

# **An Object-Oriented Markup Language for Moving Objects – Moving Object UML**

(MSc Thesis Extended Abstract)

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This thesis proposes a modeling language for Moving Object Databases (MOD) which is based on the object-oriented paradigm and more specifically it is designed as an extension of the Unified Modeling Language (UML). The resulting language is called Moving Object UML (MO-UML).

UML is a general-purpose modeling language that includes a graphical notation used to create an abstract model of a software system. In this thesis we first describe the basic mechanisms and structures that supports and then we study the extensibility interfaces that UML provides as to extend it with MOD semantics. Having identified the available extensibility mechanisms MO-UML is designed by introducing new stereotypes (specialization of metamodel classes), new tagged values (extension of characteristics of metamodel classes) and new constraints (extension of metamodel semantics), appropriately defined for moving objects.

The evaluation of MO-UML was via a case study using the OO-HERMES system, an object-oriented framework for constructing and querying a MOD, which was utilized as the platform to realize the MO-UML model of a virtual reality application, modeling the area of an airport wherein virtual agents (moving points) are moving and performing a series of tasks that correspond to complex MOD-related operations.