Michael Bobak

Champaign, IL 61820 & Chicago, IL 60615 • mbcode.github.io • mike.bobak@gmail.com

Computational problem solver with decades of Research-Programming/Knowledge-Engineering, AI/Knowledge-Based Modeling & Simulation aids for process improvement to teaching, around physical science research at first then to a much broader set of problems where I brought years of AI study to bear.

Experience

2018 - Present
Sr AI Research Engineer alohahealth.net
- Part of a startup built on the topic of my UCSF research. Semantic search for clinical trials. [graph store/s]

2019 - 2023
Sr Research Software Engineer isda.ncsa.uiuc.edu/~mbobak
- All the PoCs for earthcube.org/geocodes incl. organizing others to bring in a great NSF review
- Focus on semantics/metadata search, with some NLP and sim. [Python/SPARQL…]

2018 - 2019
Sr Engineer, Natural Systems nutrienagsolutions.com/agrible prepared them for the acquisition
- Ag-informatics/sim/... Planned and guided reworking the main simulation, documentation and ML/verification [Python]

2011 - 2018
Consultant, freelance: allotrop.org ideo.com siemens.com …
- Ontologist, aligning bio/pharma ontologies to BFO to annotate masses of data in HDF5 files, osthus.com work for allotrope.org
- Worked with IDEO on their systems integration / information refinement and cleanup
- Worked with the Siemens Web of Things research group on use of Semantic-Web+IoT for adaptable manufacturing
- Advised start-ups in AI: fashion blog to trends, sport dbpedia.org info, work chatbot
- Developed ideas to take my UCSF research to Patient Data Mining Cluster, via patent application
- Looked at UCSF in Psychology Department's PRIME mental health app could benefit from NLP insights
  - Coursera: Data Analysis, Data Science (with distinction), Machine Learning (with distinction), Discrete Optimization (audit)
  - openHPI: Semantic Web, Knowledge Engineering, Knowledge-Engineering w/Semantic Web technology, Linked-Data-Engineering
  - Stanford: Design Thinking

2010 - 2011
Architect, Adaptive Learning Platform ApolloGrp.edu
- Conceptually annotated study material and tests for automated remediation, instrumented classroom to learn from use [Hadoop]

2007 - 2010
Programmer/Analyst III ucsf.edu
- Medical-Informatics research (relating to clinical-trails) in Lisp/KM, and Natural-Language-Processing in Java/etc.;
- paper with Stanford group; ontology dev/use [Lisp, KM, ..]

2001 - 2007
Consultant, freelance: mindbox.com, Verizon.com, lbl.gov, ghx.com, cme.com
- 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: 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 on proposal

- 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]

1998 - 2001
Research-Programmer kbs.ai.uiuc.edu
- Organized 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, overall direction 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

1996 - 1998
Knowledge-Engineer brightware.com
- Helped develop and install their very first product (Intelligent email reply). Worked between development and consulting. Worked on several deployed Knowledge-Based business applications (i.e. financial: mortgage, web-based job finder).
[Art*Enterprise]See: http://www.brightware.com/eservice_solutions/
More recently I worked ½ year for the new version of the company: Mindbox.

1996
Lead Programmer/Analyst Institute for Learning Sciences
- 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

1993 - 1996
Software-Engineer anl.gov
- EAD then DIS groups: Wrote fielded Expert System by myself at the end of grad-school. [in Lisp rule-shell then CLIPS]
- Wrote agent-based, data-driven, goal directed control of distributed simulation by wrapping the sim/tools in a rule shell, and allowing for mixing & matching of parts, and setup, as the need arose [C++/Smalltalk/FORTRAN wrapped w/CLIPS &com via 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 diaswp.pdf
_More recently I worked part-time for the new subgroup of dis: cas.dis.anl.gov.

1988 - 1989
Programmer/Consultant: Shearson Lehman Hutton, GIST, NCSA/uiuc.edu,
- Between degrees, did a work abroad in a stock brokerage in London, came back to get a C testing position, a contract with NCSA to see what to do after it's early browser & other tools, and a molecular viz job that turned into my assistantship.

Education

October 1993
MS Biophysics & Computational Biology, with focus in AI
University of Illinois, Urbana-Champaign
Thesis: Molecular Simulation with Expert Rules (in OPS5/Lisp/C)

May 1988
B.S. Physics and B.S. Biophysics with departmental distinction, while a published half-time research programmer
University of Illinois, Urbana-Champaign