

David Ray

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INFORMATION web: <http://darevay.com>

PROFESSIONAL **NovoDynamics, Inc.**, Ann Arbor, Michigan
EXPERIENCE *Software Engineer*

January 2011 – Present

Intelligent document recognition and optical character recognition system. Worked with small team designing, implementing, verifying and optimizing document recognition algorithm. Designed and implemented end-user API. Worked extensively on design and implementation of training user interface, particularly background processing and caching strategies essential for a responsive UI. (Java, C++, Python)

Soar Technology, Ann Arbor, Michigan

Senior Software Engineer

October 2001 – December 2010

Weaver – Lead engineer designing and implementing SOA-based system for generating role-relevant visualizations for naval warfighters. Responsible for identifying requirements with project lead and customer, specifying and communicating interfaces with external contractors, and guiding implementation by a small team of developers. (JBoss, JAX-RS, CouchDB, JavaScript (server and client-side), SVG, GWT)

HLSR – Designed and implemented compiler and code generator for high-level behavior representation language. Code generation pipeline targeted both Soar and ACT-R cognitive architectures. Also implemented Eclipse-based editor and debugger for HLSR (Java, ANTLR, Eclipse API)

SoarSpeak – Extensible speech system for intelligent agents. Pluggable architecture supports multiple off-the-shelf speech-to-text and text-to-speech engines as well as distributed network protocols including HLA and DIS. Novel grammar specification component generates recognition grammars and processes utterances for agent reasoning. (C++, MFC)

Numerous AI research systems – Integration of Soar behavior models into military simulations, development of various domain-specific languages, significant internal tool development in a variety of languages and environments.

Various Tools

- **Sim Jr** – Lightweight tactical simulation environment used extensively for agent technology demonstrations and prototypes. (Java, JavaScript, OSGi)
- **ATE** – Extensible agent integration and testing framework. (C++, Python, Java)
- **Soar IDE** – Eclipse-based integrated development environment for Soar language. (Java, Eclipse/OSGi).

ERIM International, Ann Arbor, Michigan

Research Scientist

January 1998 – October 2001

AATA RICWS – Linux-based data collection system to aid Rear-Impact Collision Warning System algorithm development. Collected GPS, video, various bus parameters, and laser radar range data. (C/C++)

CLOVerS – Inter-process communication and networking subsystem for Low-Observable radar signature verification system. (Common Lisp, C++, VB)

Commercially Based Tactical Truck (COMBATT) – In-vehicle control and navigation package for a high-mobility concept vehicle for the US Army. Implemented Controller Area Network (CAN) device driver and SAE J1939 protocol stack for Linux along with X Windows-based UI. (C/C++, Java)

TECHNICAL
SKILLS

Has built non-trivial systems in Java, Clojure, Ruby, JavaScript, C/C++, Python, and Tcl.

Also familiar with Scala, Soar

Tools: SVN, Mercurial, Git, Maven, ANT, Vim, Eclipse, Microsoft Visual Studio

PUBLIC
SPEAKING

Clojure/West 2012, March 2012, San Jose, CA.

Great Lakes Functional Programming Conference, May 2012, Ann Arbor, MI

PERSONAL
PROJECTS

Seesaw – Developer and maintainer of Swing-based user-interface library for Clojure. Has attracted many users as well as regular contributions of bug fixes and features from the open source community. <https://github.com/daveray/seesaw>

JSoar – Developer and maintainer of pure-Java implementation of Soar kernel. Ported thousands of lines of "clever" C/C++ code to Java, yielding a cleaner, easier-to-use, public API with no loss in CPU performance. Added more than 500 unit and functional tests; 500 more than in the original C++ codebase. <http://jsoar.googlecode.com>

Others

- **SoarUnit** – TDD framework for Soar (see JSoar wiki)
- **Rooscaloo** – Rete-based rule engine in Scala. Personal learning project exploring functional programming, integrated XML support, parser combinators, and dynamic evaluation of code. (see github)
- **Bebot** – Functional algorithms and data structures in Soar (see github)
- **Overtone** – Committer on Clojure-based music generation system
- Minor patches to open source packages: Apache Batik, JRuby, JFugue

See also <https://github.com/daveray>

EDUCATION

University of Michigan, Ann Arbor, Michigan

Master of Science, Computer Science and Engineering

December 2004

Bachelor of Arts, Mathematics (Honors)

December 1997

REFERENCES

Available on request.