

# MICHAEL BAUER

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## INTELLIGENT GRAPH ARCHITECT

Innovator | Integrator | Inventor

Billion Node Neo4j Graph Database Architect; Ontology Software Inventor; International Ontology Developer; Ontology Teams Manager; Cross-Team Facilitator; Experienced Executive; Startup Founder.

### CORE COMPETENCIES

- |                                   |                               |                                  |
|-----------------------------------|-------------------------------|----------------------------------|
| ✓ Property Graph Design           | ✓ Neo4j/Cypher;Tinkerpop/     | ✓ Ontology Team Management       |
| ✓ Similarity, Community Detection | ✓ Python/Pandas/Jupyter       | ✓ ETL to Application Integration |
| ✓ Geographic/3D Visualization     | ✓ Geographic/3D Visualization | ✓ Product Roadmap Evangelist     |

## PROFESSIONAL EXPERIENCE

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### ONTOLOGY ARCHITECT

Jan 2023 - Present

*Evernorth* | Denver, CO

Architected the Graph-as-Platform in Neo4j to manage a multi-billion node graph database, established a colloquial representation formalism, and applied advanced graph algorithms for community detection and entity similarity.

### CONSULTING ONTOLOGIST

Dec 2021- July 2022

*The Home Depot*. | Atlanta, GA

Designed a Neo4j Ontology Service, in conjunction with Google Vision API image tagging, to amplify existing content metadata, demonstrably improving Elasticsearch overall recall and relevance for Marketing and Design image search.

### SENIOR ONTOLOGIST

Oct 2019 - July 2021

*Dice Holdings, Inc.* | Denver, CO

Cross-Walked Burning Glass and DHI Occupation Ontologies. Extended RDFS/SKOS/OWL Ontology Vocabularies. Proposed Ontology Provenance Practices and Standards. Developed TinkerPop/Gremlin Capabilities in AWS Neptune.

### ADJUNCT PROFESSOR, DATA SCIENCE

Aug 2019 - Nov 2019

*University of Denver* | Denver, CO

Taught introductory graduate course in Data Mining, Data Analysis, Ontology Development and Machine Learning.

### ONTOLOGY ARCHITECT

Sep 2007 – Aug 2019

*Brilliant Arc* | Denver, CO

Oversaw ontology design and development as well as the exploration and implementation of ontology software.

### VICE PRESIDENT, ONTOLOGY STRATEGY

Sep 2002 – Sep 2007

*Local Matters, Inc.* | Denver CO

Responsible for strategy development, solution design, market research, and ontology experimentation for platform.

### INTERNATIONAL ONTOLOGY CONSULTANT

Sep 2001 – Sep 2002

*CKCK, Inc.* | Denver CO

Consulted with the founders of Skype, SXIP, and Pages Jaunes, the "Yellow Pages" of France on Internet ventures.

### VICE PRESIDENT, OPEN SOURCE RELATIONS

Jan 2000 – Sep 2001

*Jabber, Inc* | Denver, CO

Responsible for maintaining relationships between commercial and open source communities for Jabber platform.

## **FOUNDER AND CEO**

Jul 1993 – Jul 1998

**Imperative!** | Pittsburgh, PA

Put MapQuest on the Web along with ConEdison, Ameritech, Fisher Scientific, Grainger, and BlackBox through one of the first Web Development companies. Created an Ontology-based Web Development system called ManageIt!

## **KNOWLEDGE CRAFT PRODUCT MANAGER**

Jul 1987 – Jul 1993

**Carnegie Group, Inc.** | Pittsburgh, PA

Managed the Knowledge Craft Expert System Development Platform for Carnegie Group, Inc. one of the original commercial AI companies. Developed prototype expert systems in Scheduling, Diagnostics, Planning, and Provisioning for a variety of major corporate clients. Built applications using the Carnegie Representation Language (CRL), an original schema-based frame representation language as well as CRL-Ops, a RETE-based rule language all within Common Lisp. In addition, I managed a Machine Translation project for Caterpillar, translating technical operational documents for Cat's largest earth-moving equipment from American English to Canadian French and Northern Mexican Spanish.

## **KEY TAKE-AWAYS**

### **SATISFIED CUSTOMERS**

REA and Sensis in Australia; Caterpillar, ConEdison, Grainger, Fisher Scientific, Black Box, and Ameritech in the U.S.; SingTel, Pages Jaunes, Herold, Fonecta, and De Telefoon Gids in Singapore, France, Austria, Finland, and Holland.

### **CREATED PRODUCTS**

MapQuest, DestinationSearch, LocalGuides, Enlightenment, Trajectory, ManageIT, and Smart Street.

### **ESTABLISHED ORGANIZATIONS**

Jabber Software Foundation, Joltid (the predecessor of Skype), SXIP, Imperative! and Brilliant Arc.

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## **EDUCATION**

**MS, *Industrial Administration (MBA)***, Carnegie Mellon University, Pittsburgh, PA, 1990-1993

**MS, *Computer Science***, University of Pittsburgh, Pittsburgh, PA, 1982-1984

**BS, *Mathematics***, University of Pennsylvania at Millersville, 1978-1982

## **INTELLECTUAL PROPERTY**

US Patent 2014/0089244A1: Knowledge-Based Method and System for Local Commerce