# Michael Bobak  **Seeking creative computational problem-solving post**

**as** either a**: Knowledge-Engineer, Scientific/Research-Programmer**/Systems-Analyst/Architect, Scientist, Multi-disciplined Research/Software-Engineer**.**
**I solve problems using my varied background, I don't just program;  If all you have is a spec or something to be tended, I'm not interested.**
**I continue to further my 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 preconstructed 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.

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

## Programming Skills [19+ years]          *Object Orientated Languages:* [14+ years]          Libs: Viz/HPC/Web-Services/Database/Operating-Systems:

| | | |
|---|---|---|
| C (6+ years) | C++ (1+ years) | SGI's Graphics Language (*Open*GL) (3+ years) |
| FORTRAN (6+ years) | Smalltalk (~1 year) | PVM [Parallel-Virtual-Machine] (1+year) |
| Lisp (7+years of CL 10+years of others) | Python(< 1year), Java (1+ year) | Tomcat/Axis SOAP, jsp; Semantics via Protege-OWL/SWRL/Jess |
| Scheme (~1 yr) | CLOS [Common-Lisp-Object-System] | MS-Jet/SQL, MySQL, PostgreSQL, ORDB-link &persistent-store |
| CLIPS [C Language Integrated Production System] 4+ years  &it's COOL [CLIPS Object Orientated Language] | | UNIX (18+ years), incl. Linux, OS-X.Darwin  (10+ years), |
| [CLIPS is based upon ART]    ART-Enterprise (originally by Inference Corp.) (4+ years)   [both~have CLOS] | | NeXTSTEP, MS(NT/Win2k/XP) (8+ years) |

MUMPS (1/2 year), and various others.          *Rule-Based Programming Languages:* [10+ years]

OPS5 [Official Production System 5], JESS (1 yr), Prolog, GoldWorks(< 1 yr), CLIPS&Art*Enterprise 4+years, Knowledge-Machine 3+years

## College Course work related to Artificial Intelligence (AI):          College Extracurricular Experience:

| | | |
|---|---|---|
| Pattern Recognition & Machine Learning | Programming Language Principles | *Physics Society* officer, (vp/etc) 3 years. |
| Special Topics in Neural Networks | *Mathematical Modeling & Visualization* | *Community Radio Station show, 2 years* |
| Introduction to Artificial Intelligence | *Building Problem Solvers* | *Other groups and volunteering.* |

Mechanized Mathematical Inference *-(1/2 of)*     *Human Computer Interaction*(HCI)          ## Professional Organizations:
Computer Inference & Knowledge Acquisition Design of Computer Problem Solvers          AAAI  (Association for the Advancement of Artificial Intelligence) life-member
Computer Models of Cognitive Processes     *AI-2* http://aima.cs.berkeley.edu/          IEEE (Institute of Electrical and Electronics Engineers)& Computer Society  10yrs

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.  https://github.com/MBcode @MBstream

Contact:  bobak@computer.org  (415) 894-9724  2104 Bryant San-Francisco, CA 94110  http://mike.bobak.googlepages.com/  http://www.linkedin.com/in/michaelbobak (50 groups); meetup.com user 5734460

## Work Experience:

*Develop tech around a $P_{roof}O_f C_{oncept}$ for Patient DataMiningCluster patent application that I helped start at ucsf.edu   SF, CA        7/2011-12/2011*

*Architect – Adaptive Learning Platform                        ApollogGrp.edu      SanFrancisco, CA        10/2010-7/2011*
*Conceptually annotate study material & tests for automated remediation, instrument classroom to learn from use    Lisp/KM Hadoop*

*Programmar/Analyst III                                        University of California San-Francisco   9/2007-6/2010*
*Medical-Informatics research (relating to clinical-trails) in Lisp, including some Natural-Language-Processing; paper with Stanford group*

*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]; http://rctbank.ucsf.edu/ 08/07-[Lisp]

*(Senior) Research Programmer* (Knowledge Based Systems Lab)      University of  Illinois  Urbana-Champaign, IL          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
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 http://www.dis.anl.gov/DEEM/DIAS
http://mike.bobak.googlepages.com/bobak/diaswp.pdf  More recently I worked part-time for the new subgroup of dis: cas.dis.anl.gov.

Graduate Research Assistant /*Research Programmer*  University of Illinois    Urbana-Champaign, IL                        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  [National Center for Supercomputing Applications]NCSA,Uof IL,GIST   Urbana-Champaign, IL          4/1989-12/1989*
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]

*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* (Modeling then Acoustics teams) Construction Engineering Research Lab  Urbana-Champaign, IL          3/1982-8/1988
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.