

---

## David C. DiNucci

14380 NW Hunters Dr.  
Portland, OR 97006-5657  
Home: (503)439-0481  
Work: (503)439-9431  
dave@elepar.com

---

### Work Experience

**Founder and President**

*10/98 to present*

*Elepar company, first in Sunnyvale, CA, now in Beaverton, OR, [www.elepar.com](http://www.elepar.com)*

Developing and documenting software tool support for peer-to-peer and high-performance parallel and distributed computing and computational grids. Primary foci are on SC and CDS (see more under Interests and Accomplishments).

**Planning Team Lead for IPG****Distributed Architectures  
and Scheduling**

*8/97 to 9/98*

*NASA Ames Research Center, Moffett Field, CA (Contracting through MRJ)*

Led the requirements and development planning for IPG's technical architecture, aided by a team of national experts from leading universities and government labs. Received "Group Achievement Award" from NASA Ames Research Center director. (Information Power Grid (IPG) is a NASA-wide joint effort with the NSF to research and prototype a computational grid capable of tying together high-speed computers from across the world to supply NASA's future computational/interactional needs.)

**Computer Scientist and  
Senior Research Scientist**

*10/91 to 9/98*

*Parallel Tools Group of the Numerical Aerospace Simulation (NAS) facility at NASA Ames Research Ctr, Moffett Field, CA (Contracting through CSC & MRJ)*

Researched, designed, and developed software tools to aid in portable parallel programming (e.g. CDS).

**Post Doctoral Researcher**

*06/91 to 09/91*

*Tools, Utilities, and Languages Group of the National Energy Research Supercomputing Center (NERSC) at Lawrence Livermore Nat. Labs, Livermore, CA*

Evaluated parallelization tools and counseled NERSC on increasing their focus on parallel programming technologies. (Summer position.)

**Graduate Assistant and  
Teaching Assistant**

*06/86 to 01/91*

*Computer Science/Engineering Dept., Oregon Graduate Institute, Hillsboro, OR*

Helped to teach courses, grade papers, and develop software for parallel programming and software engineering labs, performed research, wrote papers and book chapters.

**Data Systems Coordinator  
and Programmer**

*05/82 to 03/86*

*Testing and Evaluation Dept. of Portland Public School District, Portland, OR*

Modernized the processing of standardized tests for the Portland area, including the preparation, scanning, grading, and result storage, query, and reporting.

---

### Technical Interests & Accomplishments

**Cooperative Data Sharing**

**(CDS)**

While at NASA, designed and prototyped CDS, a new portable mechanism for low-level parallel programming. Semantics relate to how data is shared among processes, rather than how it is communicated between them, so optimal low-level mechanisms based on specific runtime conditions can be utilized on many architectures (e.g. shared-memory and message-passing), often obviating ALL copying. (Also represented this approach as a member of the MPI-2 Forum "one-sided communication" subcommittee.)

**Software Cabling (SC)**

At Elepar, am developing tools for visual programming meta-language I designed, called SC, which promotes program portability, parallelism, and correctness. Based on a formal model of atomic transactions, called F-Nets, developed in my Ph.D. thesis.

---

## Education

<b>Ph.D., Computer Science and Engineering</b>	1991	<i>Oregon Graduate Institute, of Science and Technology, Hillsboro, OR</i> Dissertation: "A Formal Model for Architecture-Independent Parallel Software Engineering", Committee: R. Babb II, R. Kiebertz, M. Wolfe, H. Jordan
<b>B.S., Computer Science</b>	1981	<i>Portland State University, Portland, OR</i>

---

## Some Publications

<b>"Arch. Models for Resource Management in the Grid"</b>		<i>with R. Buyya &amp; S. Chapin, in GRID 2000 Workshop of 7th Int'l Conference on High Performance Computing (HiPC 2000), Bangalore, India, Dec. 2000</i>
<b>"Tolerant (Parallel) Programming with F-Nets and Software Cabling"</b>		<i>in Proceedings of the Workshop on Software Engineering for Parallel and Distributed Systems (PDSE'97), Boston, MA, May 1997, pp. 198-209</i>
<b>"Cooperative Data Sharing: Simple Support for Clusters of SMP Nodes"</b>		<i>in Proceedings of the Cluster Computer Conference (CCC'97), Atlanta, GA, March 1997.</i>
<b>"A Simple and Efficient Process and Comm. Abstraction for Network OSs"</b>		<i>in Proceedings of the Workshop on Communication and Architectural Support for Network-Based Parallel Computing (CANPC) '97, San Antonio, Feb 1-2, 1997, also as LNCS volume 1199, Springer-Verlog, pp. 31-45, ed. D. Panda and C. Stunkel.</i>
<b>"CDS: A Layered Approach to an Architecture-Indep. Message-Passing Interface"</b>		<i>in Proceedings of the Second MPI Developer's Conference, Notre Dame, July 1996, IEEE, pp. 58-65.</i>
<b>"Scientific Parallel Processing with LGDF2"</b>		<i>with R. Babb II, chapter in Parallel Processing for Scientific Computing (ed. G Rodrigue), 1989, pp. 307-311</i>
<b>"Design and Implementation of Parallel Programs with LGDF2"</b>		<i>with R. Babb II, in Intellectual Leverage, Digest of Papers from COMPCON 89, pp. 102-107</i>
<b>"The Alliant FX8" and "The Loral LDF-100"</b>		<i>chapters in Programming Parallel Processors (ed. R. Babb II), Addison-Wesley, 1988, pp. 27-42 and pp. 125-141.</i>
<b>"Practical Support for Parallel Programming"</b>		<i>with R. Babb II, in Proceedings of 21st Hawaii Int'l Conference on System Sciences (HICSS), vol II, Jan 1988, pp. 109-118.</i>
<b>"Design &amp; Implementation of Parallel Programs with Large-Grain Data Flow"</b>		<i>with R. Babb II, chapter in The Characteristics of Parallel Algorithms (ed. L. Jamieson, D. Gannon, R. Douglass), MIT Press, 1987, pp. 335-349.</i>

---

## Other

Member of Grid Forum Advanced Programming Models WG, and participant in Peer-to-Peer WG. Former member of MPI-2 Forum. Invited to speak, Los Alamos National Lab Advanced Computing Lab, June 2000 (re: CDS). Invited panel member at the Scalable Cluster Workshop, Monterey, CA, November 21-22, 1997, (host Sandia National Lab), and at the High-Speed Computing Conference, Salishan, OR, 1989 (host DOE). Started computer club at Centennial High School, Gresham, OR, 1974.