

# Curriculum Vitae for Brian N. Bershad

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## Biographical information

Dr. Bershad is an Associate Professor of Computer Science & Engineering at the University of Washington in Seattle, Washington. He has published over 75 research papers in areas that include computer architecture, operating systems, scalable services, and parallel and distributed systems. He received his Bachelor's Degree (1986) in Electrical Engineering and Computer Science from the University of California at Berkeley. He received his M.S. (1989) and Ph.D. (1990) degrees in Computer Science from the University of Washington. Prior to his joining the faculty in Seattle, he was on the faculty at Carnegie Mellon University in Pittsburgh, PA. Dr. Bershad received an NSF Presidential Young Investigator award in 1990, an ONR Young Investigator Award in 1994, and an NSF Presidential Faculty Fellow Award in 1994. He is a member of the IEEE and ACM. In 1997, Dr. Bershad founded a company called Appliant, Inc that manufactures enterprise management software for distributed applications. He is presently Chairman of the Board at Appliant.

## Education

- Ph.D. in Computer Science, University of Washington, June 1990. Dissertation Title: *High Performance Cross-Address Space Communication*. Supervised by Prof. H.M. Levy and Prof. E.D. Lazowska.
- M.S. in Computer Science, April 1990, University of Washington.
- B.S. in Electrical Engineering and Computer Science, 1986, University of California at Berkeley.

## Work experience

- Founder and Chairman of the Board at Appliant, Inc. 1997–present.
- University of Washington, Department of Computer Science & Engineering. Associate Professor. September 1996–present.

- University of Washington, Department of Computer Science & Engineering. Assistant Professor. September 1993–1996.
- Carnegie Mellon University, School of Computer Science. Assistant Professor. August 1990–August 1993.
- University of Washington, Department of Computer Science & Engineering. Research Assistant. 1986–1990.
- Digital Equipment Corporation Systems Research Center. Research Intern. January 1988 to April 1988; June 1988 to September 1988.
- U.C. Berkeley Department of Electrical Engineering and Computer Science. Assistant Programmer. 1984–1986.
- Brian R. Demsey + Associates. Principal Programmer for actuarial firm/software vendor. 1981–1984.

## Honors and awards

- NSF Presidential Faculty Fellow Award. 1994.
- ONR Young Investigator Award. 1994.
- NSF Presidential Young Investigator Award. 1991.

## Consulting activities

- Chairman of the Board and Scientific Advisor to Appliant, Inc.
- Member Technical Advisory Board of RemoteNet Corporation.
- Matsushita Information Technology Lab.
- Xerox PARC.

## Patents

- Adaptive Spindown Policies for Mobile Computers.
- Environment Manipulation for Executing Modified Executable and Dynamically-Loaded Library Files.
- Pending. Several.

## Research grants and contracts

- ARPA. “Operating System Services for Networked Clusters.” \$1.8M over three years starting in 1998. With Prof. Henry M. Levy.
- ARPA. “Security Mechanisms for an Extensible Operating System.” \$300K over three years starting in 1997.
- Toshiba. \$90K unrestricted gift money. 1996.
- Intel. “Operating System Services for Networked Clusters,” \$150K in cash and \$350K in equipment from Intel for 1997. With Profs. Henry M. Levy, Jean Loup Baer, John Zahorjan and Ed Lazowska.
- Intel. “Enhancing the Electrical Engineering Curriculum on the PC Platform.” \$1.5M in equipment (175 PCs) for 1997. This grant is a followon to the 1996 effort. With Profs. Greg Zick, Mani Soma and Ed Lazowska.
- Intel. “Enhancing the Electrical Engineering Curriculum on the PC Platform.” \$925,000 in equipment (175 PCs) for 1996. This grant is the first of two from Intel to equip the new EE/CS&E building with new equipment. With Profs. Greg Zick, Mani Soma and Ed Lazowska.
- Digital Equipment Corporation “Operating System Structures for Advanced Architectures.” \$200,000 equipment discount for 1995. With Prof. Hank Levy.
- Intel. “Memory Management for Advanced Processors.” \$30,000 for 1995–1996.
- National Science Foundation. “Presidential Faculty Fellowship.” \$200,000 for 1995–1996.
- Intel. “Research and Educational Computing Infrastructure Grant.” \$200,000 in equipment for 1995. The majority of this equipment was released to the department. With Prof. Ed. Lazowska.
- Intel. “A PC Undergraduate Instructional Laboratory.” \$75,000 in equipment for 1995. This equipment was released to the department. With Prof. Ed. Lazowska.
- Interagency (NASA, ARPA, NSF). “Scalable I/O.” \$450,000.
- Digital Equipment Corporation “Operating System Structures for Advanced Architectures.” \$200,000 in equipment discount for 1994. With Prof. Hank Levy.
- International Business Machines. “System Structure for Advanced Processors.” \$750,000 in IBM equipment for 1994. This equipment was released to the department. With Prof. Ed. Lazowska.
- Intel. “Memory Management for Advanced Processors.” \$50,000 for 1994–1995. With Profs. Ed. Lazowska, Susan Eggers, and Hank Levy.

- Advanced Research Projects Agency. “Application-Specific Operating Systems for High-Performance Computing.” \$3,096,000 for 1994–1997. With Profs. Susan Eggers and Craig Chambers.
- Office of Naval Research. Young Investigator Award (YIA). \$75,000 for each of 1994–1996.
- Carnegie Mellon University. “Software System Support for High Performance Multicomputing” (subcontract) \$424,000 for 1994–1995.
- National Science Foundation. Presidential Young Investigator Award (PYI). \$62,500 for each of 1991–1995.
- Digital Equipment Corporation. NSF PYI Matching. \$75,000 for 1992–1993.
- Xerox. PYI Matching. \$10,000 for each of 1992–1995.
- Intel. PYI Matching. \$17,500 for each of 1994–1995.

## Technology Transfer

- ETCH: An application program performance evaluation and optimization system for Intel Processors running the Windows/NT operating system.
- KIMERA: A verifier and rewriter for Java programs.
- Various patents and licenses.
- Founded Appliant, Inc. in October of 1997. Appliant leverages several technologies developed at the University of Washington to make system management software for enterprise applications. Appliant is privately held, with the majority of the backing coming from Arch Venture Partners and Venrock.

## Publication of Technologies

From time to time, I have packaged up and made available for public use various artifacts developed by my group. Distributions typically take between 3 and 6 months to put together and are delivered to end users via the web.

- The SPIN Extensible Operating System. This is a release of the SPIN operating system for the x86 developed at the University of Washington. Available at <http://velvet.cs.washington.edu/spin>. This software has been downloaded by more than 375 sites.
- The Etch Call Graph Profiler. This program collects procedure call profile information by rewriting Win32 executables and DLLs to measure time spent in procedures. This software has been downloaded by about 100 sites.

- Etch Traces. This is a 15GB collection of application memory reference traces created using the Etch toolkit developed at the University of Washington. Due to its size, the traces are distributed on 15 CD-ROMS. Approximately 20 sites have received the distribution.