

DANIEL W. CORWIN

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Creative Software Architect seeks design challenges in Java. Recent work has focused on semantic search applications for medical vocabulary. Longer-term specialties are custom interpretive languages, group web sites, natural language understanding, advanced modeling, O-O design, product R&D teams.

Computers: Java 2, servlets & JSP, Common Lisp, Scheme, C, Javascript; JSTL/XSLT, CSS, SQL, XTM, RDF, OWL; Eclipse 3.4, Subversion, Windows PCs; Tomcat; basic Unix; several scripting languages, *Conceptual Graphs*. I invented the Wang "Glossary" (WP key macros), self-annotating URL IDs, *Idealized-English* ontologies and a *Words* interpreter of text content.

Education: Massachusetts Institute of Technology -- Cambridge, Massachusetts
Mechanical Engineering (Dynamic Systems Analysis and Modeling): MS & BS
Artificial Intelligence (Vision systems, NLP/NLU, learning paradigms) Most of PhD work

Senior R&D Engineer, Mass. General Hospital, Imaging Dept, Boston, MA August 2008 - present

Added semantic and full text indexing technology to the embryonic QPID search engine for clinical patient records, boosting its speed, modularity, accuracy. Recoded key Java classes to ignore hits near "negation" or "family" terms; fix all known highlighting bugs; help QA queries. Devised code-modeling and query-library tests to suggest new improvements in engine speed.

Created *Vocabulary* JSPs to author and upload libraries of "synonym-sets" and "saved-query" sets, each custom tailored to web apps searching inpatient/outpatient charts or appointment schedules for special clinical conditions in (textual) reports. Designed and built QA tools to compare recall and precision for libraries too accurate to be measured by less rigorous means.

Designed a distribution and user-community web app to help groups generate licensed QPID search apps in volume and exchange search libraries with other QPID users. Proposed technology to let English dialog queries in HITSP vocabularies find and query the most applicable libraries.

Software Architect, Lexikos Corporation, Boston, MA & Portland, ME April 2000 – July 2008

Built custom Java web service components for site navigation, content management, collaboration, and decision support, and gradually refocused the Lexikos suite of NLP tools toward medical search engines that extended our large general lexicons with free UMLS domain lexicons.

As contract developer with Jarg Corporation, built a multimode *Agency* search engine, for which I continue to act as VAR. *Agency* handles semantic queries and alerts for PubMed abstracts but was designed to query social groupware web sites or any related English biomedical texts and exploits Lexikos technology for high accuracy text analysis tools for natural language processing.

Prototyped a web app for Boston MedFlight letting EMTs build patient care records using limited in-flight voice commands; vital signs sensors; and history-guided data entry. It ran on tablet PCs under Tomcat using a colleague's C# GUI. It was designed to organize and validate inputs into a treatment timeline, then emit them in HL7 formats to hospital and billing systems.

Maine projects included a one-to-one e-commerce portal using JSP templates and tags (my own framework), which won a Maine State grant for groupware. For Bowdoin College, built an applet-servlet web app to plot uploaded CSV data files. For Idealswork: sped up stock-evaluation code 1,000:1. For CreditSights of NYC, wrote a topic-map ontology about bond-rating to guide analysts and site navigation.

For exposure, I contributed to standards on coding tools, worked with BioPAX and W3C's HCLS group. Also co-founded Maine's Java Users Group, and taught Web Design at Andover College.

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Internet Media Developer, Addison Wesley Longman, Reading, MA

October 1997 - March 2000

Redesigned AWL's Open Market web site for the Professional Reference division, porting a script-based catalog to Java as a "softgood". It enabled customer-specific, off-line, and/or special-purpose versions as divisional marketing aids. Advised CIO and internal clients on distance-learning infrastructure; softgood security & servers; marketing-data Q/A tools. Devised extranet site for major sales partners which reported to each user changes in AWL offerings since his/her last visit.

Consultant/Software Architect, LinkCo, Boston, MA

April 1997 - July 1997

Design contract: a high-volume, extranet application to turn paper Japanese business reports into English on-line databases. Using self-expanding bilingual lexicons, a web server built task-specific HTML "kits" with applets for data entry, translation & QA; then "contracted" the kits to world-wide translators.

Sr. Analyst, New England Circuit Exchange, Peabody, MA

Feb 1996 - Mar 1997

Led a small R&D group seeking to improve NECX's on-line computer products store. Built its first intranet around "web news". Reported on four Netscape/Sun conferences to advise management on emerging web standards.

Sr. Software Developer, Information Access Co., Medford, MA

Apr 1995 - Dec 1995

Designed strategic toolkit utilities for Hoover, the news and business-text retrieval product of Sandpoint (a smaller recent IAC acquisition), combining components in Notes, Rexx, and Hoover.

Consultant/R&D Manager at HyTex, Inc., Beverly, MA

Jan 1991 - Mar 1995

- On-site at Lotus, (Cambridge), finished and improved a partial design for the WP editor sold in LotusWorks 2.0; rapidly coded it in C, under Lotus' Windows-like GUI.
- For Palette Systems (Nashua NH), designed file-mapping code to let Word Perfect 5.1 be the editor for Palette's own CAM data files.
- On-site at MicroScript (Danvers MA), expanded for Windows their sole product, a TSR toolkit for scripting, screen-scraping, which made them a successful software company.

Founder/Architect at Lexikos Corporation, Andover, MA

July 1986 - Nov 1990

- As President/Manager, founded and led a linguistics-oriented software start-up to complete my Ph.D thesis work. Raised \$850,000 via five contracts (DOD, GE, ADS) and led six developers, marketing, G&A on world-class utilities, ontology, grammar and lexicons to analyze English text. (50%)
- As Architect, I created multi-layered Lisp software able to efficiently parse written English. The core data was 8,000 roots and all inflections, extensively hand-modeled by computational linguists. Separately added Marcus parser under USAF funding, adding grammar-guided backtracking, logic to resolve topics and anaphora, and case-frame semantics per my pre-Wang NLP doctoral thesis work. (50%)

Principal Eng./Dept. Mgr/Architect at Wang Labs, Lowell, MA

May 1975 - July 1986

- Wrote core logic for Wang's original 16Kb WP editor, including menus, in PL/M and 8080. Two patents on Glossary (keyboard macros). Led 10 coders in expanding/moving WP for OIS & VS systems. Advised on all later Wang WP aids, and led their 400-person Office Automation division as its Software Architect.
- Proposed and led R&D on "Proofreader," a first-of-its-kind syntax corrector for draft WP text meant to check/repair grammar, spelling, style. Expanded (Scheme-based) prototypes into the "Author Aids" product line, adding on-line reference works. Managed early R&D on it, obtaining bulk lexical data for all the products by sponsoring and justifying a \$5M Dictronics (company) acquisition.
- Led Directed Research Group, seeking new ways to automate offices via workflow software and AI methods. Monitored a floating team of up to 12 prototype designers; devised a WP-based ORB to integrate Wang's three host-dependent software divisions.