

Science and Engineering Research Program 2020 Project Proposal

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institute: Institute of Cartography and Geoinformatics

project title: Transformation of point cloud geometry using
GANs

project description: Point clouds from Dense Image Matching (DIM) have different characteristics than point clouds from Airborne Laser Scanning (ALS). However, common applications such as the registration, change detection and classification of two point clouds expect the point clouds to behave similarly. In this project, the student should train and evaluate a Generative Adversarial Network (GAN), e.g. the pix2pix network, to transform the rasterized geometry of DIM point clouds to the geometry of ALS point clouds. Once, the rasterized geometry is transformed, the resulting transformation parameters from the raster should be applied on the point cloud itself. Finally, the performance of the transformed DIM point cloud

should be evaluated using typical point cloud applications.

required skills: knowledge in Python and preferably in Machine Learning/Deep Learning

contact/ supervisor: Prof. Dr.-Ing. habil. Monika Sester & Florian Politz
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Please return to Kristina Schmidt or Uta Knoche till 15th of November.