

GEOINFORMATICS AND REMOTE SENSING

This competency focuses on the acquisition, processing, and analysis of spatial data to support engineering, environmental, and industrial applications. It integrates remote sensing, photogrammetry, GNSS satellite positioning, and GIS-based spatial analysis to model and visualise the physical world. The expertise supports partners in data-driven decision-making, infrastructure development, and environmental monitoring. The activity contributes to research, development, and innovation in smart cities, land-use management, precision agriculture, and digital twin solutions.



ACHIEVEMENTS

- Development of Hungary's largest nanosatellite
- Multiple scientific publications summarising results of applied geospatial and satellite projects
- IRSEL course selected as a "Top and Best Course" under a national competition aligned with the Chinese Ministry of Education strategy



INFRASTRUCTURE

- Geoinformatics and remote sensing laboratory with photogrammetry workstations
- High-resolution aerial and terrestrial imaging systems
- NSS and DGNS receivers for high-precision positioning
- GIS and spatial analysis workstations using QGIS and ArcGIS
- Data processing pipelines for digital elevation and orthophoto generation



REFERENCES

- DWREN project: nanosatellite development and soil moisture estimation with COMBIT Zrt., Széchenyi István University, and C3S
- IRSEL project: remote sensing teaching materials and an educational platform with Asian and European universities
- AGRIPATH project (ongoing): precision agriculture education platform with ten international university partners