We are looking for a motivated and reliable master student/bachelor student/intern in the team “Geo Risks” (department "Geo Risks and Civil Security") at the Remote Sensing Data Center/DLR in Oberpfaffenhofen starting from January 2023 or later.

The position will be embedded within a research project which aims to apply consistent and comparable urban entities derived from remote sensing data to analyze the effects of internal migration in Germany. Within the framework of the thesis/internship, the following research objectives are to be addressed:

Abstract:
Over the past decades, internal migration has influenced the distribution of the population in rural and urban areas in Germany. Since the re-unification in 1990, the pattern of internal migration has evolved from a suburbanization trend (1994-1998), to a phase of re-urbanization (2006-2012) and currently again to a new phase of suburbanization (since 2015). So far, internal migration and the thereof resulting population distribution and structure are mainly analyzed on the basis of administrative (often districts and district-free cities) or conceptually defined units (e.g. settlement-structural district types) in Germany. However, these spatial units are often too big and can only partially represent the complex small-scale settlement structures. The aim of the project is therefore to investigate internal migration processes in Germany based on a combination of new, high-resolution data sets on the settlement structure and multitemporal (2011-2022) census data. The data sets for the subdivision of the settlement structure will be derived with recently developed algorithms, solely based on morphological characteristics of the landscape structure. Since this approach is independent from administrative boundaries, population development can be investigated on a completely new, previously unavailable, spatial and semantic level of detail. The derived results will provide a spatially differentiated insight into whether and to what extent suburbanization processes are prevalent in Germany. Furthermore, it will be analyzed how current internal migration trends affect the population distribution and structure in urban and rural areas. Finally, the potential of the new spatial datasets compared to administrative units as spatial reference for spatial monitoring, will be highlighted.

Background information:
The master/bachelor student/intern will be working in the Team “Geo Risks” and will be supervised by PD Dr. Hannes Taubenböck (PI of the project) and by Ines Standfuß (PhD-Student and researcher within the project). The minimum duration for the thesis project and/or internship will be 6 and 3 months, respectively. Please note that the internship has to be a mandatory internship with a minimum duration of 3 month or more and should as such, be listed in the study manual.

We will provide a work station for the duration of the thesis project/internship, so that access to the necessary technical infrastructure and resources are guaranteed. However, due to the COVID pandemic, it is still not clear whether the project will be conducted physically at the DLR facility in Oberpfaffenhofen, remotely or a mixture of both. Anyway, we will monitor the situation and keep the students updated regarding the developments of the home office/office regulations at DLR.

Requirements:
- Knowledge of scripting languages like Python/R
- Experience with geoinformation systems (QGIS, ArcGIS, etc.)
- Basic knowledge in geostatistics and geodata analysis
- Basic knowledge in the analysis of urban geographic topics is advantageous

Applicants for this position are encouraged to forward a short cover letter indicating their motivation, accompanied by a current CV and transcripts of records of the previous and current study programs to ines.standfuss@dlr.de.