## GIS-E3010 Least-Squares Methods in Geoscience

Lecture 6, activation 2
You have below a structure illustration of the design matrix $\left[\begin{array}{l}A \\ B\end{array}\right]$ of bundle block adjustment. Your task is to understand from which images the object points are visible. Add $\checkmark$-mark to the table, if the point is measured from current image.

|  | Image 1 | Image 2 | Image 3 |
| :--- | :--- | :--- | :--- |
| Point 1 is measured |  |  |  |
| Point 2 is measured |  |  |  |
| Point 3 is measured |  |  |  |
| Point 4 is measured |  |  |  |
| Point 5 is measured |  |  |  |
| Point 6 is measured |  |  |  |
| The orientation is <br> known |  |  |  |

Which object points are geodetically measured (known object points)?
The structure of the design matrix $\left[\begin{array}{l}A \\ B\end{array}\right]$ is


Solution:

|  | Image 1 | Image 2 | Image 3 |
| :--- | :---: | :---: | :---: |
| Point 1 is measured | $\checkmark$ | $\checkmark$ |  |
| Point 2 is measured | $\checkmark$ | $\checkmark$ | $\checkmark$ |
| Point 3 is measured | $\checkmark$ |  | $\checkmark$ |
| Point 4 is measured | $\checkmark$ | $\checkmark$ | $\checkmark$ |
| Point 5 is measured |  | $\checkmark$ | $\checkmark$ |
| Point 6 is measured | $\checkmark$ | $\checkmark$ | $\checkmark$ |
| The orientation is <br> known |  | $\checkmark$ |  |


|  | Kuva 1 | Kuva 2 | Kuva 3 |
| :--- | :---: | :---: | :---: |
| Piste 1 näkyy kuvilla | x | x |  |
| Piste 2 näkyy kuvilla | x | x | x |
| Piste 3 näkyy kuvilla | x |  | x |
| Piste 4 näkyy kuvilla | x | x | x |
| Piste 5 näkyy kuvilla |  | x | x |
| Piste 6 näkyy kuvilla | x | x | x |
| Minkä kuvan ulkoinen <br> orientointi on tunnettu |  | x |  |

Which object points are geodetically measured (known object points)?
points 4,5 and 6

