

James Marcus Ponton

Professional Preparation

Sam Houston State University	mathematics, minor in Computer Science	B.S., 1973
Sam Houston State University	mathematics, numerical analysis	M.S., 1974

Appointments

- ACES QC (2003-present): Developed software to meet requirements of the CHSSI program for parallelization of the ACESII quantum chemistry program. My role involved working with chemists to develop SIAL, a high-level programming language in which parallelized quantum chemistry algorithms may be quickly programmed. The SIAL language enabled us to achieve coupled-cluster algorithms with excellent scalability over a wide range of problem sizes.
- Nortel Networks (2000-2003): Worked as a software designer on Nortel's telephone switches. Originally, I worked on DMS wireline long-distance switches, and moved to CDMA wireless development after a reorganization in 2001.
- Mobil Corp. (1987-2000): Performed algorithm development and software design on a wide variety of projects for processing geophysical data. I worked in a variety of roles at Mobil, beginning in their seismic systems group in 1987, and moving to Mobil's geophysical research lab in 1991. In 1993, the seismic processing and geophysical research teams were merged into the same department, and I became a team leader in charge of porting Mobil's seismic processing software to several different Unix systems. When Mobil bought a Cray T3D (later expanded to T3E), I was charged with rewriting Mobil's proprietary software to run in a massively parallel environment.
- Arco Oil and Gas Company (1984-1987): Worked in seismic software development in Arco's Plano research lab. Ported a number of programs between IBM and Cray systems. Developed a seismic processing database system to record and maintain processing history of Arco's seismic data.
- Gulf Oil E&P Company (1979-1984): Worked in seismic software development. Maintained Gulf's GULFSEIS seismic processing package. Rewrote a number of programs to run efficiently using several different array processors.
- Texaco (1975-1979): Worked in Texaco's Bellaire, Texas research lab. Worked with geophysical researchers to implement and optimize some of Texaco's most widely used seismic imaging algorithms.

Publications related to the project

- Parallel Implementation of Electronic Structure Energy, Gradient and Hessian Calculations, V. Lotrich, N. Flocke, M. Ponton, A. Yau, A. Perera, E. Deumens, R. J. Bartlett, J. Chem. Phys., 128, 194104 (15 pages) (2008).

- V. Lotrich, M. Ponton, L. Wang, A. Yau, N. Flocke, A. Perera, E. Deumens, R. J. Bartlett, “The super instruction processor parallel design pattern for data and floating point intensive algorithms”, Workshop on Patterns in HPC, University of Illinois at Urbana-Champaign, May 4-6, 2005, <http://charm.cs.uiuc.edu/patHPC/program.html>.