

Michael Bobak Knowledge-Engineer / Research-Programmer

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- [San Francisco, California](#) Tweets: [@MBstream](#) Code-Portfolio: 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](#), ...

Skills & Expertise

AI

[Artificial Intelligence](#), [Adaptive Systems](#), [Business Rules](#), [Case-Based Reasoning](#), [Conceptual Modeling](#), [Data Mining](#), [Intelligent Agents](#), [Intelligent Systems](#), [Knowledge Engineering](#), [Knowledge Acquisition](#), [Knowledge-based Systems](#), [Machine Learning](#), [Natural Language Processing](#), [Natural Language Understanding](#), [Ontology Engineering](#), [Rules](#), [Semantic Web](#), [Semantics](#), [Causal Inference](#), [Case-Based Reasoning](#), [Composite Applications](#), [Computational Intelligence](#), [Controlled Vocabularies](#), [Data Analysis](#), [Decision Modeling](#), [Expert Systems](#), [Information Access](#), [Information Extraction](#), [Information Retrieval](#), [Intelligent Tutoring Systems](#), [Knowledge Representation](#), [Logic Programming](#), [Mathematical Logic](#), [Mathematical Programming](#), [Model-based reasoning](#), [Ontology Development](#), [Rules Engines](#), [SNOMED](#), [Semantic Search](#), [Semantic Technologies](#), [Taxonomy Development](#), [Text Classification](#)

Science

[Research](#), [Scientific Software](#), [Scientific Computing](#), [Scientific Visualization](#), [Simulation](#), [Computational Mathematics](#), [Biophysics](#), [Computational Biology](#), [Physics](#)

Computing

[UNIX](#), [Linux](#), [Cloud Computing](#), [MapReduce](#), [Hadoop](#), [DynamicLanguages](#), [ExploratoryProgramming](#), [Common Lisp](#), [OOPL](#)

Work Experience

[Freelance Consultant July 2011-Present San-Francisco, CA](#)

Develop startup idea/s, starting with working on a ProofOfConcept for Patient DataMiningCluster patent application that I helped start at ucsf.edu, work on an assisted eco-sim/modeling environment in Lisp, & semantic-web (industrial) IoT advice.

[ApolloGrp.edu Architect , Adaptive Learning Platform Oct 2010 - Jul 2011 San-Francisco, CA](#)

Conceptually annotate study material&tests for automated remediation, instrument classroom to learn from use.[Hadoop, Lisp,KM]

[UCSF.edu 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/etc; [paper](#) with Stanford [group](#); [ontology](#) dev/use [Lisp, KM, ..]

[Freelance Knowledge-Engineer/ Research-Programmer Feb 2001 Sep 2007 Chicago/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](#)

[kbs.ai.UIUC.edu](#) Organize many levels of a very large knowledge based simulation projects. Brought over 18 programmers

together to deliver a coherent product. Ran weekly (sub)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 Knowledge-Engineer Oct 1996-Jun 1998 out of 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/ 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 Qualitative/Quantitative Simulation, Model-Based Reasoning, Intelligent-Tutoring-Systems, & general Lisp programming. See: www.qrg.northwestern.edu/projects/NSF/Cyclepad/aboutcp.htm

Argonne National Lab (EAD thenDIS 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 & 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 www.dis.anl.gov/DEEM/DIAS mike.bobak.googlepages.com/diaswp.pdf Later some work for new subgroup of dis: cas.dis.anl.gov.

UIUC.edu Graduate Research Programmer Jan 1990-Jan 1993 Urbana, IL

Wrote molecular graphics package used in classes & for publications. [in C] Used machine-learning techniques for protein structure prediction. Wrote thesis on Knowledge-Based Simulation Environment. [Lisp/OPSS/C] Overseen by heads of the NCSA CompBio group and head of Biophysics at the time. see: web.bilkent.edu.tr/ncsa/Apps/CBdir.html

NCSA.uiuc.edu, Uof IL,GIST Programmer/Consultant Apr 1989-Dec 1989 Urbana/Savoy, IL

Suggested scientific software path for Software Tools Group of NCSA; Wrote molecular viz code for a professor. Wrote testing code for Global Info Systems Tech. [in C]

Shearson Lehman Hutton Programmer(Research Computing) Oct 1988-Apr 1989 London, England

Maintained financial databases & daily report information. Organized worldwide mailing system. Wrote statistics code for stock predictions. [MUMPS and Maths-package]

US Army Corp. of Eng. Research Lab Research-Programmer Mar 1982 Aug 1988 Champaign, IL

Modeling then Acoustics teams. Provided research support from start to finish. [FORTRAN] Wrote and ran computer simulation code, compared output with field data. Did field measurements to back up predictions (Team/Self; Local/US/World-wide). My work went into several [published papers](#). GRASS.fbk.eu

Education:

University of Illinois, Urbana-Champaign

MS Biophysics & Computational Biology with AI, 1990-93

Course work related to: Artificial Intelligence (AI)/etc:

Pattern Recognition & Machine Learning
Special Topics in Neural Networks
Introduction to Artificial Intelligence
Mechanized Mathematical Inference -(1/2 of)
Computer Inference & Knowledge Acquisition
Computer Models of Cognitive Processes
Design of Computer Problem Solvers
Programming Language Principles
Mathematical Modeling & Visualization
Building Problem Solvers
Human Computer Interaction(HCI)
AI-2 <http://aima.cs.berkeley.edu/>
Numerical Analysis
Data-Analysis <https://class.coursera.org/dataanalysis-001>
Semantic-Web <https://openhpi.de/courses/4/>
Web-Intelligence(distinction)www.coursera.org/course/bigdata
Machine-Learning(distinction)Coursera.org/ml-003/class/index
Data-Science(distinction)coursera.org/course/datasci
Design-Thinking <https://venture-lab.org/designthinking>
Knowledge-Engineering with Semantic-Web Tech(openhpi.de)

BS Physics, BS Biophysics, 1983-88, dept. distinction

Professional Organizations:

- [AAAI \(Association for the Advancement of Artificial Intelligence\) life-member.](#)
- [IEEE \(Institute of Electrical and Electronics Engineers\)& Computer Society 10yrs](#)