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## **CONSTRUCTION OF MLN BASED PROOFING SYSTEM FOR DAILY ROUTE MONITORING**

### **Abstract:**

Daily route is a collection of data consisted of geographical points with time of a day and can be obtained easily from mobile device with GPS.  $Rd = \{(GpX, GpY, T)\}$ . A detection model for data abnormality has various applications including protection of child or elderly person from missing.

In this paper we build a first order logic based proofing system of daily route integrated with Markov property. From a set of daily route data, we construct a graph consist of a few cluster nodes and linking edges by eliminating most of intermediate geo-points.

Our proofing system is collection of FOL expressions consisted of triplet with instance, slot name, and slot value, where the instances are represented by the cluster node in graph and slot name by the edge. A challenge in this problem is automatic clustering for identification of node from continuously updated daily route data. We present an incremental learning method for updating daily route

### **Keywords:**

markov logic network, global positioning system, proofing system

**JEL Classification:** I29