

DAVID J. LEPOIRE

Radiological Health Risk Section
Environmental Science Division
Argonne National Laboratory

Education:

PhD DePaul University, Computer Science, 2003
M.S. DePaul University, Computer Science, 1993
B.S. California Institute of Technology, Physics, 1983

Professional Experience:

1990-Present Environmental Systems Analyst
Radiological Health Risk Section
Environmental Science Division
Argonne National Laboratory

Develops analyses, training, models, and software for environmental and homeland security risk and information systems. Supports a variety of impact analysis (accidents, international radiological source, transportation, recycling, health and safety). Participates in the Russian-US HEU Transparency Program as a monitor and analyst. Develops and implements training for reactor decommissioning and radiological clean up dose analysis. Generates algorithms for scientific models such as groundwater flow, radiation groundshine, and modular uncertainty analysis. Systems have been developed for addressing radiological exposure pathway analysis, Bayesian analysis, uncertainty analysis, plume dynamics, international radiological threats, and web-based integration of GIS, model, communication, and wireless tools. Develops software through the complete life-cycle (analysis, design, implementation, testing, distribution, documentation) for PC-based and web-based assessment analysis and collaborative computer-based communication.

Summary of Previous Experience:

1987-1990 Scientific Assistant, Intense Pulsed Neutron Source
Argonne National Laboratory

Responsible for developing and maintaining neutron scattering instruments and data analysis software. Collaborates with visiting scientists in conducting and analyzing experiments. Uses extensive VAX/VMS (Fortran) for data reduction, hypothesis testing, and statistical analysis.

1983-1987 Associate Member of the Professional Staff,
Nuclear Sciences Department
Schlumberger-Doll Research, Ridgefield, CT

Responsible for researching tools for oil exploration with neutron sources. Proposes, designs, conducts, analyzes, and publishes results of laboratory experiments and theoretical models: neutron moderation timing studies involving pulsed fusion-generated neutrons; statistical model generation, testing and subsequent model inversion; Markov chain modeling of moderation using multiple vibrational molecular excitation cross sections; Bore-hole modeling including boron-epoxy pad design incorporating position sensitive He-3 detectors clad in various amounts of Cd and Gd to achieve epithermal spectral measurements. Computer models utilize Monte Carlo techniques, analytical matrix techniques, and empirical correlation techniques.

Research Interests:

Trends in technology progression and societal responses in areas such as energy, environment, and science.

Monte Carlo and uncertainty techniques as applied to particle scattering processes, environmental transport processes, and data fusion.

Publications:

Author or co-author of 60 journal, book, report, and/or conference publications and presentations.