

Michael Bobak
Ontology / Knowledge Engineer / Research Programmer / Analyst
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github.com/MBcode

Summary:

- Research-Programmer starting with (bio)physical-science simulation, adding AI study and years of Knowledge Engineering work as well (in: edu/gov/com).
- Focus on Knowledge-Based aids, for process improvement to teaching. AI: Ontology, Knowledge-Representation and Reasoning, Rules, Kn-Acq, NLP, ML

Education:

University of Illinois, Urbana-Champaign

- MS Biophysics & Comp-Biology with AI, **Research Assistant /Research Programmer** **1990 - 1993**
- BS Physics, BS Biophysics, Dept. distinction **Research Programmer**(1/2 time w/local lab) **1983 - 1988**

Professional Organizations:

[AAAI](#) (Association for the Advancement of Artificial Intelligence) life-member.

[IEEE](#) (Institute of Electrical and Electronics Engineers) & Computer Society 10 years

Other Groups: [meetup.com](#), [linkedin-groups](#)

ID: orcid.org/0000-0003-2357-5918 wikidata.org/wiki/Q104512704

Papers: scholar.google.com/&q=michael+bobak

Work Experience

[xendat.com/vrtx.com](#) (Remote) **2023 - 2025**

Ontology Data Developer/Analyst (Integrations)

- Contract to a pharma's Ontology Group using: Python, SPARQL, Triple-Stores, ([web](#))Protege, Semantic-Web-Libs
- Wrote new libs used for both a Semantic-ETL and for an automated QA/QC, aiding Ontologist & BizDev, incl several apps

National Center for Supercomputing Applications, Urbana, IL **2019 - 2023**

Sr Research Software Engineer

- Bringing my background to earthcube.org and other grants.
- Focus on semantics/metadata search, with some NLP & sim. EarthCube's GeoCODES: Crawl data repositories json-ld for extended schema.org, and provide faceted search, related datasets, and transition to notebooks. Built up related semantic-web python [libs](#), use of triple-stores.. [FAIR data principles](#)

AlohaHealthNet (Remote) **2017 - 2025**

Sr Knowledge-Engineering

- Advising early-stage startup built on the topic of my UCSF.edu research. Matching EHR to get people into clinical trials

Agribile/Nutrien Champaign IL **2017 - 2018**

Sr Software Engineer

- Planned & guided reworking the main simulation, documentation, & ML/verification which helped with it's acquisition

Freelance Consultant, San Francisco, CA **Jul 2011 - 2017**

- Working as an ontologist for osthus.com on aligning bio/pharma ontologies to BFO to annotate masses of data in HDF5 files, for the allotrope.org
- Worked with IDEO on their systems integration issues that could be aided by Knowledge-Graph for info refine/cleanup
- Worked with the Siemens Web of Things research group on use of SemWeb+IoT for adaptable manufacturing
- Advised with a variety of start-ups in understanding AI tech, including Fashion start-up that would track unstructured blog info to surface trends - Sports startup thewhytehousegroup.com needed dbpedia search ability
- Developed ideas to take my UCSF research and fuse it with the Patient Data Mining Cluster that was developed by the UCSF Head of Research Computing and a PhD student, which has now been submitted for a patent
- Worked with UCSF in Psychology Department understand how to apply NLP and graph relation insights into an app they developed called Prime for schizophrenic young adults, with application to depression management as well
- Help with an assisted eco-sim/modeling environment in Lisp.
- Continued to build skills around ML, Semantic-Web/Linked-Data, and Knowledge-Engineering:
- Coursera courses: Data Analysis, Data Science (with distinction), Machine Learning (with distinction), Discrete

Optimization (audit) – open-HPI courses: Semantic Web, Knowledge Engineering, Knowledge-Engineering with Semantic Web technology, Linked-Data-Engineering - Stanford courses: Design Thinking

Apollo Education Group, San Francisco, CA
Architect, Adaptive Learning Platform

Oct 2010 - Jul 2011

- Conceptually annotate study material and tests for automated remediation, instrument classroom to learn from using: Hadoop, Lisp, [KM](#)

UCSF San Francisco, CA
Programmer/Analyst III

Sep 2007 - Oct 2010

- Medical-Informatics [research](#) (relating to clinical-trials) in Lisp/KM, and Natural Language Processing in Java; [paper](#) with Stanford [group](#); [ontology](#) dev/using: Lisp, [KM](#), Match conceptually annotated patient EMR against a concept based in/ex-clusion criteria annotated from ClinicalTrials.gov to see which trials they might be eligible for, via semantic-search

Freelance Knowledge Engineer/ Research-Programmer

Feb 2001 - Sep 2007

- [mindbox.com](#) 3/02-10/02. (used Art*Enterprise) See: [Ocwen_Mindbox](#)
- Worked up to half-time for [cas.dis.anl.gov](#) 5/03-5/04 (Java Simulation)
- Worked full-time 8/03--05([verizon](#))[labs.gte.com](#), Model-Based-Diagnosis on a national scale. (Art *Enterprise) See: [aaai.org/Papers/IAAI/1996/IAAI96-287.pdf](#)
- Bioinformatics/control [contract](#) 11/04-12/05 (CLIPS&Protege.stanford.edu/Java/DB) Control of perfusion pumps on light microscope sample, monitoring incl. Machine-vision, Bio-ontology/reasoning/Kn-mngt for the experiment setup. & Grant proposal work.
- Worked for CME.com 2/06-06/06 (re)organizing trade-data validation code. (CLIPS/Jess)
- Signal-Processing/Machine-Learning (startup) 06/06-(Lisp/etc)
- Hospital Informatics/Machine-Learning [ghx.com](#) 02/07-05/07-(Lisp),
- MachineLearning speedup for financial-scientific (Lisp)

UIUC Knowledge Based Systems Lab, Urbana, IL
Senior Research Programmer

Jun 1998 - Feb 2001

- Organized many levels of a very large knowledge-based simulation projects. Brought over 18 programmers together to deliver a coherent product. Ran weekly group meetings, down to help solving any problem.
- Hiring, demo, design, install trips, prototyping to lead project direction. Taught group of 6 how to use a Rule-Based-shell for a reasoner-rewrite in Art*Enterprise.
- Projects included: Simulation-based, Intelligent Tutoring System (ITS) & Real- Time control system. Being used in classroom, real life testing, presented at IAAI99 'Automated Instructor Assistant for Ship Damage Control' - The system teaches Navy officers how to save a simulated ship in crisis. A variant was developed to catch real-time crisis conditions and suggest solutions [www.dwilkins.org/members.htm](#)

Brightware, Chicago, IL
Knowledge Engineer

Oct 1996-Jun 1998

- Helped develop and install their very first product (intelligent email reply). Worked between development and consulting. Helped on several Knowledge-Based business applications. Helped with several deployed Knowledge-Based business applications (i.e. financial: mortgage, web based job finder). w/Art*Enterprise See: [www.brightware.com/eservice_solutions](#) &later 1/2 year for the new version of the company: Mindbox.

Institute of Learning Sciences, Evanston, IL
Lead Programmer/Analyst

Feb 1996 - Aug 1996

- Wrote Lisp code (mainly GUI) for Qualitative Research Group. Learned more about Qualitative/Quantitative Simulation, Model-Based Reasoning, Intelligent-Tutoring-Systems, and general Lisp programming.
- See: [www.qrg.northwestern.edu/projects/NSF/Cyclepad/aboutcp.htm](#)

Argonne National Lab (EAD and DIS groups), Argonne, IL
Software Engineer

Feb 1993 - Feb 1996

- Wrote fielded Expert System by myself at the end of grad-school. in Lisp rule-shell then CLIPS Prototyped communication and control of distributed simulation. w/CLIPS PVM etc.
- Agent wrapping of simulations with CLIPS+PVM, to describe then mix and match them. Also used C++, Smalltalk, FORTRAN with PVM; Other work as needed. Algo/Viz/Etc. Written up in a book about innovative distributed object application. See: [www.dis.anl.gov/DEEM_HLAsim](#) [www.dis.anl.gov/DEEM/DIAS_diaswp.pdf](#) Later some work for new subgroup of dis: [cas.dis.anl.gov](#).