

# JEFFREY NESHEIWAT

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## OBJECTIVE

A position in the field of computer science with special interests in high performance computing, performance analysis, networking and applying computer technology to new areas.

## EDUCATION

**Ph.D. Candidate in Computer Science** *In Progress*  
Rensselaer Polytechnic Institute (RPI), Troy, NY GPA: 3.9/4.0

**M.S. Degree in Computer Science** *July 1996*  
Rensselaer Polytechnic Institute (RPI), Troy, NY GPA: 3.8/4.0

**B.S. Degree in Computer Science (minor in Management)** *December 1993*  
Rensselaer Polytechnic Institute (RPI), Troy, NY GPA: 3.4/4.0

## WORK EXPERIENCE

**Member Technical Staff** *May 1991 - Present*

**Jet Propulsion Laboratory / NASA** Pasadena, CA

### ***High Performance Computing Systems and Applications Group***

Conducted performance analysis of parallel adaptive mesh refinement software by designing, implementing and testing scalable instrumentation library. Involved FORTRAN90 and C finite element codes using MPI on SGI/CrayT3E and Beowulf systems.

### ***Avionics System Engineering Group***

Designed improved scheduling algorithm used in the software simulation of spacecraft control and data systems. Implemented the new algorithm, gained experience in POSIX threads, C++, TCL, and concurrency issues of parallel discrete event simulation. Developed mathematical models to prove superiority of the new scheduling regimen.

### ***RF and Microwave Subsystem Division, Deep Space Network***

Designed and implemented Intelligent Front-end Annotation (IFA) software used in the design of application specific integrated circuits (ASICs). Reduced number of design iterations resulting in significant cost savings. IFA subsequently copyrighted by NASA, published in NASA journal, and made available to companies in the private sector.

Evaluated fiber optic switching equipment for use in the Deep Space Network.

Developed user interface used to control next generation receiver remotely over TCP/IP network. Defined root configuration data format used during initialization of digital receivers prior to tracking interplanetary spacecraft.

### ***Senior Helpdesk Consultant***

*January 1995 - Present*

**Academic Computing Services** RPI, Troy, NY

Provide consulting services to campus community. Requires strong working knowledge of engineering applications, graphics design packages, compilers and utilities residing on Sun Sparc, IBM RS/6000, SGI, IBM SP2, Macintosh and Intel based computers.

Spearheaded committee to provide Windows 95/98 networking support and documentation for users connecting to campus network via Ethernet, modem, or IBX data line. Participated on committee of senior consultants responsible for interviewing prospective new hires, conducting performance evaluations, designing and administering staff training program and overseeing maintenance and administration of consulting hardware.

**Bell Northern Research / Nortel Networks RTP, NC**

Participated in design and implementation of Generic Services Framework (GSF). A large-scale object-oriented software engineering project to re-architect the DMS-100 switch. Designed modules essential to North American equal access dialing and global ISDN outpulsing. Learned important concepts of telephony, ISDN, and object oriented design through extensive corporate training programs.

**COMPUTER SKILLS**

*Languages:* C, C++, PERL, TCL/Tk, SQL, Protel-2, FORTRAN, Pascal, BASIC  
*Libraries:* TCP/UDP Sockets, MPI, BSP, OSF-Motif, csim  
*Operating Systems:* UNIX (Solaris, SunOS, AIX, Linux, FreeBSD, BeOS), Windows (95/98/NT), MTS

**RESEARCH EXPERIENCE**

***Parallel Computation of Twin Primes Distribution*** *1997 - Present*

Designed and implemented a distributed framework for parallel processing of applications using idle processor time on large numbers of heterogeneous computers. Currently, over 300 computers are in use. (<http://www.cs.rpi.edu/research/twinp>)

***Scalable Instrumentation and Database Approach to Performance Analysis of Parallel Object Oriented Scientific Applications*** *1997 - Present*

Doctoral research in performance analysis of parallel finite element applications. Collect instrumentation data in a data scalable way uncoupled from underlying system architecture and tightly coupled with program structure. Exploit database technology by mapping program structure and statistical data onto database schema to facilitate query-based analysis, experiment management and data mining.

**PUBLICATIONS**

*Journal*

***“Parallel Distributed Computation of Twin Primes Distribution”*** with P. Fry and B. K. Szymanski. To appear in *Parallel and Distributed Computing Practices*.

*Conferences*

***“Computing Twin Primes and Brun’s Constant: A Distributed Approach”*** with P. Fry and B. K. Szymanski. Proceedings of the Seventh IEEE International Symposium on High Performance Distributed Computing (HPDC7). Pages 42-49, 1998.

***“Scalable Instrumentation and Database Approach to Performance Analysis of Parallel Scientific Applications”*** with B. K. Szymanski. Proceedings of the Fourth International Workshop on Languages Compilers and Real-time Systems (LCR98), Springer and Verlag, 1998.

*Poster Session*

***“Support for Performance Analysis of Object Oriented Parallel Applications”*** International Symposium on Computing for Object Oriented Parallel Environments (ISCOPE98). Santa Fe, NM, USA. December 1998.

**EXTRA-CURRICULAR ACTIVITIES**

Chair, Computer Science Advisory Board (RPI)  
Chair, RPI-ACM Parallel Computing Special Interest Group  
Master Counselor, Yonkers Chapter Order of DeMolay  
Vice Chair, RPI Association for Computing Machinery  
Vice Chair, RPI IEEE Computer Society  
Treasurer, RPI Upsilon Phi Epsilon Honorary Computer Science Fraternity  
Member, RPI-ACM System Administration Committee

**COMMUNITY SERVICE AND HONORS**

Awarded NASA GSRP Fellowship *1999*  
Research Assistant (RPI) *1997 & 1998*  
Meritorious and Honorable Mention, COMAP MCM *1993*  
DeWitt Clinton Masonic Award for Community Service *1992*  
Red Cross Commendation for Service *1992*  
Invited to Undergraduate Curriculum Committee and Focus Group *1991*  
Member, Carmel Volunteer Fire Department *1987*

**CITIZENSHIP**

United States of America

**REFERENCES**

Available upon request.