

Internship Report

Tanya Singh

As a part of my coursework for E+ EMJMD Copernicus Masters in Digital Earth, I worked as a part-time intern at Spatial Services GmbH, Salzburg, Austria from 1st March, 2021 to 31st July, 2021, covering in total 8 weeks.

About Spatial Services

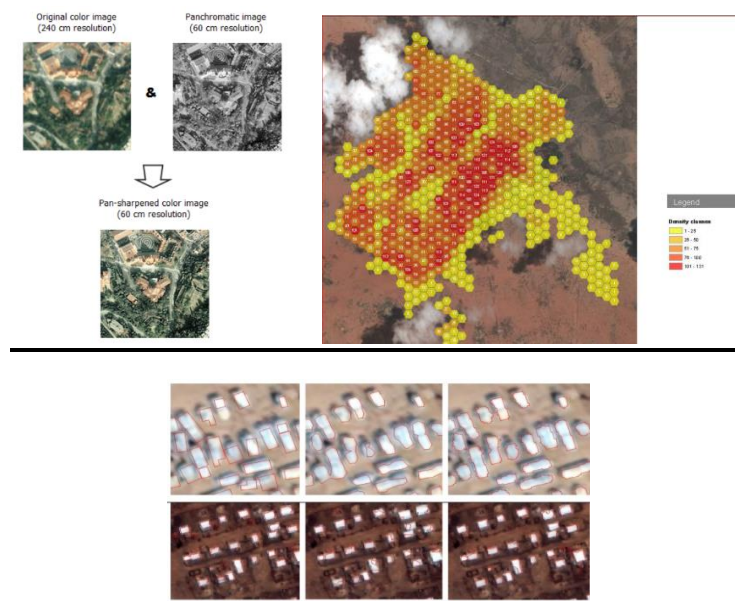
Spatial Services GmbH creates and executes geoinformation products and services aimed at resource efficiency and long-term sustainability in support of climate change adaption, stable livelihoods, reliable energy supply, Humanitarian Action and smart city and mobility planning.

The company, which is a spin-off from the University of Salzburg, creates a link between research results from the Interfaculty Department for Geoinformatics, Z GIS, and the production of user-oriented solutions by incorporating current inventions. During the internship I was closely working with the Humanitarian department

Selection Process

Send an e-mail ([see contact section](#)) mentioning about your interest to work in the company along with the CV. You will be called-in for an interview wherein you will have to talk about your background, motivation and expectations from the internship.

Tasks



- ***Image tasking***

Request from MSF (Médecins Sans Frontières) is followed by searching for database to provide up to data images. The data providers are AIRBUS and EUSI. The images are then pre-processed – Pansharpened, orthorectified, mosaicked and co-registered. All the tasks were done in ArcGIS pro.

- ***Dwelling extraction in Refugee Camp***

Digitize dwellings to prepare training dataset and validation dataset for deep learning model implemented in ArcGIS pro. The area for which the dataset was prepared was **Omdurman in Sudan, Kismayo in Somalia and Uvira in Congo.**

- ***Dwelling Density map***

A dwelling density map shows how dense the dwellings in a particular hexagon in the area of interest. The tessellations can be generated in ArcGIS pro and the count function gives the count for each tessellation. The visualization can be improved by changing the classification setting,

- ***Implement machine learning algorithm in eCognition Software***

Implemented supervised learning algorithms in eCognition Software to automate the process of dwelling extraction. This was done for a small region in Mozambique.

- ***Deep Learning model for Dwelling Extraction in ArcGIS Pro***

Mask R CNN Deep learning approach was used in the extraction of dwellings. This was the general process to automate dwelling extraction and didn't involve classification. Also, a simple tool was created in ArcGIS pro using model builder to filter out the deep learning results.

Experience

The internship gave me the opportunity to learn from professionals in EO domain. It gave me an exposure to the real-world problems and an opportunity to find solutions for the same. The entire team of Spatial Services is very helpful and cooperative. Highly recommend if you are novice in this field like me, they will provide you the support system needed to understand EO geared to applied fields.

Spatial Services GmbH, Schillerstraße 30 – A-5020 Salzburg

Tanya Singh
Franz von Sales Kolleg,
Robert Preussler Strasse 11,
Salzburg 5020

internship certificate

Mrs Tanya Singh, residing in Franz von Sales Kolleg, Robert Preussler Strasse 11, Salzburg 5020 worked as an intern in our company for fulltime 8 weeks all together during the March 1, 2021 until July 30, 2021.

Her area of responsibility included the following activities:

- Dwelling Extraction in refugee camps
- Image Tasking and data pre-processing
- Dwelling density Map
- Implement machine learning algorithms in eCognition software
- Work with Deep learning model for dwelling extraction in Arc GIS Pro

Mrs Tanya Singh has always fulfilled the assigned tasks to our complete satisfaction. She has grown in her area of responsibility in a short time and has worked very well. Her work was characterized by reliability, initiative and willingness to teach. The whole team appreciated Tanya for punctuality, independence and her friendly and polite manner.

We would like to thank Mrs Tanya for her commitment and wish her all the best for her private and professional future.

Best regards

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Mag. Hubert Schöndorfer, CEO
Salzburg, July 30, 2021