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Key note: Remote Sensing and AI to Support Disaster Response

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Every year, millions of people around the world are affected by natural and man-made disasters. To respond quickly and effectively, emergency responders and relief organizations need timely, comprehensive and accurate information about the extent of hazards, exposed assets and damage. For decades, emergency mapping has used remotely sensed data to support rescue operations. However, providing information in a rapid, scalable, and reliable manner remains a major challenge. Recent advances in machine learning have opened up new possibilities for automating the analysis of remote sensing data to cope with the growing volume and complexity of data, as well as the inherent spatio-temporal dynamics of disaster situations.

In this workshop, we provide insights into machine learning methods developed by the German Aerospace Center (DLR) for rapid mapping activities and disaster relief. We discuss aspects of data collection used to support disaster relief during the 2021 floods in western Germany. We also present experimental results from ongoing research activities within the Data4Human project "Demand-driven Data Services for Humanitarian Aid" and the Drones4Good project. These include the segmentation of critical objects, the identification of damaged roads, and the rapid assessment of building damage using very high-resolution aerial and satellite imagery, as well as the detection of people on-board of drones.

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