

Jonathan M. Vajda
(vai-dah)

Department of Philosophy
University at Buffalo
Buffalo, NY 14260

jonathan.vajda@gmail.com
jonathanvajda.com
github.com/jonathanvajda

EDUCATION

- 2025 PhD in Philosophy, University at Buffalo (SUNY)
Thesis: “Instantiation and Kindhood: Berkeley, Individuality, and Natural Kinds”
Areas of Specialty: Ontology, 17-18th cent. Metaphysics, Applied Ontology
Areas of Competence: Phil. of Mind, Contemp. Metaphysics, Epistemology, Applied Ethics
- 2017 M.A. in Philosophy (emphasis in Metaphysics & Epistemology), Western Michigan University
- 2014 M.A. in Religion (emphasis in Theological Studies), Westminster Theological Seminary
- 2010 B.A. in Psychology and Philosophy (*cum laude*), Central Michigan University

ONTOLOGY AND KNOWLEDGE ENGINEERING

- Sept 2023 **Management and Program Analyst (Ontologist) – U.S. Customs and Border Protection**
– Present Project lead in adoption of applied ontology, knowledge graphs, and enterprise-level data layers.
- Extensive ontology modeling, data maturity, and mapping experience for ETL
 - Modeling and simulation with Department of Defense Architecture Framework (DoDAF).
 - Use-cases: drone targeting, data sharing, seizure analytics, optimal resource assignment, etc.
 - Semantic Technology Infrastructure and Governance (primary driver)
 - Tech stack planning, development, testing, and execution. On-premise, local, and Progressive Web App (PWA) architecture for client-side processing, analytics, and visuals.
 - Multi-year strategic vision, technology roadmaps, and integration pathways.
 - Cross-agency ontology standards (primary author)
 - Enumerated conformance requirements; meta-data requirements; metrics and methods to validate ontology artifacts. Deconfliction with related standards documents.
 - Implemented with statements of work and task descriptions for ontology development.
 - Cross-agency integration, quality control, and version management (primary architect).
 - Maintained entire ontology ecosystem. Planned, researched, and executed GitLab CI pipeline to automate QC reports of annotations, logical consistency and satisfiability and automated builds of ontology artifacts.
 - Developed ontology-driven software and ontologies using Agentic AI/SI and LLM tooling.
 - Member of the Technical Advisory Board (TAB) of the National Security Ontology (NSO) Foundry and DoD-IC Ontology Working Group (DIOWG) and sub-working groups.
- Aug 2022 **Sr. Modeling & Simulation Engineer / Ontologist – SAIC**
– Sept 2023 A variety of projects in support of government organizations: aircraft movement, ground vehicle and person movement, illicit activities, facilities, processes, attributes, roles, etc.
- Ontology conformant to the development principles of Basic Formal Ontology (BFO). Imports mid-level domain Common Core Ontologies (CCO) and extension ontologies.
 - Deliverables: application ontology – controlled vocabulary with genus-species definitions, data dictionaries, OWL2 ontologies, diagrams of intended knowledge graphs, documentation and tutorials. Consultation on semantic technologies and analysis of alternatives.
 - Designed a multi-year plan for CBP’s use-case driven interoperable semantic layer.

- April 2018 **Ontology Consultant – University of Michigan, School of Medicine**
- Nov 2019 Project: “Metadata applications on informed consent to facilitate biorepository data regulation and sharing.” Refactored, expanded, and reworked taxonomies and definitions in the Informed Consent Ontology (ICO), an ontology conformant with the development standards of Basic Formal Ontology (BFO). Model-ed domain for presentation, publication, and implementation. Coordinated with adjacent ontologies OBI, OBIB, DUO, D-Acts, OMRSE, CRO, etc.). PI: Marceline Harris.
- Refactored for greater compliance and modularity with BFO and OBO Foundry principles. Extended CCO’s *stasis*, for jurisdictions for when and where regulations are in force.
 - Deliverables: documentation, American Medical Informatics Association (AMIA) and International Conference on Biomedical Ontology (ICBO) workshop and poster presentations; added and updated classes and their definitions; streamlined logical axioms; intended knowledge graphs of use cases and queries; sample SPARQL queries for biobanking; documentation in PPT files, Excel lexicon, tutorials and versioning. Natural Language Processing (NLP): Informed Consent Forms annotated to tag.
 - <https://github.com/ICO-ontology/ICO>
- April 2018 **Graduate Intern – National Center for Ontological Research**
- June 2019 Project: Develop an ontology for intentionality (*aboutness*) and skill acquisition, including the cognitive processes, dispositions, etc., involved. Project supervised by Dr. Barry Smith.
- Extended representation of (and addresses objections against) “Aboutness: Towards Foundations for the Information Artifact Ontology” (W. Ceusters & B. Smith, 2015)
- Other ontology development
- Mar 2026 **Ontology Curator – Ontology of Knowledge Engineering Artifacts (OKEA)**
- Present Project: Provide a common semantics for artifacts typically produced in the knowledge engineering.
- This BFO- and CCO-conformant ontology is designed to support a common internal data model for an ecosystem of semantic interoperability tools. Knowledge engineering processes produce artifacts – competency questions, design patterns, diagrams, database queries, etc.
 - Artifacts: OWL2 DL ontology, tutorials and mermaid diagrams of semantic design patterns.
 - <https://github.com/jonathanvajda/ontology-of-knowledge-engineering-artifacts>
- Aug 2022 **Ontology Curator – CCO-Conformant Document Acts Ontology**
- Present Project: Translate the Document Acts (D-Acts) ontology into Information Entity Ontology (IEO) out of the original Information Artifact Ontology (IAO); consulted Mathias Brochhausen, J. Neil Otte
- Fork of well-known ontology of socio-legal entities related to social acts, speech acts, and document acts. Aligned with the Common Core Ontologies (CCO) rather than IAO.
 - Artifacts: OWL2 DL ontology, documentation. Automated QC checks via GitHub Actions.
 - <https://github.com/jonathanvajda/cco-d-acts>
- Jan 2019 **Ontology Curator – Ontology of Commercial Exchange**
- Sept 2019 Project: Develop an ontology for elements of commercial exchanges (serving, buying, owning, etc.) from the stance that all acts of buying/selling are services. Project supervised by Dr. Barry Smith.
- Mar 2023
- July 2023
- BFO conformant, OWL artifacts in Protégé; based on Tieffenbach & Massin (2017)
 - Presentation and then publication: “Toward an Ontology of Commercial Exchange” (2020) as *proceedings of SoLEE (Ontology of Social, Legal and Economic Entities) conference*.
 - <https://github.com/jonathanvajda/CommercialExchangeOntology>
 - “Toward an Ontology of Economic Inflation,” presentation for the [Basic Formal Ontology Summit](#) (May 24, 2023) ([abstract](#))

INFORMATION TECHNOLOGY

June 2017 – **Self-Employed Web Developer**

Present Developed professional websites for various clients, typically professional academics. Sometimes included work curating data, normalizing content, etc.

Sept 2011 **IT Coordinator** – Christian Counseling & Educational Foundation (Glenside, PA)

– Aug 2015 Maintained all network and computer systems, tech support, tutorials, managed equipment.

(onsite) • Saved cost of approximately \$10,000 per year, by replacing network monitoring software with

– June 2016 a robust open source equivalent: set up Postgres database on Ubuntu Linux to enable
(remote) Nagios/Icinga 2.x network monitoring; created classifications of network device types and
attribute inheritance, JSON config files, supported in web application with PHP; enabled
updates, warning conditions, and live status, along with Postfix email and SMS alerts.

• Database Management and Server Infrastructure: MySQL, OpenBase, Postgres, Amazon AWS;
Windows Server 2008 R2, Ubuntu Linux / LAMP

• Proprietary Software: Titanium HIPAA-complaint software; Intuit QuickBooks, Drupal CMS;
Moodle LMS; proprietary PBX; AWS cloud server and storage

• Performed audits for organization data storage and access for HIPAA compliance

• Managed all user access in Windows Active Directory and Group Policy Management

• Managed all network, cloud, and G-Apps storage and productivity suites

• Recorded and edited audio/video (course lectures; counseling sessions) (Sony Vegas; Audacity)

Technical skills and training:

- Expertise Agentic AI/SI and LLM tooling for spec-driven ontology-driven application development. ReasonLynx end-to-end semantic DevOps suite: Competency Question Ferret, Tabular Ontology Maker (TOM), Axiolotl SPARQL and Inference Engine, Table Nova, DocxHund, etc. See: <https://reasonlynx.com/>
- Ontology creation/curation software and CLI tools: Protégé; ROBOT; TopBraid Composer; OSCAR (by CUBRC) and Karma Web (by USC ISI), GraphDB (by OntoText); self-made Python scripts for data extraction, manipulation, and transformation (esp. using RDFLib or Owlready2).
- Agentic AI/SI and LLM harnessed to develop ontologies based on Basic Formal Ontology and Common Core Ontologies. E.g., Organization Ontology, Ontology of Knowledge Engineering Artifacts, etc.
- W3C standards including OWL2 (Turtle, JSON-LD, OWL-XML) and SHACL. Query languages: SPARQL.
- Diagramming and knowledge graphs: Visual-Lynx, Mermaid, Cytoscape.js, Ontograf, LucidChart
- Agile development workflows (and SAFe Agile for enterprise) for user-centric working systems.
- Programming languages: novice in JavaScript and Python
- Enterprise-level cybersecurity practices, PII- and other sensitive data handling, ethics, ISSO training.

PROFESSIONAL TEACHING

University at Buffalo, SUNY (Dept. of Philosophy) 12 courses Fall 2017 – Sum 2022

Niagara University (Dept. of Philosophy) 17 courses Fall 2019 – Fall 2022

Western Michigan University (Dept. of Philosophy) 7 courses Fall 2015 – Sum 2017

- Taught 8 different courses (Intro to Philosophy, Critical Thinking, Intro to Logic, Deductive Logic, Contemp. Moral Problems, Ethical Theory, Biomedical Ethics, Professional Ethics)
- Setting learning objectives and outcome measurements; creating and grading all assessments; evaluating test outcome alignment. Scheduling and syllabus/policy creation; enforcing university requirements for academic integrity and course outcome review, ADA accommodations, student career guidance.

PUBLICATIONS

Journal Articles and Proceedings

- 2021 “Individuation and the Realism/Nominalism Dilemma: The Case of the Middle Ages,” *International Philosophical Quarterly*, Vol. 61, No. 3, 2021. [[full text](#)] (co-author Jorge J.E. Gracia)
- 2019 “Toward an Ontology of Commercial Exchange” in *Proceedings of the Joint Ontology Workshops (JOWO)*, Graz. (2019) [fulltext: philpapers.org] (co-authors Eric Merrell and Barry Smith)
- 2016 “Human-Nonhuman Chimeras, Ontology, and Dignity: A Constructivist Approach to the Ethics of Conducting Research on Cross-Species Hybrids” *Hilltop Review: A Journal of Western Michigan University Graduate Student Research* 9 (1): 49-62. 2016. [[full text](#)]

SELECT PRESENTATIONS

Conferences / Workshops

- May 2026 “Edge Computing Ontology DevOps: Progressive Web Apps for Ontology Development Designed to Knowledge Engineering Workflows,” (co-presenter Aaron Damiano) for [Conference on Semantic Technology for Intelligence, Defense, and Security \(STIDS\)](#). (May 27, 2026)
“Ontology Engineering in the Era of Generative AI: Current Trends and Future Trajectories” (co-presenter Aaron Damiano; chair: Joe Blankenship) for [Conference on Semantic Technology for Intelligence, Defense, and Security \(STIDS\)](#). (May 28, 2026)
- May 2023 “Toward an Ontology of Economic Inflation,” for the [Basic Formal Ontology Summit](#) (May 24, 2023) ([abstract](#))
- Nov 2019 “[Expanding the Representation of Permissions and Deontic Roles in the Informed Consent Ontology \(ICO\)](#)” (co-authored) ([slides](#)), Symposium, Oral Presentations – American Medical Informatics Association (AMIA) 2019 Annual Conference, Washington, DC
- Nov 2019 “[Refactoring and Expanding the Informed Consent Ontology \(ICO\)](#)” (co-authored) ([poster](#)), Poster Presentations – American Medical Informatics Association (AMIA) 2019 Annual Conference, Washington, DC
- Nov 2019 “Problems in Representing Permissions: Informed Consent and Deontic Roles”, Romanell Workshop in Honor of Steven Wear’s Retirement, Buffalo, NY
- Sept 2019 “Toward an Ontology of Commercial Exchange” (co-authors: Eric Merrell and Barry Smith), Ontology of Social, Legal, and Economic Entities (SoLEE) as a part of the Joint Ontology Workshops (JOWO), Graz, Austria.
- July 2019 “Human-Nonhuman Chimeras, Ontology, and Dignity: moral considerations on the creation and use of certain interspecific hybrids”, UB Romanell Bioethics and Philosophy of Medicine Conference July 25-27
- July 2019 “[Using Stases to Enrich Queries for When and Where Regulations Are in Force](#)” (co-authored), 10th International Conf. on Biological Ontology (ICBO 2019), Buffalo ([poster](#))
- July 2018 “[Coordinated Evolution of Ontologies of Informed Consent](#)” (co-authored), 9th International Conf. on Biological Ontology (ICBO 2018), Corvallis ([poster](#))
- Jan 2019 “Berkeley’s Concrete General Ideas and the Problem of Universals”, International Berkeley Society, American Philosophical Association (APA) Eastern Division
- June 2018 “Berkeley’s Concrete General Ideas and the Problem of Universals”, 8th Margaret Dauler Wilson Philosophy Conference (University at Buffalo)
- Sept 2016 “Human-nonhuman Chimeras, Ontology, and Dignity: a constructivist approach to the ethics of conducting research on cross-species hybrids”, Sixth Annual Medical Humanities Conference (Western Michigan University)

Curriculum Vitae – Jonathan M. Vajda

AWARDS / HONORS

2026 CBP division-wide award recognizing support of counter-drone (SUAS) efforts for FIFA World Cup
2024 DHS Commissioner's Award for Excellence in Mission Support: Machine Reasoning
2021-2022,
2020-2021, Outstanding Graduate Instructor Award, Dept. of Philosophy, University at Buffalo
2019-2020
2019 Research Assistant for Jorge J. E. Gracia, University at Buffalo
2019 Research Assistant for Barry Smith, University at Buffalo
2018-2019 Department Citizen of the Year Award, Dept. of Philosophy, University at Buffalo
2017-2020 Teaching Assistantship, University at Buffalo (SUNY)
2017-2020 Dean's Scholarship, Department of Philosophy, UB
2017 Heraclitean Society Essay Prize for Second-Year Students, WMU
2017 Best Graduate Student Paper, North Carolina Philosophical Society
2015-2016 Mark Rachon Award, Department of Philosophy, WMU
2015-2017 Teaching Assistantship, Western Michigan University
2009 Graduated *Cum laude*, Central Michigan University

Languages

English Native Language
German Intermediate Speaking, Listening, Writing, Reading
Koiné Greek Intermediate Reading, Novice Writing
Biblical Hebrew Novice Writing, Reading
Classical Latin Novice Writing, Reading

Academic References

Barry Smith <phismith@buffalo.edu>	David Hershenov <dh25@buffalo.edu>
John Beverley <johnbeve@buffalo.edu>	Neil Williams <new@buffalo.edu>

Other

U.S. Citizen
Full DHS Background Investigation (Public Trust)
Ordained Ruling Elder (RE) in the Presbyterian Church in America (PCA)