

# Nathan A. DeBardeleben

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**University Address**

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**Objective** A research position in high performance computing that emphasizes developing new technologies for programming environments and runtime systems.

**Education** **Clemson University** 2001–2004  
Ph.D. in Computer Engineering, Dec 2004 (finished Aug 2004). GPA: 3.95/4.00. Emphasis in computer architecture. Dissertation entitled “Coven: A Computational Model and Problem Solving Environment Framework for Supporting Optimization of Parallel Applications.”

**Clemson University** 1999–2001  
M.S. in Computer Engineering, May 2001. GPA: 3.85/4.00. Emphasis in computer architecture. Thesis entitled “The Component-based Environment for Remote Sensing.”

**Clemson University** 1995–1998  
B.S. in Computer Engineering, Summa Cum Laude, Departmental Honors. Ranked first in class of Electrical and Computer Engineering department, tenth in university. GPA: 3.95/4.00. Focus in computer architecture and software engineering.

**Research Experience** **Parallel Architecture Research Laboratory** January 1999–present  
*Graduate Research Assistant:*  
Designed and developed several high performance computing problem solving environments (PSEs) including Coven and CERSe. Emphasis on parallel program profiling and optimization and ways to tune applications in a PSE.

**Parallel Architecture Research Laboratory** July 1998–December 1998  
*Undergraduate Honors Researcher:*  
Developed parallel AVHRR satellite remote sensing algorithms with web-based interaction.

**Goddard Space Flight Center, NASA** Summer 2001  
Continued development of CERSe, the Component-based Environment for Remote Sensing.

**Research Project Participation** **Coven**  
A Problem Solving Environment toolkit for parallel computers emphasizing performance monitoring and optimization.

**Arches**  
An object-oriented framework for component-based software design.

**CERSe**  
The Component-based Environment for Remote Sensing: a PSE targeting NASA satellite remote sensing applications.

**Additional  
Projects**

**The Beowulf Underground**

Implementation and co-management of a web site for HPC software, news, and documentation. (<http://www.beowulf-underground.org>)

**Neural Network for Facial Recognition**

**Configuration Management System** - senior design project

**Aetherwulf**

A portable beowulf cluster in a box, constructed of single board computers for NASA GSFC. (<http://www.parl.clemson.edu/aetherwulf>)

**Publications**

N. A. DeBardeleben, "Coven: A Computational Model and Problem Solving Environment Framework for Supporting Optimization of Parallel Applications", Ph.D. Dissertation, August 2004 (official graduation December 2004).

N. A. DeBardeleben, W. B. Ligon III, S. Pandit, and D. Stanzione Jr., "Coven - a Framework for High Performance Problem Solving Environments", Proceedings of the 11th IEEE International Symposium on High Performance Distributed Computing (HPDC-11 2002), Edinburgh, Scotland, UK, July 2002, pp. 291-298.

N. A. DeBardeleben, W. B. Ligon III, and D. Stanzione Jr., "The Component-based Environment for Remote Sensing", Proceedings of the 2002 IEEE Aerospace Conference, March 2002.

N. A. DeBardeleben, W. B. Ligon III, S. Pandit, and D. Stanzione Jr., "CERSe - a Tool for High Performance Remote Sensing Application Development", Science and Data Processing Workshop 2002, February 2002.

N. A. DeBardeleben, "The Component-based Environment for Remote Sensing", Master's Thesis, May 2001.

N. A. DeBardeleben, A. Hoover, W. Jones, and W. B. Ligon III, "Parallelization Techniques for Spatial-Temporal Occupancy Maps from Multiple Video Streams", IPDPS 2000 Workshops: Parallel and Distributed Computing in Image Processing, Video Processing, and Multimedia, pp. 202-209, May 2000.

W. Ligon, B. Boysen, N. DeBardeleben, K. Hazelwood, R. Sass, D. Stanzione, and K. Underwood, "A development environment for configurable computing," in Proceedings of the SPIE International Symposium on Voice, Video, and Data Communications, pages 103-112, vol. 3526, 1998.

**Fellowships  
and  
Scholarships**

**Graduate**

1999-2002

Alumni Graduate Fellowship, Departmental Supplemental Scholarship, Barnes Fellowship.

**Undergraduate**

1996-1999

Higgin's Engineering Scholarship, Jim O'Connor Engineering Scholarship, Cryovac Scholarship, South Carolina Space Grant Scholarship.

**Professional Service** NASA GSFC booth demonstrations at Supercomputing 2002, 2003, and 2004. Center for Advanced Engineering of Films and Fibers (CAEFF) Student Outreach Coordinator (2003–present). IEEE SoutheastCon 2001 Committee Co-Chair (Software Competition). Vice Chairman, Student Chapter of the IEEE at Clemson University ECE (1997–1998).

**Awards** Completion of Calhoun Honors College general and departmental honors program (1999). Second place in IEEE SoutheastCon 1997 software competition. Honorable Mention in ECE Departmental Award (1997).

**Activities** Member of the following organizations: IEEE, ACM, Phi Kappa Phi honors society, Calhoun honors society (undergraduate), Tau Beta Pi honors engineering fraternity, Eta Kappa Nu electrical and computer engineering honors society (undergraduate), Golden Key national honors society (undergraduate).

**Teaching Experience** **Clemson University** January 1999 – December 2002  
ECE 272 (Assembly Language Programming) Laboratory Teaching Assistant. Taught, instructed other TAs, created new assignments, and performed laboratory administration.

**References** **Dr. Walter B. Ligon III**  
Associate Professor, ECE Department. 105 Riggs Hall, Clemson University. Clemson, SC 29634-0915. phone: (864) 656-1224. fax: (864) 656-5910. walt@clemson.edu

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**Dr. John Gowdy**  
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