

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

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