| **Michael Bobak** | http://mike.bobak.googlepages.com/ | **(415) 894-9724** | bobak@computer.org |
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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 & Reasoning skills. Seeking position (as a creative computational problem-solver), Research-Programmer, Knowledge-Engineer 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+ KnRep&Reasoning** | CLIPS, Art*Enterprise (4+years ), JESS(1 yr), GoldWorks(< 1 yr), OPS5[OfficialProductionSystem 5], KnowledgeMachine(3yrs), Prolog; Protege(KnAcquisition) |
| **OOP 14+** | CLOS [Common-Lisp-Objet-System], COOL [CLIPS ObjOrientLang], Smalltalk (~1 year), Java (1+yr), C++ (1+ years) |
| **Other** | Lisp (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, novel way. |

**Professional Organizations:**

- AAAI (Association for the Advancement of Artificial Intelligence) - life-member
- IEEE (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, San-Francisco CA | 10/2010-present |

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

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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 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 _

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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 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) | 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 diaswp.pdf later for http://cas.dis.anl.gov
- Wrote fielded Expert System by myself at the end of grad-school, for the EPA, (EAD). [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