

DR. GREG BULLOCK

EDUCATION:

Ph.D., Physics, University of Virginia, January 1993, Presidential Fellow

A.B., Physics, University of California, Berkeley, May 1985, Honors

EXPERIENCE:

April 2012 – present

NWRA Inc., Monterey, CA

Research Scientist

- Modified the HiCIRF code (MATLAB) run transparently on multiple CPU cores, when possible, and on different operating systems.

•

April 2006 – March 2012

SPARTA Inc., Monterey, CA

Senior Principal Scientist, C2E Division, Military Systems Operation

- Added multithreading capabilities to software used to analyze traffic over a computer network and detect malware or other anomalous data.
- Developed algorithm (C++) for efficient interpolation in a sparsely, nonrandomly sampled 3D space.
- Developed testing systems for detecting and reproducing bugs in software.
- Implemented the focused search plan algorithms for FBX-T radars for tools developed by the Missile Defense National Team (Boulder).
- Wrote a DLL (dynamic-link library) to detect and report memory leaks in Fortran and C code and used it to plug some large leaks in tools developed by the Missile Defense National Team (Boulder).
- Developed the Trajectory Service (C++, Java, and Fortran) for use with various tools developed by the Missile Defense National Team (Boulder). Helped integrate the service with various client tools.
- Continued work started at ATK Mission Research designing and developing (Borland Developer Studio Builder 2006 C++ and Delphi), debugging, marketing, shipping, and maintaining “ASSIST”, a Windows-based, graphical user interface with graphical output capabilities for three dozen simulation models maintained for the US Defense Threat Reduction Agency for the purpose of modeling the nuclear-disturbed environment, including GSCENARIO, PRPSIM, COMLINK, CIRF, NORSE, IRSim. This software has become its sponsor’s flagship software for distributing collections of simulation models, and it greatly simplifies the use of complex modeling tools by systems engineers. As a member of the development team for nuclear effects models, developed uniform methods for specifying and generating 0D, 1D, 2D, and 3D arrays sampling various portions of the disturbed atmosphere for plotting and analysis. Maintained, developed (Fortran), and used computational models of high atmospheric nuclear disturbances for hardening communication systems.

January 1993 – April 2006

ATK Mission Research, Monterey, CA

Scientist

- Solely conceived, designed, developed (Borland C++ Builder 6 and Delphi 7), debugged, marketed, shipped, and maintained DTRA's ASSIST (described above). As a member of the development team for multiburst nuclear effects models, developed robust and stable numerical methods for solving plasma drift equations. Stable solution of these equations had been problematic for more than 10 years. Maintained, developed (Fortran), and used computational models of high atmospheric nuclear disturbances for hardening communication systems.

August 1985 – August 1987

Mission Research Corporation, Santa Barbara, CA

Scientist

- Computationally solved (using Fortran on Cray computers) magnetohydrodynamic equations describing disturbances in high-atmospheric fluids and plasmas with research-quality accuracy. Analyzed and graphed results.

SPECIALIZED SKILLS:

- Foreign Languages: Spanish (proficient), and passable amounts of French & Japanese
- Computer Languages: C++, Java, C, Delphi, Assembly Language, Pascal, Fortran, BASIC
- Operating Systems: Developed in Windows, Unix, and Linux

SELECTED PUBLICATIONS:

McCartor, Trella, Gregory Bullock, Paul Edwardson, Keith Siebert, Earl Witt, Warren Schlueter, Timothy Stephens, Jim Thompson: "High Altitude Nuclear Effects Prediction Tools—Development, Maintenance & Support: Final Report" ATK-R-1712 (2007).

White, Willard W., et al.: "High Altitude Phenomenology Tool Support, Maintenance and Distribution: Final Report" MRC/NSH-R-04-001 (2004).

M. Boukhny, G.L. Bullock, B.S. Shivaram and D.G. Hinks: "Tetracritical Points and the Superconducting Phases of UPt3: Uniaxial Pressure Effects" Physical Review Letters 73 no. 12 (1994) 1707.

G.L. Bullock, B.S. Shivaram and D.G. Hinks: "Constraints on the Strain-Dependence of UPt3 Superconducting Transitions from Ultrasonic Measurements" Europhysics Letters 21 (1993) 357.

Gregory L. Bullock: "A Geometric Interpretation of the Riemann-Stieltjes Integral" American Mathematical Monthly 95 no. 5 (1988).

DATE RESUME UPDATED: April 2012