

# Douglas Foxvog

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I work with encoding and processing knowledge, for the last 24 years by systematizing knowledge through digitally encoded ontologies, interfacing them with NL, and developing the Semantic Web. I am thorough, diligent, and precise in my work, noting details and logical implications missed by others. Recognized as one of the top ontologists which Cycorp ever had.

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## CORE COMPETENCIES:

Problem Solving | Analysis | Ontology Design | Knowledge Representation | Formal Logic | Decision Making | Initiative | Adaptability | Reliability | Integrity | Debugging

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## EXPERIENCE HIGHLIGHTS

Developed ontology of meta-classes, allowing for reasoning with them while avoiding paradoxes.

Developed ontology validation tool, testing it on NLM biomedical ontologies.

Developed ontology of conceptual works, differentiating the work, variations of the work, and physical instantiations thereof.

Helped develop and used NL tools for interfacing statements in ontological language with text.

Developed “rapid knowledge entry” tool for non-professional knowledge enterers at Cycorp.

Developed ontology of anatomical structures and properties.

Moved Cycorp to focus on "deep issues" that had been by-passed in push for coverage in breadth.

Managed research institute's involvement in EU research project.

Taught graduate school in China and corporate classes in CycL.

Helped develop tool for analyzing spread sheet data using computer ontologies.

Member of Semantic Web standards development working groups for WSML, WSMO, and WSMX.

Author of a chapter in book on Theories and Applications of Ontologies and of over a dozen technical papers.

One of only three “Ontological Architects” at Cycorp.

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Knowledge Engineer, **ReactiveCore**, New York, NY. 2019 – 2020.

Built and improved biomedical and pharmaceutical ontologies and taxonomies; wrote rules for reasoning with the ontologies; interfaced them to user systems. Used SQL, OWL, Protoge, RDF, & proprietary ontology language. Telecommuting position.

Senior Ontologist, **Enterra Solutions**, Newtown, PA. 2013 – 2019.

Built and improved ontologies; interfaced them to user systems and web services on projects with major Fortune 500 corporations. Used NL to suggest mappings of database entries to known concepts. Mapped web-scraped recipes to dietary preferences and allergies using ontologies. Used CycL, OWL, SQL, RDF, ... Telecommuting position.

Visiting Researcher, **National Institute of Standards and Technology (NIST)**, Gaithersburg, MD. 2011 – 2013.

Designed ontology evaluation technique and tool; used tool on standard gene and anatomical ontologies and taxonomies; created ontologies for materials science and biomedical studies.

Consultant, 2010 – 2011; 2003 – 2004

Built ontologies and knowledge bases for clients and advised them on semantic technologies.

# Douglas Foxvog

Research Fellow, **Digital Enterprise Research Institute** (DERI), National University of Ireland, Galway. 2004 – 2010

Managed DERI's involvement in EU-wide TripCom (FP7) research project, managing grad students and being technically involved in scalability, the European Patient Summary use case, and ontology aspects. Developed system for ontologizing electronic business (EDI) messages. Involved in development of WSML, WSMO, and WSMX standards. Ontologized major parts of EDIFACT & EDI X12 standards in WSML, OWL, and CycL. Developed ontologies for FP7 projects. Member of international technical conference program committees.

Senior Ontologist, **CYCORG**, 1996 – 2003

Developed meta-class ontology. Co-developed prototype mechanism to describe anatomy, allowing for individual variations. Redesigned CYC's handling of conceptual works. Moved Cycorg to focus on "deep issues" that had been by-passed in push for coverage in breadth. Designed set of rule-macro predicates for concisely stating common inter-relationships among predicates and pairs of concepts. Helped design inference short-cuts. Coded NL rules for semantic parsing of noun-noun combinations. Detected and repaired faulty logical assertions made by coworkers; taught them how to avoid similar errors. Designed "rapid knowledge entry" tool; oversaw tool's coders and initial users. Designed technique to handle organizational/spatial dichotomy of countries, cities, etc. Taught CYC class. One of only three Cycorg "Ontological Architects" before title eliminated.

Prior employment at VTT Electronics (embedded knowledge-based systems), AT&T Bell Laboratories (NL & knowledge engineering for expert systems), NIH (scientific programming, biomedical image processing & graphics), and Hefei Polytechnic University (Grad school visiting professor).

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## MASSACHUSETTS INSTITUTE OF TECHNOLOGY

B.S. Computer Science and Electrical Engineering. Concentration: Artificial Intelligence. Thesis on natural language interfaces.

## VANDERBILT UNIVERSITY

M.S. Electrical Engineering, A.I. Program. Thesis: *A Knowledge-Based System for Assisting the Design of Magnetic Resonance Imaging Experiments*.

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## TECHNICAL PUBLICATIONS:

Partial list of titles: *Theory and Applications of Ontology. Volume II: Ontology: The Information-Science Stance*, chapter on Cyc. "Two Case Studies of Ontology Validation", "Enabling the European Patient Summary through Triplespaces", "Ontologizing EDI Semantics", "Instances of Instances Modeled via Higher-Order Classes", "Putting Flesh on the Bones: Issues that Arise in Creating Anatomical Knowledge Bases with Rich Relational Structure", "Variable Depth Resolution for Intelligent Real-Time Systems", "IRTC: Integration of Knowledge Engineering with Real-Time Control", "Survey of Real-Time and On-Line Diagnostic Expert Systems", "Pulse Programming Assistant for Magnetic Resonance Imaging". For details and complete listing of technical publications, see <http://www.foxvog.org/doug/publctns.htm> .

## COMPUTER LANGUAGES:

Semantic languages: CycL, OWL (RDF & N3), WSML, RDFS, Triple, KIF, PowerLoom, OPS/83, OPS/5, C5, PROLOG, proprietary languages, Protege.

Programming languages: Java, C++, C, Lisp, ...

Operating Systems: Linux, Microsoft Windows (Powerpoint, Excel, MS-Word, ...)

## RECOMMENDATIONS:

From <http://linkedin.com/in/dfoxvog>, click on "View Full Profile" and then "Recommendations"