Behzad Salimi

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Education

University of Texas, Austin, B.S. Mechanical Engineering
University of Illinois, Urbana-Champaign, M.S. Nuclear Engineering
University of Illinois, Urbana-Champaign, Ph.D. Nuclear Engineering.

Academic & Research Experience

University of Texas, Austin, Mechanical Engineering Department: 9/1977 – 8/1979.
Teaching & Research Assistant: Nuclear reactor operations.

University of Illinois, Urbana-Champaign, Nuclear Engineering Department: 08/1979 – 10/1980.
Research Assistant: Process and collapse neutron and γ-ray multigroup cross section sets; computer simulation, thermal and nuclear reaction analysis of thermal blankets in conceptual nuclear fusion reactors using MORSE Monte Carlo radiation transport code.

Northern New Mexico College: Fall 1998 – Summer 2001.
Adjunct Professor in Mathematics, offered at least two of the following courses each semester:

- College Algebra

- Trigonometry

- Calculus I & II

University of New Mexico–Los Alamos, Bachelor & Graduate Programs, 1989–2009.
Adjunct Professor in Mathematics, offering one of the following courses each semester—most frequently ODEs, PDEs, and Complex Variables:

- College Algebra

- Trigonometry

- Calculus I, II & III

- Probability & Statistics

- Vector Analysis

- Ordinary Differential Equations

- Partial Differential Equations

- Complex Variables

Professional Experience

<u>October 1980 – December 1984.</u>
US Army Construction Engineering Research Laboratory, Champaign, Illinois. Energy Systems Division, Mechanical Engineer: Design, modeling, simulation and analysis of industrial building thermal loads with BLAST (Building Load and System Thermodynamics) computer code.

<u>July–November 1983 & July–October 1984.</u>
KernForschungsAnlage (KFA), Jülich, Germany. Institute for Reactor Development (IRE-L), Research Staff: Design, analysis, modeling & simulations in radiation shielding and nuclear criticality safety studies for a newly designed spherical graphite fuel, gas-cooled reactor.

<u>May 1986 – March 2007</u>
Los Alamos National Laboratory, Los Alamos, New Mexico. Technical Staff Member:
Applied Theoretical Physics Division 5/1986–7/2001;
Nonproliferation and International Security 7/2001–3/2007.

Design, modeling and simulation of energetic and reactive systems in multi-dimensional, multi-material hydrodynamic radiation transport phenomena; design and simulation of complex nuclear assemblies—shock-compression of condensed matter, implosion, explosion analysis of prompt supercritical nuclear and thermonuclear systems.

Design of special hydrodynamic experiments; study of armor/anti-armor Defense applications; resolution of production and stockpile issues for strategic nuclear weapons systems; design consultant to Emergency Response Home Team activities; design physicist for several hydrodynamic and special low-yield nuclear experiments; design and analysis of special-purpose dynamic nuclear systems; safety and criticality studies of static and dynamic nuclear systems; nuclear criticality analysis for special weapons environments; member of the nuclear criticality safety committee; member of the neutron generator steering committee; design and development of complex, dynamic nuclear experiments; design physicist for strategic nuclear weapons systems including associated experiments.

International research and technical analysis; subject matter expert on WMD design & development—consultant and SME contributor to multiple US intelligence agencies; WMD and military analyst for specific regions; contributions to special technical intelligence cell working groups; foreign nuclear weapon design modeling and analysis; briefings and publications of both short and comprehensive analytical reports for technical audiences and senior officials.

<u>August 2012 – June 2016.</u>
Defense Intelligence Agency, DI/DCP-3, Washington, DC. Team Leader, Nuclear Team, & Integrator, CWAC. Senior Intelligence Analyst on nuclear, nonproliferation, and WMD topics. Develop four formal training courses (for credit) that became required training by Office Chief directive for all DCP-Nuclear analysts:

- Computational aspects of nuclear weapons design (unclassified)

- A historical perspective of international nuclear weapons evolution (unclassified)

- Fundamental physics of nuclear weapons (classified)

- Physics of advanced nuclear weapons (classified)

January 2009 – July 2012, June 2016 – August 2020.
US NAVY NAVAIR, Weapons Division (NAWCWD), China Lake, California. Section Leader and Research Physicist: WMD analysis and WMD consultant. Supervise, interview and select, and mentor technical staff. Modeling and simulation of energetic systems with ALE3D.

Computer software architecture development for Evolved Sea Sparrow Missile (ESSM). Software analysis, test, and maintenance for Unmanned systems (UxS). Software tools maintenance and development for F/A-18 aircraft Mission Computers. Mentoring in Linux programming environment. Work exclusively on Unix and Linux platforms: perform modeling & simulations, develop software, give briefings and oral presentations, publish formal documents, and write laboratory reports. Extensive experience working in Unix/Linux Command Terminal environments including Apple/OS-X, Fedora, Debian, RedHat, and openSUSE Linux Operating systems. Programming in FORTRAN 77 & 90, C, Unix/Linux Bash, Make, Python-3, and LATEX.

Develop a Linux Capability Program offered regularly at NAWCWD, and by invitation at other US Naval Bases. This program is unique in the entire DOD, consisting of seven practical courses:

1. Vim the (most) powerful text editor; optionally emacs.

2. LATEX typesetting program—the most sophisticated technical publishing software

3. Doxygen—the most widely used software documentation tool

4. Linux Command Terminal

5. Bash programming

6. Make programming

7. Python-3 programming

August 2020 – present.
US Army Nuclear and CWMD Agency, Fort Belvoir, Virginia.
WMD analysis and WMD consultant. Computer programming, modeling and simulations, analyses of effects and survivability in nuclear events. Offer training in Linux computer proficiency and nuclear weapons safety.

Awards

2000 NNSA Defense Programs Award of Excellence for "Significant Contributions to the Stockpile Stewardship Program" by Thomas F. Gioconda, Acting Deputy Administrator for Defense Programs.

2008 Bobbye Straight Faculty Initiative Award for research, University of New Mexico–Los Alamos.

2016 NAWCWD Team Award "For Significant Contributions to the Naval Air Warfare Center Weapons Division, Evolved SeaSparrow Missile Enterprise LHA-6 Team."

Selected Publications

[1] B. Salimi, *Analysis of Finite Domain Criticality Zones in Finite Reactors*, Ph.D. thesis, University of Illinois, Urbana-Champaign, January 1, 1987; also published as LA-10895-T (Los Alamos publication).

[2] B. Salimi, *Design Notes on Local Experiments*, LA-13567, 10 February 1999.

[3] B. Salimi, *A System Review of the W76*, LA-13593, 7 May 1999.

[4] B. Salimi, *Boundary Value Problems with Dirac Delta Function*, The Mathematical Scientist, Vol. 24, No. 2, December 1999.

[5] B. Salimi, *A Special Design for Ellipse Alpha*, LA-13691, 2 February 2000.

[6] B. Salimi, *A Brief Design History of W76*, Defense Research Review, Vol. 8, No. 3, 2000, LLNL.

[7] B. Salimi, *Simple Solutions for a Special Riccati Equation*, The Mathematical Scientist, Vol. 26, No. 1, June 2001.

[8] B. Salimi, *A Design History of the W76*, LA-13750-H, 5 May 2001.

[9] B. Salimi, *A Lie Group Approach to Bernoulli's Transformations*, The Mathematical Scientist, Vol. 26, No. 2, December 2001.

[10] B. Salimi, *Orthogonal Trajectories in Polar Form*, The Mathematical Scientist, Vol. 28, No. 1, June 2003.

[11] B. Salimi, *A First Integral of a Nonlinear Integro-Differential Equation of Volterra*, The Mathematical Scientist, Vol. 38, No. 1, June 2013.

[12] B. Salimi, *Self-Adjoint Form and Exact Solutions*, The Mathematical Scientist, Vol. 40, No. 1, June 2015.