Michael Bobak Knowledge Engineer / Research Programmer

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github.com/Mbcode, @Mbstream **meetup.com/members/5734460**

Research Programming starting with (bio)physical simulation/viz, adding AI study and years of Knowledge-Engineering (edu/gov/com) work. Experience with Knowledge-Based aids for process improvement to teaching(Intl.Tutoring). AI skills include: Knowledge-Representation and Reasoning, Rules, Knowledge-Acquisition, NLP, ML, ...

Work Experience

Freelance Consultant
July 2011-Present, San Francisco, CA

- IDEO systems integration issues that could be aided by Knowledge-Graph for Info refine/cleanup.
- Siemens Web of Things research group on use of SemWeb+IoT for adaptable manufacturing.
- Advised with a variety of start-ups in understanding AI tech, including:
  - Fashion start-up that would track unstructured blog info to surface trends
  - Sports startup http://thewhytehousegroup.com/ needed dbpedia search ability
  - Chatbot in work context
- Developed ideas to take my UCSF research and fuse it with the Patient Data Mining Cluster from head of research computing and a PhD student, that has been submitted as for patent application.
- Worked with Danielle Schlosser at UCSF in Psychology Department to understand how to apply NLP and graph relation insights into her current app Prime, designed for schizophrenic young adults, with application to depression management as well.
- Continued to build skills around ML, Semantic-Web/Linked-Data, Knowledge-Engineering:

- Coursera: Data analysis	- openHPI: Semantic Web
- Web intelligence (with distinction)	- Knowledge Engineering
- Data Science (with distinction)	- Kn Eng w/Semantic Web technology
- Machine Learning (with distinction)	- LinkedDataEng ...
- Discrete Optimization (audit)	- Stanford: Design Thinking

Apollo Education Group, Architect, Adaptive Learning Platform
Oct 2010 - Jul 2011, San Francisco, CA
Conceptually annotate study material and tests for automated remediation, instrument classroom to learn from use [Hadoop, Lisp, KM]

UCSF Programmer/Analyst III
Sept 2007-Oct 2010, San Francisco, CA
Medical-Informatics research (relating to clinical-trials) in Lisp/KM, and Natural Language Processing in Java; paper with Stanford group; ontology dev/use [Lisp, KM, ..]

Freelance Knowledge Engineer/ Research-Programmer
Feb 2001 - Sept 2007, Chicago and Boston

mindbox.com 3/02-10/02. [used Art*Enterprise] See: Ocwen_Mindbox Worked up to half-time for 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], Machine Learning speedup for financial-scientific [Lisp]

Knowledge Based Systems Lab, Senior Research Programmer
Jun 1998-Feb 2001, Urbana, IL
Organize many levels of a very large knowledge based simulation projects. Brought over 18 programmers together to deliver a coherent product. Ran weekly 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 www.dwilkins.org/members.htm

Brightware, Knowledge Engineer
Oct 1996-Jun 1998, Chicago, IL
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: www.brightware.com/eservice_solutions/ & later 1/2year for the new version of the company: Mindbox.

Institute of Learning Sciences, Lead Programmer/Analyst
Feb 1996-Aug 1996, Evanston, IL
Wrote Lisp code (mainly GUI) for Qualitative Research Group. Learned more about Qualitative/Quantitative Simulation, Model-Based Reasoning, Intelligent-Tutoring-Systems, and general Lisp programming.
See: www.qrg.northwestern.edu/projects/NSF/Cyclepad/aboutcp.htm

Argonne National Lab (EAD and DIS groups), Software Engineer
Feb 1993-Feb 1996, Argonne, IL
Wrote fielded Expert System by myself at the end of grad-school. [in Lisp rule-shell then CLIPS] Prototyped communication and 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: www.dis.anl.gov/DEEM HLAsim www.dis.anl.gov/DEEM/DIAS mike.bobak.googlepages.com/diaswp.pdf
Later some work for new subgroup of dis: cas.dis.anl.gov.

Education

University of Illinois, Urbana-Champaign
MS Biophysics & Computational Biology with AI, 1990-93 / **Research Assistant / Research Programmer**
BS Physics, BS Biophysics, 1983-88, dept. distinction / **Research Programmer** (½ time with allied lab)

Professional Organizations

AAAI (Association for the Advancement of Artificial Intelligence) life-member.
IEEE (Institute of Electrical and Electronics Engineers)& Computer Society 10yrs

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]	*Rule-Based Languages, KnRep&Reasoning:* [10+ years]:
C (6+ yrs) FORTRAN (6+ yrs)	Smalltalk (~1 yr) C++ (1+ yr)	OPS5[OfficialProductionSystem5],Prolog,GoldWorks(< 1 yr)
Scheme (~1 yr) MUMPS (1/2yr)..	Python(< 1yr), Java (1+ yr)	JESS(1 yr), CLIPS(4+yrs), ART-Enterprise(4+yrs)
Lisp (7+yrs CL 10+yrs others)	CLOS [CL -Object-System]	Knowledge-Machine(3+yrs), Protege(6+yrs)

Started with most languages early/about when they came out, but if I had better alternatives just used and modified that code vs. starting larger projects with it.

Libs:	Databases:	Operating-Systems:
Viz: *Open*GL(3+ yrs)	MS-Jet/SQL, MySQL,PostgreSQL	NeXTSTEP, MS(NT..XP..) (8+ yrs)
HPC: PVM (1+yr)	ORDB noSQL:mongo/redis	UNIX (18+ yrs), incl.GNULinux
WS:Tomcat/Axis SOAP/REST	Graph&triple persistance	OS-X.Darwin(10+ years)

List of graduate Programming/Artificial-Intelligence course-work:

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

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.

College Course work related to	**Artificial Intelligence (AI):**	**Recent Training:**
Pattern Recognition & Machine Learning	Programming Language Principles	**Coursera:** **Data analysis** **Other:** ***Design Thinking***
Special Topics in Neural Networks	*Mathematical Modeling* & *Visualization*	*Web intelligence (with distinction)* Semantic Web, LinkedDataEng
Introduction to Artificial Intelligence	*Building Problem Solvers*	*Data Science (with distinction)* *Knowledge Engineering*
Mechanized Mathematical Inference *-(1/2 of)*	*Human Computer Interaction*(HCI)	*Machine Learning (with distinction)* *Knowledge Engineering w/*
Computer Inference&Knowledge Acquisition	*Design of Computer Problem Solvers*	*Intro to NLP (audit)* *Semantic Web technology*
Computer Models of Cognitive Processes	*AI-2* http://aima.cs.berkeley.edu/	Discrete Optimization (audit) & several archived classes for skimming
(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)& Compute Society 10yrs
meetup.com user:*5734460* *twitter: @Mbstream*	https://github.com/MBcode	http://www.linkedin.com/in/michaelbobak (50 groups)