

Karl A. Nyberg

Summary Senior software professional with over twenty five years industry wide lifecycle software experience (including SEI Level 5 organizations) performing senior technical / supervisory projects. Particular strengths in large scale transaction processing systems, automation and writing. Interoperation among programming languages, standards and tools, communications protocols, data formats, and UNIX variants.

Education **Massachusetts Institute of Technology** Cambridge, MA

- Master's degree in Electrical Engineering and Computer Science
Thesis: A Methodology for Using Algebraic Specifications
- Bachelor's degree in Computer Science and Engineering
Thesis: An Experiment in Using Algebraic Specifications

Awards

- Association for Computing Machinery (ACM) Special Interest Group on Ada (SIGAda) Ada Community Contributions Award, November, 2007
- Sun Microsystems "Open Performance Contest" winner for submission of "A Constructive Approach to Integer Factorization" as evaluation of, and awarded, a Sun Fire T1000, January 2007
- Institute for Electrical and Electronic Engineering (IEEE) POSIX Pioneer award, March 1988

Professional

- ACM Senior Member, IEEE, ACM SIGAda
- US SC22 JTC1 TAG / ISO IETC J22 - Java Study Group (1997 - 1999)
- Federal Advisory Board on Ada (1990 – 1992)
- Ada 9X Requirements Team (1989 – 1990)
- IEEE Technical Committee Operating Systems P1003.1 (1986 – 1988)

Experience August 1985 – Present **Grebyn Corporation** Sterling, VA

Projects: Various projects ranging from single day to multi-year efforts covering the entire software lifecycle, including local, national and international efforts. Authored, edited, published and marketed multiple periodicals - newsletters, compact disks and books on Ada (technical, market and informational).

Major Clients: Boeing (via VAST), Computer Sciences Corporation, Global Protocols, Inc., Honeywell Federal Systems, IBM (via ARC), Institute for Defense Analyses, IntelliData, JRL Associates, Lockheed Martin (via TAC Worldwide), Objective Interface Systems (OIS), Inc., Openet Telecom (via Sabianet), SAIC, SEI, Software Productivity Consortium, TowerSource LLC, VISA Interactive, VISA International, Waterford Consultants.

Oct. 2010 – Present **HTSI/Defense & Space** Greenbelt, MD
Program Manager 5 (SME) (L)

Temporary, part-time, on-call support for Near Earth Network Services (NENS).

Aug. 2005 – Dec. 2005 **Geologics** Alexandria, VA
Ada Software Engineer / Software Auditor

Part-time support for software review of En Route Automation Modernization (ERAM) subcomponent.

Jan. 1983 – May 1986 **Verdix Corporation** Chantilly, VA
Various Senior Technical Positions

- Created initial concept of Verdix Secure Local Area Network (VSLAN).
- Authored winning Small Business Innovation Research (SBIR) Phase I proposal for Network Security Devices (later productized as VSLAN).
- Administered computing facilities and supervised junior staff.
- Verdix Ada Development System (VADS) product development, quality assurance and customer support.

Oct. 1981 – Sept. 1982 **Digicomp Research Corp.** Ithaca, NY
Security Analyst

- Investigated use of Gypsy methodology to secure database systems.
- Presented oral and written reports to RADC and Pentagon personnel.
- Managed portions of subcontract with University of Texas.

Publications
and Talks

- Nyberg, Karl A. "[Automatically Generating DTD-Specific XML Parsers](#)", ACM SIGAda AdaLetters, August 2010. Also available at <http://www.hdfgroup.org/pubs/others/>.
- Nyberg, Karl A. "[Parsing Hierarchical Data Format \(HDF\) Files](#)", ACM SIGAda AdaLetters, August 2010. Also available at <http://www.hdfgroup.org/pubs/others/>.
- Nyberg, Karl A. "[Multi-Core + Multi-Tasking = Multi-Opportunity?](#)", Proceedings of the ACM SIGAda 2007 conference, Fairfax, VA. November 2007; also ACM SIGAda AdaLetters XXXVII #4, pp. 79-81, December 2007. ([Slides](#))
- Nyberg, Karl A. "[A Constructive Approach to Integer Factorization](#)", an evaluation of the Sun Microsystems SunFire T1000.
- Nyberg, Karl A. "[Fun v. Tedium](#)", Letters to the Editor, *IEEE Software*, p. 9, May/June 2007. (Also available at [IEEE Software](#))
- Ausden, Howard and Nyberg, Karl A. "[Using ASIS to Generate C++ Bindings](#)", Proceedings of the ACM SIGAda 2005 conference, Atlanta, GA. November 2005; also ACM SIGAda AdaLetters XXV #4, pp. 23-30, December 2005. ([Slides](#))
- Nyberg, Karl A. "[Windows Disk Drive Recovery with Ada95 – An Application Note](#)", ACM SIGAda AdaLetters XXV #2, pp. 42-44, June 2005.
- Nyberg, Karl A. "[Optical Character Recognition \(OCR\) of Cryptographic Source Code](#)". ACM Washington, DC Special Interest Group on Ada (SIGAda), McLean, VA. May 8, 2003.
- Nyberg, Karl A. "[Barbarians at the Gate – Stopping Spam in its Tracks](#)", 2001.
- Emery, David E.; Mathis, Robert F.; and Nyberg, Karl A. "[Automating the Ada Binding Process for Java - How Far Can We Go?](#)" Reliable Software Technologies: Proceedings of the Ada Europe 1998 conference, June 1998, Uppsala, Sweden.
- Nyberg, Karl A., (Editor), "The Annotated Ada Reference Manual", Third Edition, March 1994.
- Engle, Charles B., Jr and Nyberg, Karl A. "[Mandating Ada Compiler Evaluation](#)", Invited Paper. Minutes of the Federal Advisory Board on Ada, June 27, 1991. Pittsburgh, PA. ([slides](#))
- Nyberg, Karl A., "Ada: Sources & Resources", Third Edition - April 1991.
- Nyberg, Karl A., "A Study of Ada's Input-Output Packages", SEI Special Report. 1990.
- The Ada 9X Revision Requests – Fact & Fantasy. MITRE Corporation, McLean, VA. April 10, 1990.
- Emery, David and Nyberg, Karl A. "[Observations on Portable Ada Systems](#)", in "Ada: The Design Choice", Proceedings of the Ada-Europe International Conference, Madrid, Spain, 13-15 June 1989. Cambridge

- University Press. Also MITRE Technical Paper MTP-282; February 1989, Bedford, MA. ([slides](#))
- [Nyberg, Karl A.](#), "[Denial of Service Flaws in SDI Software: An Initial Assessment](#)", Proceedings of the Fourth Aerospace Computer Security Applications Conference, December 12-16, 1988, Orlando, FL.
 - [Donaldson, Albert L.](#); [McHugh, John](#); [Nyberg, Karl A.](#), "[Covert Channels in Trusted LANs](#)", The 11th NBS/NCSC National Computer Security Conference, pp. 226 – 232. October 17-20, 1988, Baltimore, MD.
 - [Nyberg, Karl A.](#) "The Application of Formal Methods to Ada Software Development". ACM SIGAda, Phoenix, AZ. March 24, 1988.
 - [Preston, David](#); [Nyberg, Karl A.](#); [Mathis, Robert](#), "[An Investigation Into the Compatibility of Ada and Formal Verification Technology](#)", 6th National Conference on Ada Technology: Ada in the Life Cycle, March 14-17, 1988, Arlington, VA ([extended abstract](#)).
 - [Nyberg, Karl A.](#) "Porting Ada Applications between a PC and a VAX". Capital Area PC Users Group (CPCUG) Ada Special Interest Group, Bethesda, MD. February 15, 1988.
 - [Lee, JAN](#) and [Nyberg, Karl A.](#), "[Strategies for Introducing Formal Methods Into the Ada Life Cycle](#)", SPC-TR-88-002, Version 1.0. Software Productivity Consortium, January 1988, Reston, VA. Also [Virginia Tech - CS TR-88-09](#).
 - [Nyberg, Karl A.](#) "[Using Representation Clauses as an Operating System Interface](#)," Ada Letters, Volume VII, Number 4, July - August, 1987; pp. 98-101.
 - [Nyberg, Karl A.](#), "[Implementing Curses in Ada](#)", Proceedings of the 1986 USENIX Winter Conference, January 1986, Denver, CO.
 - [McHugh, John](#) and [Nyberg, Karl A.](#), "[Adapting the Gypsy Verification System to Ada](#)", in Proceedings of the First IDA Workshop on Formal Specification and Verification of Ada, Clyde G. Roby, ed., Memorandum Report #M-146, December 1985, Alexandria, VA. ([slides](#))
 - [McHugh, John](#) and [Nyberg, Karl A.](#), "[Ada Verification Using Existing Tools](#)", IEEE Software Engineering Notes, V 10, no 4. Special Issue: Proceedings of Verksop III, pp. 104-106. August 1985.
 - [Nyberg, Karl A.](#); [Hook, Audrey A.](#); [Kramer, Jack F.](#), "[The Status of Verification Technology for the Ada Language](#)", IDA Paper #P-1859, July 1985, Alexandria, VA.
 - [Nyberg, Karl A.](#); "[A Methodology for Using Algebraic Specifications](#)", Master's Thesis, Massachusetts Institute of Technology, June 1981. Cambridge, MA.
 - [Nyberg, Karl A.](#); "[An Experiment Using Algebraic Specifications](#)", Bachelor's Thesis, Massachusetts Institute of Technology, August 1980. Cambridge, MA.