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OBJECTIVE: A position with opportunity to apply my expertise in natural language processing to real world problems. Managing project teams; designing and developing computer programs that contribute to a technology base; working with and analyzing client applications; writing proposals; pursuing advanced research.

EXPERIENCE:

More than twenty five years experience in computational linguistics and artificial intelligence research and development. Internationally recognized leader in natural language generation. Innovator in techniques for robust semantic parsing and the representation of information. Well-versed in dialog systems, text-to-speech, knowledge-based systems, object-oriented programming, linguistic theory. Programming languages/systems: Java, Lisp, C, Perl, html, XML cl-http; Unix, NT, Mac, i18n. More than sixty refereed publications.

EDUCATION: 1980 Ph.D. Massachusetts Institute of Technology (MIT),
Artificial Intelligence (minor in neuroscience)
1976 M.S. MIT, Electrical Engineering and Computer Science
1972 B.S. MIT, Linguistics and Computer Science

April 2003 — Character Architect, Zoesis Studios

Conceived, prototyped, and implemented a language generation system with novel capabilities for variation, complex natural dialog, and coordination with the emotion and affect of the interactive character it is speaking for. Conceived and specified a novel language understanding system that uses the same linguistic resources as the generator. The NLP systems are integrated via a knowledge representation system of my design with special features for NLP.

April 2001 — March 2003 Principal Technical Staff
Mitsubishi Electric Research Laboratories, CSL

Designed and implemented event-driven architecture for spoken dialog systems integrating speech recognition engines (ASR), dialog management using Collagen, and text-to-speech (TTS) in framework that facilitated easily changing choice of ASR, TTS engines. Evaluated alternative TTS systems, judging relative intelligibility and prosody. Conceived and developed facility for taking XML descriptions of web forms with their semantic types and automatically creating ASR grammars (for SpeechWorks' Speech2Go) and dialog task models. Developed tool for plug-and-play Java systems based on Java Beans using reflection. Contributed to development of speech-enabled demonstration applications (TiVo, form filling) as member of speech and Collagen groups. Created a package for flexible word-level text analysis to feed ASR language model and latent semantic analysis engine.

September 1996 — January 2001 Senior Software Developer, Gensym Corporation

Designed and implemented Java-based client-side grammar-directed editor. Responsible for internationalization including Unicode, Asian fonts, and character encodings. Responsible for encryption facilities for client and server authorization and security and associated customer issues. Handled bug fixes and customer issues anywhere within massive Lisp-based legacy code for the G2 product.

September 1989 – September 1996

Independent Consultant

Conceived and implemented a robust and efficient system for extracting targeted information from unrestricted English news articles from online information services. Developed high-performance parsers, grammars and semantic models. Prepared application interfaces of the system for clients doing document categorization and doing information extraction to populate databases with relations identified in newspaper texts. Developed a partial parser for term identification in technical texts. Developed a text generation system for rendering event descriptions in data-bases into fluent English. Clients have included Coopers & Lybrand, Bolt Beranek & Newman, Digital Equipment Corp, General Electric, Sandia National Laboratories, and Apple.

December 1993 – Senior Research Associate, Computer Science, Brandeis University

Adjunct position for collaboration on basic research into the compositional semantics of natural language and bi-directional language processing. Developing techniques for language parsing that do not require all semantic patterns to be created in advance. Developed web-based system for viewing students' transcripts and progress towards meeting University requirements. Lecturer: Artificial Intelligence (fall 1994), Computer Hardware (fall 1995-1996).

May 1988 to September 1989 Senior Scientist: MAD Intelligent Systems

Developed an integrated system of techniques permitting the analysis of unrestricted English text: application to person/company/title sublanguage in the Wall Street Journal. Extensive product and development planning. Advised higher management on technical feasibility and time-lines.

February 1981 to May 1988 co-Founder, Consultant: Brattle Research Corporation

Reviewed and critiqued system designs, product and marketing plans. Acted as the go-between for management and technical staff. Presentations to clients and potential investors. Carried out due-diligence evaluations. Conceived and prototyped innovative designs for semantic grammar parsing and analysis. Prepared multi-client study on hardware and software technologies for AI and for the state of the art in natural language processing.

September 1980 to August 1987 Assistant Professor: Department of Computer & Information Science, University of Massachusetts at Amherst

Directed seven students through to their Ph.D.'s with topics in generation, ICAI tutoring, planning, design environments, distributed operating systems, and decision support systems.

Taught courses in AI, vision robotics and brain theory, natural language processing, language generation, common-sense reasoning, Lisp, AI-system design, and assembly language. Chaired the faculty committee for computing resources: planning long-range requirements and overseeing equipment purchases.

Total grant awards on own proposals: \$474,000, as part of collaborative proposals: \$3,889,700. Led a team of six graduate students in DARPA-sponsored research on generation 1986-87. Primary leader of two teams with an average of 15 students and two post-doc's in natural language processing and temporal reasoning 1984-86.

January 1982 to November 1983 Consultant: Atari Inc, Corporate Research Lab.

Member of the "Encyclopedia Project", a long-range research and development program to render the information in encyclopedias (Britannica) and similar sources into a form that intelligent systems can manipulate and dynamically re-present according to a user's needs and interests. Designed facilities for extracting information directly from the text and regenerating it in coordination with video presentations.

June 1971 to August 1980 Research Assistant: MIT Artificial Intelligence Laboratory.

Conceived, designed, and implemented the natural language generation system “Mumble”, subsequently carrying it through fourteen years of evolution. Wrote systems for program cross-indexing, Lisp dialect translation, and customized entry to databases. Redesigned Winograd's English grammar for SHRDLU. Research into psycholinguistic models of generation, story understanding, data-directed control.

Summer employment: 1976 Kurzweil Computer Products: designed and implemented memory test software. 1977 Film Research Associates: feasibility study on the dynamic assembly of new short films from clips taken from old movies (Bogart films), application to video games. 1978 Higher Order Software: wrote automatic flowcharting software. 1979 Bolt Beranek & Newman: applied Mumble to various BBN projects. As an undergraduate: 1968 Container Corp. of America; 1969-70 Phoenix Steel Corp.