****

**CSE 532 MACHINE LEARNING**

**Weekly Report - 2**

**UAV’s Ground Sample Distance (GSD) Calculation   
Using AU Drone Dataset**

**~ Submitted To Prof. Mehul Raval**

|  |  |  |
| --- | --- | --- |
| **Group: Model Minds** | | |
| **Enrolment No.** | **Name** | **Programme** |
| AU2140082 | Hrishikesh Rana | B.Tech (CSE) |
| AU2140058 | Prashansa Shah | B.Tech (CSE) |
| AU2140081 | Divya Patel | B.Tech (CSE) |
| AU2140099 | Aditya Chaudhari | B.Tech (CSE) |

* **Approach:**

Ground Sampling Distance (GSD) is the distance between two consecutive pixel centres measured on the ground. The greater the value of the image GSD is, the lower the spatial resolution of the image.

* **Dataset**:

We currently do not have a data set to work on, but we referenced some other data sets. From the dataset, we will extract relevant target or reference points of known coordinates and then obtain measurements such as pixel sizes and corresponding ground coordinates to serve as the input data for the model. A linear regression model shall be then applied to the input data to establish a linear relationship between the pixel size in the image and the corresponding ground distance. Once the model is established, it can be used to estimate the GSD for any given pixel size in an image. The accuracy of the model may be validated using an independent validation dataset.

* **Weekly Progress:**

Ground Sampling Distance (GSD) is a crucial metric in remote sensing, defining the spatial resolution of an image. Our investigation focused on comprehending the relationship between GSD and image resolution.

Higher GSD values signify lower spatial resolution, impacting image clarity and detail. This affects interpretation in object detection and land cover classification. Recognizing this link informs optimization in sensor selection and data processing.

Understanding the inverse correlation between GSD and spatial resolution is pivotal for effective remote sensing applications. Our findings emphasize the importance of balancing GSD with application requirements for optimal outcomes, guiding future research and practical implementations.