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| **Michael Bobak** | <http://mike.bobak.googlepages.com/> | **(415) 894-9724** | bobak@computer.org |

Research-Programmer / Knowledge-Engineer with a ~50/50 research/consumer split in experience.

My expertise is in (knowledge-based) Modeling and Simulation and Artificial-Intelligence, 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 and knowledge-engineer. I look forward to stimulating peer interaction on challenging projects (e.g. building an assisted problem-solving/knowledge-management environment for your domain). I particularly want to extend my Knowledge Representation and Reasoning skills. Seeking position (as a creative computational problem-solver), also incl. Systems-Analyst/Architect, Software-Engineer

**University of Illinois Urbana-Champaign**

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| **M.S. Biophysics & Computational Biology** **with focus in Artificial-Intelligence** | *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) coursework**

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| 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, Math Modeling Viz, etc. |

**Languages 19+years**

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| **Rule-Based 10+** | [CLIPS](http://github.com/MBcode/CLIPSmsc), Art\*Enterprise (4+years ), JESS(1 yr), GoldWorks(< 1 yr), OPS5[OfficialProductionSystem 5], [KM](http://www.cs.utexas.edu/~mfkb/km/)(3yrs), Prolog, etc |
| **OOP 14+** | CLOS [Common-Lisp-Objet-System], COOL [CLIPS ObjOrientLang], Smalltalk (~1 year), Java (1+yr), C++ (1+ years) |
| **Other** | [Lisp](http://github.com/MBcode/LispUtils) (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)l, lisp-like RuleBased(shells), flexible Knowledge-Representation& Reasoning. |

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| **Viz/HPC/Cloud** | SGI's Graphics Language (OpenGL) (3+ years) , PVM [Parallel-Virtual-Machine ] (1+year), Hadoop (<1year) |
| **Web-Services** | Tomcat/Axis SOAP, REST, w/json; Semantics via Protege-OWL/SWRL/Jess |
| **Databases** | MS-Jet/SQL, MySQL, PostgreSQL, ORDB-links and persistent-stores, incl. Graph/Triple-stores. |
| **OS** | UNIX (18+ years), incl. Linux, OS-X Darwin (10+ years), NeXTSTEP, MS(NT/Win2k/XP) (8+ years) |
| **Focus** | Knowledge-(Representation/Reasoning/Management) 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 and data, in a goal-based/combinatorially novel way.  |

**Professional Organizations:**

* [AAAI](http://www.aaai.org/home.html)(Association for the Advancement of Artificial Intelligence) - life-member
* [IEEE](http://www.computer.org/) (Institute of Electrical and Electronics Engineers) and Computer Society - 10 years
* <http://www.linkedin.com/in/michaelbobak> **-** 50 groups

**Work Experience:**

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| Architect – Adaptive Learning Platform  | [Apollo Group](http://www.google.com/url?q=http%3A%2F%2Fen.wikipedia.org%2Fwiki%2FApollo_Group&sa=D&sntz=1&usg=AFQjCNHqbd5yGiTGaEQkous68vAjaSSwVw), San-Francisco CA  | 10/2010-present |

* Represent state of student knowledge so can adaptively alter student experience. Lisp /KM

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| Programmer/Analyst III | University of California San-Francisco | 9/2007-10/2010 |

* Medical-Informatics research (relating to clinical-trails) in Lisp /KM.
* including Natural-Language-Processing and conceptual-annotation for search
* development of [two](http://code.google.com/p/ontology-of-clinical-research/) related ontologies
* <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>[\_](http://web.archive.org/web/20080312204846/http%3A//rctbank.ucsf.edu/)

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| Knowledge Engineer Consultant |  Chicago/Boston/NY/SF | 2/2001-9/2007 |

* <http://www.mindbox.com/NewsEvents/PressReleases/21OCT2002.pdf> [Art\*Enterprise] 3/02-10/02
* [http://cas.dis.anl.gov](http://cas.dis.anl.gov/) up to 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] Protégé and Lisp
* Hospital Informatics/Machine-Learning ghx.com 02/07-05/07-[Lisp], MachineLearning speedup for financial-scientific [Lisp]

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| Senior Research Programmer ([Kn-Based Systems Lab](http://www.dwilkins.org/members.htm)) | University of Illinois at 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>

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

* Worked between development and consulting, to help develop and install their very first product (Intelligent email reply).
* 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.

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

* Wrote Lisp code (mainly GUI) for Qualitative Research Group. <http://www.qrg.northwestern.edu/projects/NSF/cyclepad/aboutcp.html>
* Qualitative/Quantitative Simulation, Model-Based Reasoning, Intelligent-Tutoring-Systems, and general Lisp programming.

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

* 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. Other work as needed. Algo/Viz/Etc. Written up in a book about innovative distributed object application. Also used C++/Smalltalk/FORTRAN with PVM
* See: <http://www.dis.anl.gov/DEEM> /[DIAS](http://www.dis.anl.gov/DEEM/DIAS) [diaswp.pdf](http://mike.bobak.googlepages.com/bobak/diaswp.pdf)\_ later for [http://cas.dis.anl.gov](http://cas.dis.anl.gov/)
* Wrote fielded Expert System by myself at the end of grad-school, for the EPA, ([EAD](http://www.ead.anl.gov/)). [in Lisp rule-shell then CLIPS]

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| Graduate Research Assistant/ Research Programmer | University of Illinois at 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 and head of Biophysics <http://web.bilkent.edu.tr/ncsa/Apps/CBdir.html>

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| Programmer/Consultant NCSA /GIST | University of Illinois at Urbana-Champaign | 4/1989-12/1989 |

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

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| 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]

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| Research Programmer Construction Engineering Research Lab, | University of Illinois at Urbana-Champaign | 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> & help with others.
* Early work went into GRASS: <http://grass.itc.it/intro/general.php>