

Edward Hartnett
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Education

M.S. Software and Information Systems, Regis University, 2007

B.S. Electrical and Computer Engineering, Drexel University, 1990

Various math and computer science courses at CU Boulder.

Experience

Software Engineer IV, Unidata/UCAR, Boulder, Colorado 2003-present

As a senior software engineer at the Unidata Program Center, I am the primary coder for the netCDF-4 C/Fortran/C++ libraries and tools. My work also includes short and long-term planning for the netCDF product family, and responsibility for representing Unidata at workshops, conferences, and participating in the development, writing, and execution of research proposals, and supervision of student assistants.

- Designed and implemented netCDF-4, an upgrade to the netCDF C/Fortran library which adds HDF5 as a netCDF binary format and adds features such as compression, groups, user defined types, and parallel I/O.
- Work with NASA to assist with their use of netCDF-4 for climate modeling and satellite data distribution.
- Work with NASA/NOAA to assist with their adoption of netCDF-4 as the data distribution format for data from the GOES-R series of satellites.
- Management of software projects netCDF C/Fortran/C++ and libcf library, including requirements analysis, scheduling, coordination with other teams, test design, implementation, documentation, and release management.
- Maintain and develop netCDF C/F77/F90/C++ libraries on wide variety of platforms; also programs in bash, Bourne (sh), csh, python, and other scripting languages.
- Developed libCF, a C/Fortran library to help scientists use the Climate and Forecast (CF) Conventions.
- Established daily testing and release cycle for netCDF, using Perl.
- Secured funding from NOAA for synergistic work on netCDF and libCF; submitted two successful teragrid allocation requests.
- Developed the parallel I/O features of netCDF-4 using the MPICH2 MPI/IO library.
- Work directly with users to provide support, assist in their use of netCDF/libCF, and receive feedback and suggestions.
- Plan and host annual 2-day netCDF workshop in Boulder (usually about 50 attendees), and many other presentations before large and small groups.
- Supervised two student assistants.
- Demonstrate working knowledge of atmospheric physics, oceanography, and other Earth sciences.

**Project Manager/Software Engineer, Telesto Consulting, CAC, and Aztek Engineering,
Boulder, Colorado
1997-2003**

As owner and operator of a high-tech business during Colorado's roller-coaster ride on the dot com bubble I experienced the exhilarating highs and the gut-wrenching lows, but always the technology was both interesting and challenging. As telecom embedded programmer I learned to develop quickly and to high standards of quality, on platforms of limited computational resources, and to work well within a variety of formal software methodologies,

- Development of embedded software for infra-red 8051-based ASIC.
- Telecom embedded programming in C/C++ for SNMP control of equipment.
- Managed project to develop hardware and software for 3G test platforms, including review of engineering documents and deliverables.
- Project manager for large engineering project with 6 engineers, providing technical leadership and directly supervising the engineers.
- Established agile programming practices, including weekly automated build and test of software.
- Developed distributed Java GUI applications to allow control of telecom equipment.
- Assisted in development of start-up FPGA code for various telecom devices.
- Designed and implemented database application for vapor deposition processing.
- Developed database applications in PHP, including schema design, query optimization, and database administration.
- Developed telecom load simulators in Python.
- Developed a wide variety of GUIs in Microsoft Windows environment.

**Scientific Programmer, NASA/GSFC, Greenbelt, MD
1994-1997**

As scientific programmer at the Goddard Space Flight Center, I assisted in the ingest of large data sets from the Data Assimilation Office (DAO) into the Data Access and Archive Center (DAAC). These gridded 4-dimensional data were produced by the assimilation system that included atmospheric and ocean models. The same researchers that I worked with at GSFC are now using my netCDF-4 software to store their output.

- Developed software and documentation for the NASA DAAC (Data Access and Archive Center) at Goddard Space Flight Center (GSFC).
- Worked with Data Assimilation Office (now Global Data and Modeling Office: GDMO) to develop data processing and ingest software in IDL and Perl. Deployed software changes that resulted in very significant improvement of assimilation system throughput.
- Developed Perl system for automated data transfers and conversions from GDMO systems to the DAAC for archive and distribution.

**Professional Research Assistant, CIRES/University of Colorado, Boulder, CO
1992-1994**

At CIRES I worked closely with one atmospheric scientist, writing data analysis tools for his research into cloud formation.

- Developed software in C and Fortran to analyze TIROS Operational Vertical Sounder (TOVS) data for CIRES researcher.
- Participated in NASA ASTEX field study in the Azores. Provided operational support for gathering and analyzing high-rate aircraft data.
- Designed, developed, and documented software systems in C, Fortran, and shell scripting languages sh, tsh, and csh.

ERICA Data Manager/GALE Assistant Data Manager, Drexel University 1985-1990

As Data Manager for a major meteorological field study I was exposed to earth science data in all its diversity of sources, formats, and transmission media. Running the data center allowed me to interact daily with hundreds of scientists and scientific programmers, and learn about a wide variety of remote and in-situ sensor systems, and their output data.

- Managed data collection from over 100 sources during and after three month field studies along the Atlantic seaboard as part of the Experiment on Rapidly Intensifying Cyclones over the Atlantic (ERICA) and Genesis of Atlantic Lows Experiment (GALE).
- Wrote Fortran programs to process in-situ and remotely sensed atmospheric and oceanographic data sets.
- Co-wrote project documents, including ERICA Satellite Data Atlas, which included relevant GOES and DMSP imagery.
- Document and distributed all data to researchers.
- Supervised four student assistants.

Conference Papers and Awards

Hartnett, E., 2011-04: [Recent Developments in the NetCDF Libraries](#) (poster at the EGU).

Hartnett, E. and Rew, R., [EXPERIENCE WITH AN ENHANCED NETCDF DATA MODEL AND INTERFACE FOR SCIENTIFIC DATA ACCESS](#), 88th AMS Annual Meeting, 24th Conference on IIPS, 2008.

Russell K. Rew, UCAR, Boulder, CO; and E. J. Hartnett and J. Caron, [NetCDF-4: Software Implementing an Enhanced Data Model for the Geosciences](#), 22nd International Conference on Interactive Information Processing Systems for Meteorology, Oceanography, and Hydrology, AMS 2006.

Graduated "With Honors" from Master of Science Program at Regis University, Denver (4.0 average), 2007.

NASA DAO/SDUO Group Achievement Award, December, 1994.

NASA Group Achievement Award ASHOE/MAESA Experiment, 1994.