Michael Bobak

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Summary
My expertise is in (knowledge-based) Modeling&Simulation and AI, with a focus on Scientific applications, coupled with an ability to push the norm by creating innovative applications in any domain. I often help with multi-disciplined problems, by leveraging my varied background. I am a uniting force as both a knowledge-worker & knowledge-engineer. I look forward to stimulating peer interaction on challenging projects (e.g. building an assisted problem-solving/knowledge-managment environment for your domain).

Seeking position as a creative computational problem-solver including:

- Knowledge-Engineer
- Scientific/Research-Programmer
- Systems-Analyst/Architect
- Software-Engineer

University of Illinois Urbana-Champaign

M.S. Biophysics & Computational Biology, (with focus in AI)	October 1993 Thesis: *Molecular Simulation with Expert Rules* (in OPS5/Lisp/C)
B.S. Physics and B.S. Biophysics	May 1988 dept-distinction; *Physics Society* officer, 3 years

Artificial Intelligence (AI) courses

Pattern Recognition & Machine Learning	Introduction to Artificial Intelligence
Special Topics in Neural Networks	*AI-2* http://aima.cs.berkeley.edu/
Computer Models of Cognitive Processes	Computer Inference & Knowledge Acquisition
Mechanized Mathematical Inference -(1/2)	Design of Computer Problem Solvers
Building Problem Solvers	*HCI*, MathModeling&Viz, etc.

Languages 19+years

Rule-Based 10+ years	CLIPS, Art*Enterprise (4+years), JESS(1 yr),GoldWorks(< 1 yr), OPS5[OfficialProductionSystem 5] ,Prolog, etc
Object-Orientated 14+	CLOS [Common-Lisp-Objet-System], COOL [CLIPS ObjOrientLang], Smalltalk (~1 year), Java (!+yr), C++ (1+ years),Python
Other	Lisp (5+years of CL 10+years of others), C (6+ years) , FORTRAN (6+ years), Scheme (~1 year), MUMPS (1/2 year), etc.
Prefer	Dynamic(event-driven)language/environments, lisp-like RuleBased(shells), flexible KnowledgeRepresentation&Reasoning.

Viz/HPC Libs	SGI's Graphics Language (*Open*GL) (3+ years) , PVM [Parallel-Virtual-Machine] (1+year)
Web-Services	Tomcat/Axis SOAP, jsp; Semantics via Protege-OWL/SWRL/Jess
Databases	MS-Jet/SQL, MySQL, PostgreSQL, ORDB-links and persistent-stores
OperatingSystems	UNIX (18+ years), incl. Linux, OS-X Darwin (10+ years), NeXTSTEP, MS(NT/Win2k/XP) (8+ years)
Focus	Knowledge-(Representation/Reasoning/Mngt) for cooperative Scientific modeling [e-Science, Semantic(Web/Grid)Services] via multi-use Model-Based-Reasoning/ descriptive (layer of logic) to use pre-constructed applications&data.

Professional Organizations:

- ***AAAI*** *(Association for the Advancement of Artificial Intelligence) life-member*
- IEEE (Institute of Electrical and Electronics Engineers)& Computer Society 10years
- ***http://www.linkedin.com/in/michaelbobak 50-groups***

Chronology:

Programmer/Analyst III University of California San-Francisco *9/2007-present*

- *Medical-Informatics research (relating to clinical-trails) in Lisp,*
- *including Natural-Language-Processing and conceptual-annotation for search*
- *http://bmir.stanford.edu/publications/view.php/a_practical_method_for_transforming_free_text_eligibility_criteria_into_computable_criteria*
- *http://rctbank.ucsf.edu/home/mb.htm*

Knowledge Engineer consultant out of Chicago, IL *2/2001-9/2007*

- http://www.mindbox.com/NewsEvents/PressReleases/21OCT2002.pdf [Art*Enterprise] 3/02-10/02
- http://cas.dis.anl.gov upto 50% 5/03-5/04 [used Java Agent-based Simulation] http://repast.sourceforge.net/
- labs.gte.com, National Model-Based-Diagnosis Art] http://mike.bobak.googlepages.com/IAAI96-SSCFI.pdf 8/03~05
- lbl.gov [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. 11/04-12/05
- CME.com 2/06-06/06 (re)organizing trade-data validation code. [using CLIPS/Jess]
- *Signal-Processing/Machine-Learning (startup) 06/06-[Lisp/etc]* Protege&Lisp
- Hospital Informatics/Machine-Learning ghx.com 02/07-05/07-[Lisp],
- MachineLearning speedup for financial-scientific [Lisp]

(*Senior*) *Research Programmer* (Kn-Based Systems Lab) Univ-IL@Urbana-Champaign 6/1998-2/2001

- 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, to Navy officers how to save a simulated ship in crisis.
- IAAI99 '*Automated Instructor Assistant for Ship Damage Control*' *http://www.aaai.org/Papers/IAAI/1999/IAAI99-110.pdf*
- A variant was developed to catch real crisis conditions and suggest solutions, in real-time.
- http://www.dwilkins.org/members.htm

Knowledge Engineer Brightware Novato, CA *10/1996-6/1998*

- 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).
- All with Art*Enterprise. See: http://www.brightware.com/eservice_solutions/
- More recently I worked 1/2year for the new version of the company: Mindbox.

Lead Programmer/Analyst Institute of Learning Sciences Evanston, IL *2/1996-8/1996*

- 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.html

Software Engineer (EAD then DIS groups) Argonne National Lab *Argonne, IL* 2/1993-2/1996

- Prototyped communication & control of distributed simulation. [in CLIPS PVM etc] Agent wrapping of simulations with CLIPS+PVM, to describe then mix and match them. Other work as needed. Algo/Viz/Etc. Written up in a book about innovative distributed object application.
- See: http://www.dis.anl.gov/DEEM /DIAS diaswp.pdf Also used C++/Smalltalk/FORTRAN with PVM
- After part-time for DIS again through http://cas.dis.anl.gov
- Wrote fielded Expert System by myself at the end of grad-school, for the EPA, (EAD). [in Lisp rule-shell then CLIPS]

Graduate Research Assistant /*Research Programmer* Univ-IL@Urbana-Champaign 1/1990-1/1993

- 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&head of Biophysics http://web.bilkent.edu.tr/ncsa/Apps/CBdir.html

Programmer/Consultant NCSA,Uof IL,GIST Urbana-Champaign, IL *4/1989-12/1989*

- Suggested scientific software path for *Software Tools Group [National Center for Supercomputing Applications]*
- Wrote molecular viz code for a professor.
- Wrote testing code for Global Info Systems Tech. [in C]

Programmer (Research Computing) Shearson Lehman Hutton *London, England* 10/1988-4/1989

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

Research Programmer Construction Engineering Research Lab *Urbana-Champaign, IL* 3/1982-8/1988

- (Modeling then Acoustics teams) Started with GIS work, then moved to Physical-Modeling
- Provided research support from start to finish.
- Wrote and ran computer simulation code, compared output with field data. [FORTRAN]
- Did field measurements to back up predictions. (Team/Self; Local/US/World-wide)
- http://adsabs.harvard.edu/cgi-bin/nph-bib_query?1987ASAJ...81..638J & hep with others.
- Early work went into GRASS: http://grass.itc.it/intro/general.php