Michael Bobak

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Seeking creative computational problem-solving post as either a**:
Knowledge-Engineer, Scientific/Research-Programmer**/Systems-
Analyst/Architect, Scientist, Multi-disciplined Research/**Software-Engineer.**

Furthering knowledge/experience with Artificial Intelligence/Modeling&Simulation techniques; through stimulating peer interaction, challenging projects. Particular interest in a Knowledge-Based-Modeling&Simulation Environment, Assisted Problem-Solving-Environments.
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.
Prefer dynamic(event-driven)language/environments. Having a Lisp(like)language, use of AI techniques& a science-based domain, would do it for me.

Experience Summary: Modeling&Simulation and AI work has helped my design and algorithmic skills. Growing up around UIUC, using networked computers (*PLATO*) since early grade-school, early tech-groups (sci/eng/CS), then work in & around super-computing, has set my standards for what is a good/ interesting system, quite high. I get something out of all of my work, yet think I can do more. So I continue to look for places that I can enact *(at least parts of)* my vision. I prefer scientific applications, but the ability to push the norm with innovative applications wins out in any domain. If your IT dept. already has the skills for what you want done, I probably shouldn't work for you. I should be helping you with a multi-disciplined problem, by leveraging my varied background. I am a uniting force as both a knowledge worker&kn-engineer. If it isn't clear, I don't just write code. If you just want code written and no problem solved along the way; then I can only do that short-term.

Education	M.S. Biophysics & Computational Biology, (with focus in AI)	B.S. Physics and B.S. Biophysics
University of Illinois Urbana-Champaign	October 1993 Thesis: *Molecular Simulation with Expert Rules* (in OPS5/Lisp/C)	May 1988 dept-distinction

Artificial Intelligence (AI)	courses:	Programming Language Principles
Pattern Recognition & Machine Learning	Introduction to Artificial Intelligence	*Mathematical Modeling & Viz*
Special Topics in Neural Networks	*AI-2* http://aima.cs.berkeley.edu/	*Numerical Analysis*
Computer Models of Cognitive Processes	Computer Inference&Knowledge Acquisition	*Human Computer Interaction(HCI)*
Mechanized Mathematical Inference *-(1/2)*	Design of Computer Problem Solvers	*Building Problem Solvers*

Programming 19+years	*Object-Orientated* 14+ years	*Rule-Based* 10+ years	**Libs:**Viz/HPC/Web-Services/ Database/Operating-Systems:
C (6+ years)	C++ (1+ years)	OPS5[Official Production System 5] JESS(1 yr), Prolog, GoldWorks(< 1 yr)	SGI's Graphics Language (*Open*GL) (3+ years)
FORTRAN (6+ years)	Smalltalk (~1 year)	CLIPS, Art*Enterprise (4+years)	PVM [Parallel-Virtual-Machine] (1+year)
Lisp (5+years of CL 10+years of others)	CLOS [Common-Lisp-Object-System]	ART-Enterprise (originally by Inference Corp.) (4+ years)	Tomcat/Axis SOAP, jsp; Semantics via Protege-OWL/SWRL/Jess
Scheme (~1 yr), CLIPS	COOL [CLIPS Object Orientated Language]	CLIPS [C Language Integrated Production System] (4+years)	MS-Jet/SQL, MySQL, PostgreSQL, ORDB-link &persistent-store
MUMPS (1/2 year), and various others.	Python (< 1year), Java (1+ year)	CLIPS&Jess are based upon ART all have fwd-chaining on CLOS objs	UNIX (18+ years), incl. Linux, OS-X Darwin (10+ years), NeXTSTEP, MS(NT/Win2k/XP) (8+ years)

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 Freelance: Mindbox/etc   Chicago, IL   *2/2001-9/2007*
- *Rule-based, Case-based, Machine-learning/Data-Mining, &most any Lisp work. Long-term computational-science (bio/chem/physics/bioinformatics), sim/AI background. Applied to a wide variety of problems. Will do the 'smarts' behind web selling, teaching, & many other applications. Research(science/AI/etc)programming, simulation, visualization,... Can take advanced/novel projects from idea to prototype to deployment. Part-time projects are just fine/preferred for maint.*
- Worked through http://www.mindbox.com 3/02-10/02. [used Art*Enterprise] See: "http://softdist.mindbox.com/pressreleases/Ocwen Mind Box.doc"
- Worked upto ½ time for http://cas.dis.anl.gov 5/03-5/04 [used Java Simulation]
- Worked full-time 8/03-~05 labs.gte.com, Model-Based-Diagnosis on a national scale. [Used Art *Enterprise] See: http://mike.bobak.googlepages.com/IAAI96-SSCFI.pdf
- Bioinformatics/control contract 11/04-12/05 [Used 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. [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 (Knowledge Based Systems Lab)   UIUC.edu   *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,
- 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 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.htm

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   Grad/etc work below:

- [Above done in Chicago and below in Urbana-Champaign](#)
- Wrote fielded Expert System by myself at the end of grad-school, for the EPA, through the Environmental-Assessment-Division (EAD). [in Lisp rule-shell then CLIPS]

Graduate Research Assistant /*Research Programmer* UIUC.edu   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 and head of Biophysics at the time.
- see: 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 measurments to back up predictions. (Team/Self; Local/US/World-wide)
- My work went into several published papers. See:
- http://adsabs.harvard.edu/cgi-bin/nph-bib_query?1987ASAJ...81..638J & 1987nce..conf..215R
  http://www.cecer.army.mil/td/tips/pub/details.cfm?PUBID=1452&TOP=1
- Early work went into GRASS: http://grass.itc.it/intro/general.php

Early summary:
- Started as a research-programmer in high-school, through both undergrad-degrees.
- Then a work-abroad, and work back home before starting grad-school.
- Crafted a Computational-Science degree, and went to Chicago for DOE work.

College Extracurricular Experience:	Professional Organizations:
Physics Society officer, (vp/etc) 3 years.	*AAAI (Association for the Advancement of Artificial Intelligence)*
Community Radio Station show, 2 years	IEEE (Institute of Electrical and Electronics Engineers)& Computer Society
Other groups and volunteering.	***http://www.linkedin.com/in/michaelbobak* for some e-groups**