students.</i></p> <p><i>For TAs projects, copy-paste the suggested scheme here (from the project table).</i></p> <p><i>For projects suggested by students, you should propose the project grading scheme based on your stated goals and expected outcomes. This scheme will be corrected by the TA. If you can not come up with anything, leave this field blank.</i></p> <p>60% 1, 2 90% 1,2,3, 100% 1,2,3,4</p>
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