# 系统总体架构



# 知识库：空间目标识别本体

空间目标识别本体（OntoStar）包含空间目标分类体系、概念定义、规则，并表示了空间目标的多源数据。



# 推理实现：

JAVA环境下使用OWLAPI、Pellet实现本体推理（四行代码即实现）

OWLReasonerFactory reasonerFactory = PelletReasonerFactory.*getInstance*();

OWLOntology ontology= spaceObjData2OntModel(data,ont,inds);

OWLReasoner reasoner=reasonerFactory.createReasoner(ontology,**new** SimpleConfiguration());

Set<OWLClass> assertedClasses = reasoner.getTypes(ind, **false**).getFlattened();//获取ind所属的最具体类型

# 推理过程解释与可视化

Prefuse、tuProlog和论据本体实现推理过程可视化。

OWLClassAssertionAxiom axiomToExplain = factory.getOWLClassAssertionAxiom(directClass, ind);

/\*产生解释\*/

DefaultExplanationGenerator explanationGenerator = **new** DefaultExplanationGenerator(manager, reasonerFactory, ontology, reasoner, **new** SilentExplanationProgressMonitor());

Set<OWLAxiom> explanations = explanationGenerator.getExplanation(axiomToExplain); //得到解释集合

GenArg genArg=**new** GenArg();

LogicalArgument arg=genArg.genArg(explanations,assertion);//以推理识别结果和解释集合构建推理过程

InsertIndividual ii=**new** InsertIndividual ();

ii.insertArgument(*argOnt*, "Argument", arg);//推理过程以论据形式存储在论据本体中

OWLTreeConverter treeConverter = **new** OWLTreeConverter("ArgumentOntology.owl");

m\_tree = treeConverter.getTree();

TreeDisplay treeDisp = **new** TreeDisplay(m\_tree);