

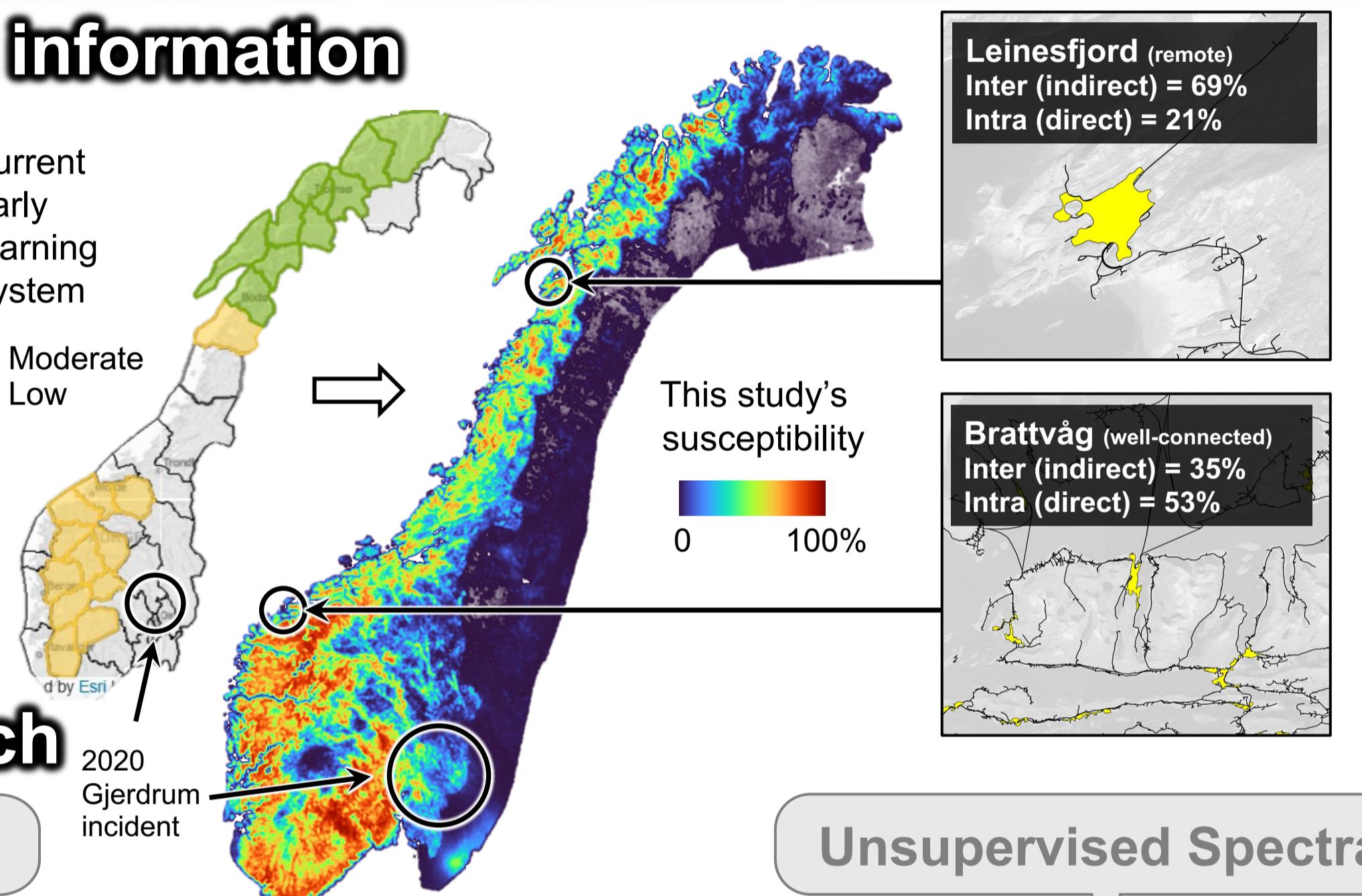
The Intergraph Approach for Near-real-time Large-Scale Susceptibility Mapping and Settlement-Road Exposure Assessment: The Case of Norwegian Mass Movements

Joshua Dimasaka^{1*}, Sivasakthy Selvakumaran¹, Andrea Marinoni²

¹University of Cambridge, ²UiT The Arctic University of Norway, *jtd33@cam.ac.uk

PROBLEM: The need for climate risk information

- Increasing rainfall trend amidst climate change, triggering **more** mass movements
- Highly **conservative** estimates using the current early warning system
- Limited** refined information, potentially leading to poor risk perception
- Complex** region-specific characteristics



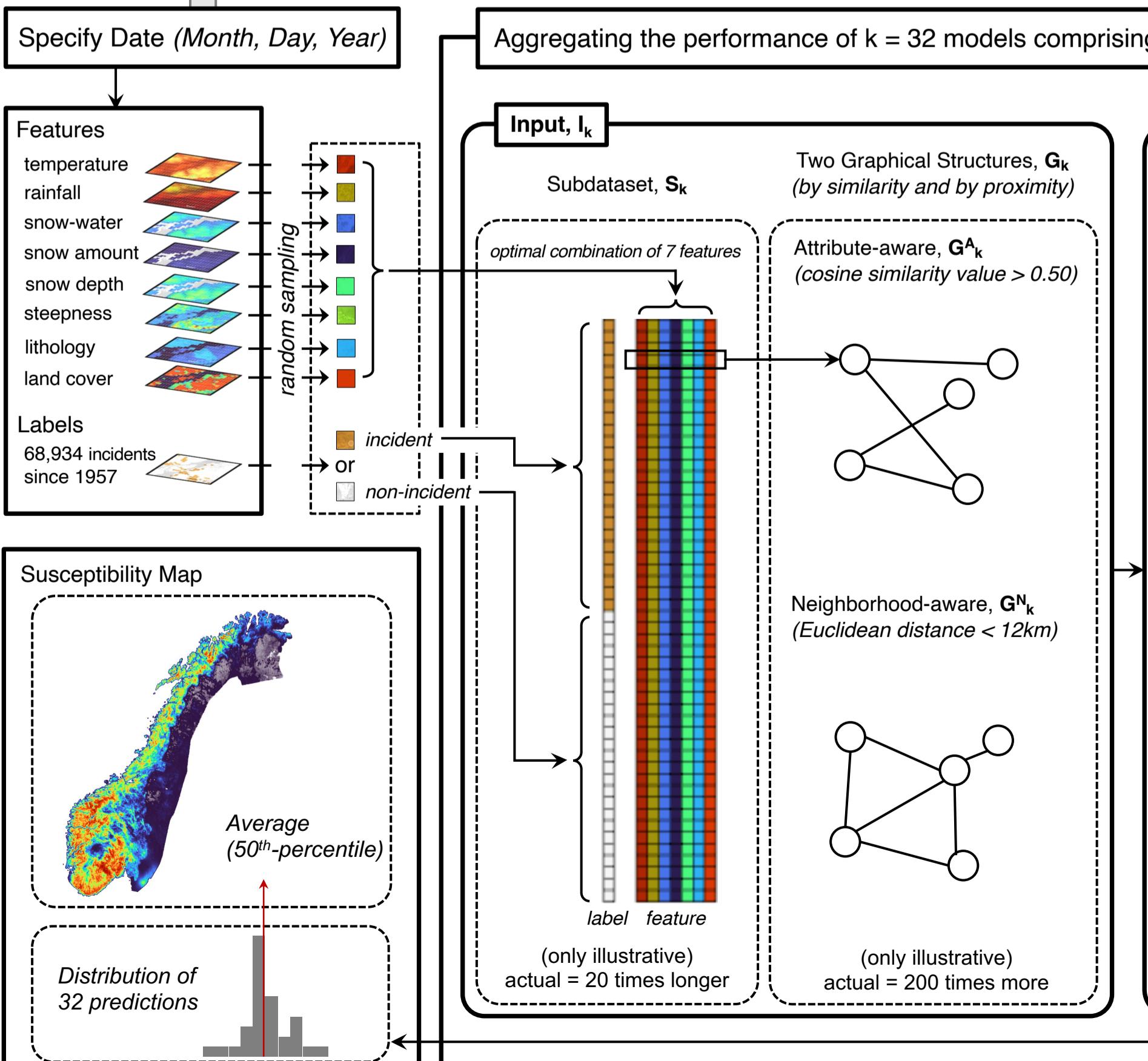
KEY POINTS: A new graphical perspective

- Our novel **INTERGRAPH** approach advances the current Norway early warning system from mass movements and offers a transferrable method for other countries.
- It achieved 86.25% accuracy, reliably producing daily 1km-by-1km susceptibility map and settlement exposure.
- It has improved exposure information at the highly granular level between 257,000-km roads and over 4,700 settlements groups across Norway.

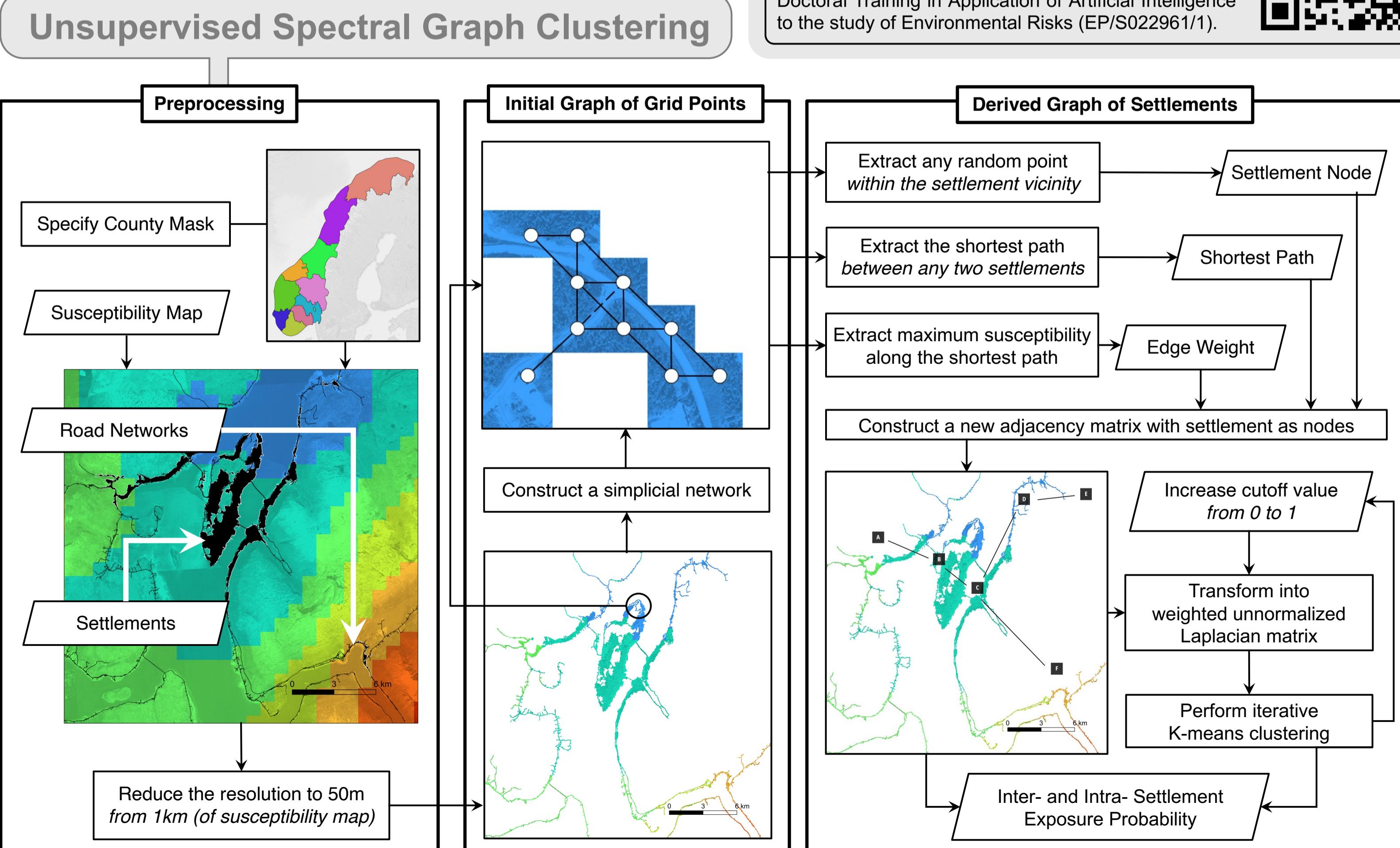


METHOD: The INTERGRAPH approach

Supervised Ensemble Graph Neural Network



Unsupervised Spectral Graph Clustering



This work was supported by the UKRI Centre for Doctoral Training in Application of Artificial Intelligence to the study of Environmental Risks (EP/S022961/1).