Dean E. Dauger

http://Dauger.com/

SUMMARY:
- Advanced skills in creative problem solving and analysis.
- Expert in computer programming and networking, dynamic user-interface design, high-performance computing, parallel computing, numerical modeling, and visualization.
- Extensive physics background, with special interests in electromagnetism, classical mechanics, and quantum mechanics.
- Possesses a talent for creative application of skills across disciplines.

Availability: January 2001

WORK EXPERIENCE:

Project AppleSeed (at Dept. of Physics, Univ. of California), Los Angeles, CA March 1998 - Present

Software Developer - Software development for creating "plug and play" high-performance parallel computers out of Power Macintoshes for physics computation. Achieved worldwide recognition. See: `http://exodus.physics.ucla.edu/appleseed/`

Department Of Physics, University of California, Los Angeles, CA August 1995 - Present

Graduate Researcher - Doctoral research on the development of a quantum-mechanical multiparticle dynamic simulation for implementation on massively parallel high-performance computers. Support from LLNL and NSF.

Department of Physics, University of California, Los Angeles, CA September 1995 - March 1997

Teaching Assistant - Led discussion sections, wrote problem set solutions, graded homework, laboratory manuals, and exams, and prepared laboratory exercises in basic physics, optics, and classical mechanics.

Jet Propulsion Laboratory, Pasadena, CA July 1994 - September 1994

Technical Support Engineer - Software development of a graphical user interface in IDL and C for an atmospheric spectrum analysis program.

HSC Software (known today as MetaCreations), Santa Monica, CA July 1992 - April 1994

Software Engineer - Product research and development. Designed and developed high-performance image processing and dynamic user-interface code.

- shipped: **Kai's Power Tools v2.0** October 1993
  Revised version of a set of 33 image processing filters for Adobe Photoshop on the Macintosh platform. Written by Ben Weiss and Dean Dauger under the supervision of Kai Krause. Rated ♦♦♦♦♦ out of ♦♦♦♦♦ in *MacWorld* and *MacWeek* reviews.

- shipped: **Kai's Power Tools v1.0** October 1992
  First version of KPT, written by Ben Weiss and Dean Dauger, Kai Krause supervising.

ACCOMPLISHMENTS:

Atom in a Box January 1999

Winning entry in the Ninth Educational Software Contest of *Computers In Physics* - Repeat winner. Software visualizes a prime and otherwise unwieldy example of quantum mechanics utilizing real-time volumetric raytracing. Published in *Apple University Arts*, *MacAddict*, *MacHome*, and *Mac Fan* (Japan). See: `Dauger.com`

Fresnel Diffraction Explorer January 1998

Winning entry in the Eighth Educational Software Contest of *Computers In Physics* - Implements efficient algorithms developed to simulate Fresnel diffraction patterns and published (see below) in *Computers In Physics*. See: `Dauger.com`

Inaugural Conferral of the Wunderlich Prize May 1995

The first presentation of this endowed award at Harvey Mudd College (HMC), in recognition of creative achievement in courses or research at HMC.

Sm Solar System LT (shareware version) March 1993

Simulates the gravitational N-body problem, with craft, in an interactive, real-time user interface on the Macintosh platform. From Theoretical Mechanics project at HMC.

EDUCATION:

Ph. D. Physics	University of California, Los Angeles	December 2000 (pending)
Quantum Computation	Caltech - Passed six-month advanced course	March 1998
M. S. Physics	University of California, Los Angeles	December 1996
B. S. Mathematical Physics	Harvey Mudd College	May 1994

PUBLICATIONS AND PRESENTATIONS:

"Plasma Physics Calculations on a Parallel Macintosh Cluster" (p. 85-88) in *Physica Scripta* Vol. T84, 2000

An article describing the software we developed and how to assemble the hardware for Macintosh parallel computing with comparisons to other solutions. See: AppleSeed

"Simulation and study of Fresnel diffraction for arbitrary two-dimensional apertures" (p. 591-604) in the Nov/Dec 1996 issue of *Computers In Physics*

Sole authorship. Author developed and implemented algorithms that rapidly produce a Fresnel diffraction pattern by a given object or aperture and demonstrated their results.

• 12 significant presentations in 3 years:
American Physical Society conferences in Quebec City, Quebec, Canada and Minneapolis, Minnesota.
International Conference on the Numerical Simulation of Plasmas in Banff, Alberta.
Invited presentation at the Scripps Institute of Oceanography, San Diego, California.
Radical Connectionism & the Visualization of Network Programs Symposium in Malibu, California.
American Association of Physics Teachers conferences in Anaheim, California and New Orleans, Louisiana.
Conference on Computational Physics in Granada, Spain.
International Conference on the Numerical Simulation of Plasmas in Santa Barbara, Calif.
Annual presentations at Lawrence Livermore National Laboratory, Livermore, California.

• Other presentations:

Seminar at USC Electrical Engineering Dept. in Los Angeles, California.	(Pending)	January 2001
Harvey Mudd College Mathematics Clinic presentations in Claremont, California.		April 1994
MacWorld San Francisco.		January 1993
Comdex Las Vegas.		October 1992

SKILLS:

Computer Languages - AltiVec, AppleScript, Applesoft BASIC, C, C++, Pascal, Fortran 77, Fortran 90, HTML, IDL, PowerPC Assembly, 6502 Assembly, 680x0 Assembly

Violin - 19 years experience. Since 1997, leader of the second violin section in the Caltech-Occidental Symphony. Has experience leading small ensemble (duets, trios, quartets, etc.) work. Performed own arrangement for viola and violin of Jethro Tull's version of *Bourrée* by J.S. Bach in April 2000. See: `Dauger.com`

Piano - 11 years experience. Self-taught.

Amateur Juggling - 8 years experience: Balls, pins, passing