

# **Michael Bobak Knowledge-Engineer / Research Programmer**

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[@MBstream](#), [github.com/MBcode](https://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: [Knowledge-Representation and Reasoning](#), [Rules](#), [Kn-Acq](#), [NLP](#), [ML](#)

## **Work Experience**

### **Freelance Consultant**

**July 2011-Present, San Francisco, CA**

Develop [startup](#) ideas, work on a Proof of Concept [for Patient Data Mining Cluster patent application](#) that I helped start at ucsf.edu, work [on an assisted eco-sim/modeling](#) environment in Lisp, and [semantic-web \(industrial\) IoT](#) advice.

### **Apollo Education Group, Architect, Adaptive Learning Platform**

**Oct 2010 - Jul 2011, San Francisco, CA**

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

### **UCSF Programmar/Analyst III**

**Sep 2007-Oct 2010, San Francisco, CA**

Medical-Informatics [research](#) (relating to clinical-trials) in Lisp/KM, and Natural Language Processing in Java; [paper with](#) with Stanford [group](#); [ontology](#) dev/use [Lisp, [KM](#), ..]

### **Freelance Knowledge Engineer/ Research-Programmer**

**Feb 2001 Sep 2007, Chicago and Boston**

[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]

### **Knowledge Based Systems Lab, Senior Research Programmer**

**Jun 1998-Feb 2001, Urbana, IL**

Organize 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](http://www.dwilkins.org/members.htm)

**Brightware, Knowledge Engineer**  
**Oct 1996-Jun 1998, Chicago, IL**

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 (ie. financial: mortgage, web based job finder). [Art\*Enterprise]  
See: [www.brightware.com/eservice\\_solutions/](http://www.brightware.com/eservice_solutions/) More recently I worked 1/2year for the new version of the company: Mindbox.

**Institute of Learning Sciences, Lead Programmer/Analyst**  
**Feb 1996-Aug 1996, Evanston, IL**

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

**Argonne National Lab (EAD and DIS groups), Software Engineer**  
**Feb 1993-Feb 1996, Argonne, IL**

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. [in 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](http://www.dis.anl.gov/DEEM_HLAsim)  
[www.dis.anl.gov/DEEM/DIAS](http://www.dis.anl.gov/DEEM/DIAS) [mike.bobak.googlepages.com/diaswp.pdf](http://mike.bobak.googlepages.com/diaswp.pdf)  
Later some work for new subgroup of dis: [cas.dis.anl.gov](http://cas.dis.anl.gov).

**Education**

University of Illinois, Urbana-Champaign

MS Biophysics & Computational Biology with AI, 1990-93 / **Research Assistant / Research Programmer**

BS Physics, BS Biophysics, 1983-88, dept. distinction / **Research Programmer**  
(½ time with allied lab)

**Recent Training:**

Coursera:

[Data analysis](#)

[Web intelligence](#) (with distinction)

[Data Science](#) (with distinction)

[Machine Learning](#) (with distinction)

[Discrete Optimization](#) (audit)

Other:

[Semantic Web](#)

[Design Thinking](#)

[Knowledge Engineering](#)

Several semesters of grad AI @UIUC

**Professional Organizations**

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

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