

# Jeffrey A. Vaughan

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**Employment:** *Sandia National Laboratories*  
Technical Intern Summer 2003  
Performed error analysis and verified the correctness of computer code used to interpret material science experiments run on Sandia's 230 terawatt Z accelerator. Utilized magnetohydrodynamic simulations to design experiments for Cornell University's COBRA accelerator.

*Cornell University Department of Computer Science*  
Teaching Assistant 2002 – present  
Help teach and administer Computer Science 312: Data Structures and Functional Programming, a challenging undergraduate course with emphasis on elegant code and intelligent design. Responsibilities include implementing and grading large scale problem sets, working independently and as a team member. Co-teach a section of fifteen students; meet with students during weekly office hours and consulting hours.

*Cornell University Laboratory of Plasma Studies*  
Research Assistant 2000 – present  
Investigating the fundamental physics of electrical current breakdown and plasma formation. Other research involves using x-rays for high resolution biological imaging. Designed experimental apparatus for single wire z-pinch experiments. Developed an image correction algorithm to facilitate quantitative analysis of plasma energy and density.

*Red Cow Digital Corp.*  
President and Sole Proprietor 1997 – present  
Designed and maintained a profitable e-commerce website. Designed computer networks for small businesses. Purchased, installed and configured the necessary hardware. Modified existing programs for network use. Provided training and technical support. Developed a law office collections system (PayBack) using C++. This program includes a custom database, user-friendly interface and advanced reporting features; it is now being beta tested in New York law offices. Also computerized and sold Fannie Mae/Freddie Mac mortgage forms. Ongoing sales include clients in twenty-one states.

*Fairport High School*  
Computer Science Teacher's Assistant Academic Year 1999-2000  
Provided assistance to several levels of high school computer science students. Helped design and grade projects and assignments. Researched Macintosh graphical interface and created sample code to demonstrate its capabilities.

*University of Rochester Laboratory for Laser Energetics*  
Research Assistant Summer 1999  
Computer correction of image deviation in a high precision x-ray streak camera designed for laser fusion research. Worked on construction of a flat field x-ray source for use in camera calibration.

**Education:** *Cornell University College of Engineering* Graduation Expected June, 2004  
Dual major in Applied and Engineering Physics and Computer Science. Physics course work includes classical and quantum mechanics, electromagnetism, and instrumentation design. Computer science studies cover algorithm design and analysis, computational theory, functional and object oriented programming, scientific computation, operating systems and data structures. Conducted two independent research projects: one concerning source-to-source computer language translators, the other related to plasma physics. GPA is 3.55.

*Fairport High School* Graduated June, 2000  
High Honors Graduate.

**Skills:** Experience with C, C++, FORTRAN, Java, PASCAL, SML, Corel PerfectScript, and BASIC.  
Programming experience on Windows, Unix, Macintosh and the STAMP micro-controller platforms.  
Familiar with scientific vacuum apparatus, including pumps, gauges, hardware and instrumentation.  
Current Red Cross certification in lifeguarding and CPR for the professional rescuer.  
Work well in a team environment and have leadership experience.  
Self motivated worker who requires minimal supervision.

**Awards:** Eagle Scout  
Cornell Presidential Research Scholar  
John McMullen Dean's Scholarship (Cornell)  
National Merit Scholarship Finalist  
U.S. Army Bronze Medal for Engineering  
Honors and Honorable Mention awards at New York State Science Congress  
Cornell College of Engineering Dean's List  
Fairport High School Mathematics Department award and scholarship for 2000