

# VULNERABILITY AND ROBUSTNESS OF NETWORKED INFRASTRUCTURES

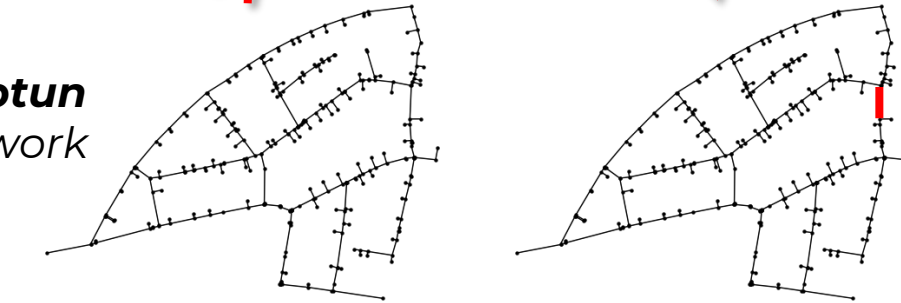
Beyond graph-based measures → Embedding the graph in a space of probability distributions

For each edge  $e \in E$

$$G = (V, E)$$

**Neptun**  
Water Distribution Network

1 Remove edge  $e$

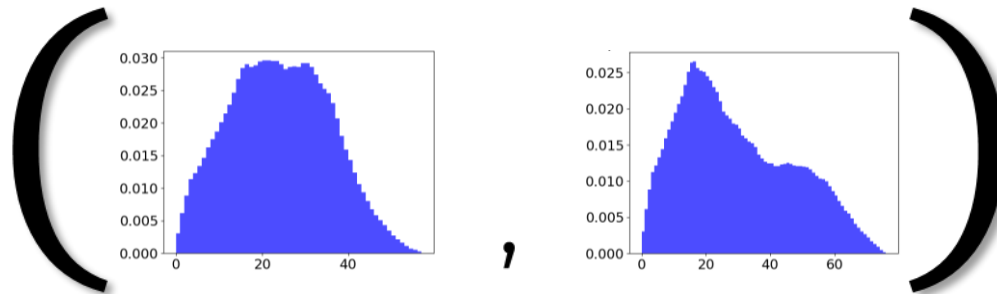


2 Node distance distribution  
for each node  $v \in V$

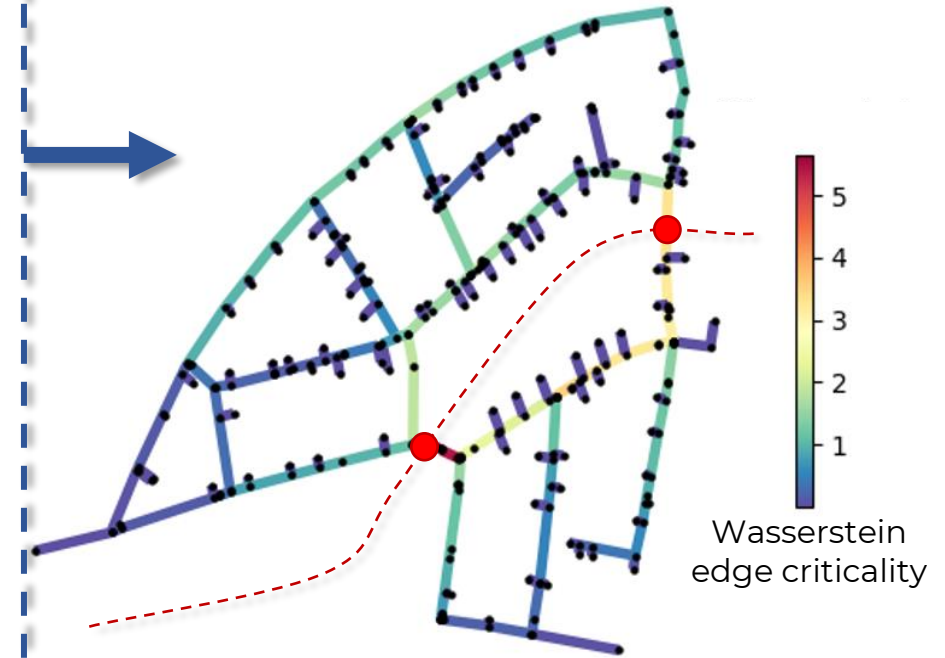


3 Aggregation

4 Wasserstein  
distance between networks



Network distance distributions



● Edges whose simultaneous removal causes a disconnection