

Master Student (Electrical Engineering,  
Telecommunication Engineering)

## **Master Thesis: Monitoring Glacier Dynamics using TanDEM-X Interferometric SAR Data of Alpine Glaciers**



### **Your mission:**

Glaciers and ice sheets are primary components of the Earth's cryosphere. They represent a key source of fresh water and, therefore, they can profoundly affect the global water cycle, the ocean circulation and the sea level. Being also a sensitive indicator of the global warming, they have drawn the interest of the scientific community to gain a better understanding of climate change. Synthetic aperture radar (SAR) sensors represent a powerful tool for cryospheric observations due to their continuous monitoring, wide coverage and high resolution capabilities. The TanDEM-X SAR mission started in 2010, with the launch of TanDEM-X, flying in close formation with its twin satellite TerraSAR-X. The primary goal of the mission was to generate an accurate global digital elevation model (DEM) with a spatial resolution of 12 m. The available final DEM includes areas of high interest for glacier monitoring, such as the Alpine region. The objective of this thesis is to develop an innovative approach to retrieve glacier extent from TanDEM-X data and to use such information in combination with historical data from the 'Global Land Ice Measurements from Space' (GLIMS) database to assess temporal changes of glaciers in the Alpine region.

### **Your qualifications:**

- Study in Electrical or Telecommunication Engineering
- Experience with scientific programming languages, like Matlab, IDL or Python
- Good knowledge of English

### **Your benefits:**

Look forward to a fulfilling job with an employer who appreciates your commitment and supports your personal and professional development. Our unique infrastructure offers you a working environment in which you have unparalleled scope to develop your creative ideas and accomplish your professional objectives. Disabled applicants with equivalent qualifications will be given preferential treatment.

**Starting Date:** Immediate

**Duration:** 6 months

**Remuneration:** According to German TVöD 05

**Location:** DLR Oberpfaffenhofen (Germany)

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