

Michael Bobak

Knowledge-Engineer / Research-Programmer in San Francisco, California

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SUMMARY

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

WORK EXPERIENCE

Freelance Consultant, San-Francisco, CA

July 2011 - Present

Develop startup idea/s, starting with working on a ProofOfConcept for Patient DataMiningCluster patent application that I helped start at ucsf.edu

Apollo Group, San-Francisco, CA

Architect, Adaptive Learning Platform / Oct 2010 - May 2011

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

University of California, San Francisco, 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/etc; paper with Stanford group; ontology dev/use [Lisp, KM, ..]

Freelance Consultant, Chicago/Boston

Knowledge Engineer/Research Programmer / Feb 2001 - Sep 2007

mindbox.com 3/02-10/02. [used Art*Enterprise] See: Ocwen_Mindbox Worked upto half-time for <http://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]

University of Illinois Urbana-Champaign - Knowledge Based Systems Lab, Urbana, IL

Senior Research Programmer (kbs.ai.UIUC.edu) / Jun 1998 - Feb 2001

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

Northwestern University - 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, & general Lisp programming. See:
<http://www.qrg.northwestern.edu/projects/NSF/Cyclepad/aboutcp.htm>

Argonne National Lab, Argonne, IL

Software Engineer (EAD and DIS groups) / Feb 1993 - Feb 1996

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: http://www.dis.anl.gov/DEEM_HLAsim <http://www.dis.anl.gov/DEEM/DIAS>
mike.bobak.googlepages.com/diaswp.pdf _More recently I worked part-time for the new subgroup of dis: cas.dis.anl.gov.

University of Illinois Urbana-Champaign, Urbana, IL

Graduate Research Assistant/Research Programmer / Jan 1990 - Jan 1993

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/OPS5/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 [National Center for Supercomputing Applications]NCSA,Uof IL,GIST Urbana/Savoy, IL

University of Illinois Urbana-Champaign, Champaign, IL

Programmer/Consultant / Apr 1989 - Dec 1989

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, London, England

Programmer (Research Computing) / Oct 1988 - Apr 1989

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

US Army Corps of Engineers Research Lab, Champaign, IL

Research Programmer (Modeling and Acoustics teams) / Mar 1982- Aug 1988

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: <http://grass.fbk.eu/>

EDUCATION

University of Illinois, Urbana-Champaign

MS Biophysics & Computational Biology with AI, 1990-93

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

also: meetup.com, [linkedin-groups](#), & [github opensource examples](#)

SKILLS & EXPERTISE

AI

[Artificial Intelligence](#) [Adaptive Systems](#) [Business Rules](#) [Case-Based Reasoning](#) [Conceptual Modeling](#) [Data Mining](#) [Intelligent Agents](#) [Intelligent Systems](#) [Knowledge Engineering](#) [Knowledge-Based Systems](#) [Machine Learning](#) [Natural Language Processing](#) [Natural Language Understanding](#) [Ontology Engineering](#) [Rules](#) [Semantic Web](#) [Semantics](#) [Causal Inference](#) [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](#) [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](#)

Others

[Cloud Computing](#) [MapReduce](#) [Hadoop](#) [Dynamic Languages](#) [Exploratory programming](#) [Common Lisp](#) [other Languages](#)

PROGRAMMING LANGUAGES

<u>19+ years overall</u>	<u>Object Orientated</u> [14+ years]	<u>Rule-Based KnRep& Reasoning:</u> [10+ years]:	<u>Libs:</u>	<u>Databases:</u>	<u>Operating-Systems:</u>
C(6+ years) FORTRAN(6+ yrs)	Smalltalk (~1 yr) C++(1+yr)	OPS5 , Prolog , GoldWorks (<1yr)	Viz: OpenGL (3+ yrs)	MS-Jet/SQL, MySQL	NeXTSTEP, MS(NT..XP) (8+ yrs)
Scheme (~1 yr) MUMPS (1/2yr)..	Python(< 1yr), Java (1+ yr)	CLIPS (4+yrs), (4+years)	HPC: PVM (1+yr)	PostgreSQL, ORDB	UNIX (18+ years), incl. GNU/Linux
Lisp (7+yrs of CL 10+yrs of others)	CLOS [CL -Object-System]	Knowledge-Machine (3+years) , JESS (1 yr), Protege (6+yrs)	WS: Tomcat/Axis SOAP/REST	Graph&triple persistence &other NoSQL	OS-X .Darwin(10+ years)