Michael Bobak

Knowldge-Engineer, Scientific/Research-Programmer, Systems/Data/Information-Analyst/Architect, Scientist, Multi-disciplined RSE
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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)

Work Experience:

National Center for Supercomputing Applications, Sr Research Software Engineer, Urbana, IL 2019-present
Bringing my background to earthcube.org and other grants.
Focus on semantics/metadata search, with some NLP and sim.

AlohaHealthNet Sr Knowledge-Engineering 2017-present (remote)
Advising early stage startup built on the topic of my ucsf research.

Agrible/Nutrien Sr Software Engineer 2017-18 (Champaign Il)
Planned & guided reworking the main simulation, documentation, & ML/verification

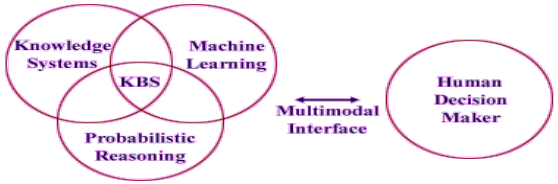
Freelance: Develop startup ideas, work on a Proof of Concept for Patient Data Mining Cluster patent application that I helped start at ucsf.edu, work on an assisted eco-sim/modeling environment in Lisp, and semantic-web (industrial) IoT advice. *SF, CA 7/2011-7/2018*

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

Programmar/Analyst III University of California San-Francisco 9/2007-6/2010 *http://rctbank.ucsf.edu/*
Medical-Informatics research(relating to clinical-trails) in Lisp/KM, Natural-Language-Processing in Java/etc; paper with Stanford group; ontology dev/use: http://rctbank.ucsf.edu/home/ergo ..

Knowledge Engineer *Freelance Consultant* *Chicago, IL 2/2001-9/2007* *Rule-based,Case-based,Machine-learning/Data-Mining, &any Lisp work.*

http://mindbox.com/ 3/02-10/02. [used Art*Enterprise] See: Ocwen_Mindbox Worked upto ½ 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: http://www.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]* 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) 6/1998-2/2001
University of Illinois Urbana-Champaign, IL 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

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). [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* *QualitativeReasoningGroup* *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 HLAsim 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 IllinoisUrbana-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, 4/1989-12/1989*
Suggested scientific software path for *SoftwareToolsGroup* of NCSA; Wrote molecular viz code@uiuc. Wrote testing code for GlobalInfoSystemsTech. [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) 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. 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 GRASS: http://grass.fbk.eu/

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.

Programming Skills [19+ yrs]	*Object Orientated* [14+ yr]	Libs:	Databases:	Operating-Systems:
C (6+ years) FORTRAN (6+ yrs)	Smalltalk (~1 yr) C++ (1+ yr)	Viz: *Open*GL(3+ yrs)	MS-Jet/SQL, MySQL,PostgreSQL	NeXTSTEP, MS(NT..XP) (8+ yrs)
Scheme (~1 yr) MUMPS (1/2yr)..	Python(< 1yr), Java (1+ yr)	HPC: PVM (1+yr)	ORDB noSQL:mongo/redis	UNIX (18+ yrs), incl.GNULinux
Lisp (7+yrs of CL 10+yrs of others)	CLOS [CL -Object-System]	WS:Tomcat/Axis SOAP/REST	Graph&triple persistance	OS-X.Darwin(10+ years)

Rule-Based Languages, KnRep&Reasoning: [10+ years]:
OPS5[OfficialProductionSystem5], Prolog, GoldWorks(< 1 yr), CLIPS(4+yrs),ART-Enterprise(4+yrs), Knowledge-Machine(3+yrs), JESS(1 yr), Protege(6+yrs)

College Course work related to Artificial Intelligence (AI):		**Recent Training:**	
Pattern Recognition & Machine Learning	Programming Language Principles	**Coursera:**	**Other:**
Special Topics in Neural Networks	*Mathematical Modeling & Visualization*	Data analysis	Semantic Web
Introduction to Artificial Intelligence	*Building Problem Solvers*	*Web intelligence (with distinction)*	*Design Thinking*
Mechanized Mathematical Inference *-(1/2 of)*	*Human Computer Interaction*(HCI)	*Data Science (with distinction)* *Knowledge Engineering*	
ComputerInference&KnowledgeAcquisition	*Design of Computer Problem Solvers*	*Machine Learning (with distinction)*	*other research as needed*
Computer Models of Cognitive Processes	*AI-2* http://aima.cs.berkeley.edu/	Discrete Optimization (audit)	incl several archived classes
(College)Extracurricular:	*Several groups incl:*	***Professional Organizations:***	
Physics Society officer, (vp/etc) 3yrs	*Community Radio Station show, 2 yrs*	*AAAI (Association for the Advancement of Artificial Intelligence) life-member.*	
Meetings: micro-blog:	Code portfolio:	IEEE (Institute of Electrical and Electronics Engineers)& Computer Society 10yrs	
meetup.com user:*5734460* *twitter: @Mbstream*	https://github.com/MBcode	http://www.linkedin.com/in/michaelbobak (50 groups)	

Artificial Intelligence/Modeling & Simulation techniques; 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.
Plusses: dynamic(event/data-driven)language/environments. Having a Lisp(like)language, use of AItechniques&a science/fun domain

Contact: mike.bobak@gmail.com, linkedin.com/in/michaelbobak, @MBstream, github.com/MBcode