
PROFESSIONAL DATA

Ciriaco Valdez-Flores, Ph.D., P.E.

Senior Risk Assessment Consultant
Sielken & Associates Consulting, Inc.
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Bryan, Texas 77802
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Birth date: November 22, 1957
Citizenship: U.S.A.
Marital Status: Married, two children

Professional Interests:

- Quantitative Risk Assessment
- Monte Carlo Simulation
- Applied Stochastic Processes
- Markovian Decision Processes
- Optimal replacement and maintenance analysis
- Analysis of Queuing Systems
- Linear Programming
- Nonlinear Programming
- Inventory Management

EDUCATION

Ph.D. Industrial Engineering, Texas A&M University, 1983--1987
M.S. Industrial Engineering, Texas A&M University, 1981--1983
B.S. Industrial and Production Engineering, Instituto Tecnológico de Cd. Victoria,
Tamaulipas, Mexico, 1976--1980

EXPERIENCE: Educational

Visiting Assistant Professor of Industrial Engineering, Texas A&M University,
6/89--5/91, 6/92--12/92
Graduate Teaching Assistant, Texas A&M University, 5/83--12/86
Professor, Instituto Tecnológico de Cd. Victoria, Tamaulipas, Mexico, 9/80--8/88

EXPERIENCE: Industrial and Consulting

Senior Risk Assessment Consultant, Sielken & Associates Consulting, Inc.,
Bryan, TX, 1/01--present
Quantitative Risk Assessment Consultant, Sielken, Inc., Bryan, TX, 1/91--12/00
Consultant, Sielken, Inc., Bryan, TX, 6/89--12/90
Research Associate, Sielken, Inc., Bryan, TX, 1/87--5/89
Electrical Technician, CODYME, Cd. Victoria, Tamaulipas, Mexico, 6/77--6/80

HONORS AND AWARDS

Distinguished Master's student award by Alpha Pi Mu,
Industrial Engineering Department, Texas A&M University, 1983.
Alpha Pi Mu (Industrial Engineering) Honor Society Member.
Phi Kappa Phi Honor Society Member.

PROFESSIONAL REGISTRATION

Registered Professional Engineer in the State of Texas # 68372

PROFESSIONAL SOCIETIES

The Institute for Operations Research and the Management Sciences

PUBLICATIONS AND PRESENTATIONS:

Sielken, Robert L., Jr, Ciriaco Valdez-Flores, and Larry R. Holden (2002). Statistical Inferences about the Mechanism of Action in Carcinogenicity Studies. Oral Presentation. International Symposium on Agricultural Exposures and Cancer. Green College, Oxford, England, November 19 – 22, 2002.

Valdez-Flores, Ciriaco, Larry R. Holden, and Robert L. Sielken, Jr. (2002). Generating Single-Unit Residue Concentration Distributions based on Maximum Likelihood Estimation from Composite Data. *Environmetrics*, Vol. 13, pp. 711-724.

- Amsel, Jonathan, Kevin J. Soden, Robert L. Sielken Jr., and Ciriaco Valdez-Flores (2001). Observed versus Predicted Carboxyhemoglobin Levels in Cellulose Triacetate Workers Exposed to Methylene Chloride. *American Journal of Industrial Medicine*, Vol. 40, pp. 180-191.
- Sielken, Robert L., Jr. and Ciriaco Valdez-Flores (2001). Dose-Response Implications of the University of Alabama Study of Lymphohematopoietic Cancer Among Workers Exposed to 1,3-Butadiene, Styrene, and Dimethyldithiocarbamate in the Synthetic Rubber Industry. *Chemico-Biological Interactions*, Vol. 135-136, pp. 637-651.
- Breckenridge, C. B., J. T. Stevens, J. W. Simpkins, J. C. Eldridge, L. Tirey, R. L. Sielken, Jr., and C. Valdez-Flores (2001). Mechanisms Undelying the Occurrence of Mammary Adenocarcinomas and Fibroadenomas in Female Sprague-Dawley Rats Exposed to Atrazine: A Statistical Evaluation of Risk Factors. Poster presentation. Society of Toxicology, 40th Annual Meeting. San Francisco, CA. March 25-29. 2001.
- Sielken, Robert L., Jr., C. Valdez-Flores, L. Holden, T. Pastoor, and J. T. Stevens (2001). Time-to-Tumor Analyses of Liver Tumors in Mice Exposed to Thiamethoxam. Poster presentation. Society of Toxicology, 40th Annual Meeting. San Francisco, CA. March 25-29. 2001.
- Holden R., Larry, Ciriaco Valdez-Flores, and Robert L. Sielken, Jr. (2000). Maximum Likelihood Estimation of Single-Unit Residue Concentration Distributions from Composite Data. Oral presentation. Fourth International Conference on Environmetrics and Chemometrics. Las Vegas, NV. September 18-20.
- Valdez-Flores, Ciriaco and Robert L. Sielken (2000). Dose-Response Implications of the University of Alabama Study of Lymphohematopoietic Cancer Among Workers Exposed to 1,3-Butadiene, Styrene, and Dimethyldithiocarbamate in the Synthetic Rubber Industry. Oral Presentation. International Symposium: Evaluation of Butadiene, Isoprene & Chloroprene Health Risks. London, UK. September 12-14, 2000.
- Sielken, Robert L. Jr., Robert S., Bretzlaff, Ciriaco Valdez-Flores, Donald E. Stevenson, and Geert de Jong (1999). Cancer Dose-Response Modeling of Epidemiological Data on Worker Exposures to Aldrin and Dieldrin. *Risk Analysis* Vol. 6, pp. 1101-1111.
- Teta, Jane M., Robert L. Sielken, Jr., and Ciriaco Valdez-Flores (1999). Ethylene Oxide Cancer Risk Assessment Based on Epidemiological Data: Application of Revised Regulatory Guidelines. *Risk Analysis* Vol. 6, pp. 1135-1155.

- Sielken, Robert L. Jr. and Ciriaco Valdez-Flores (1999). Probabilistic Risk Assessment's Use of Trees and Distributions to Reflect Uncertainty and Variability and to Overcome the Limitations of Default Assumptions. Special Issue of *Environmental International* on: Modeling and Simulation. Vol. 25, pp. 755-772.
- Sielken, Robert L. Jr., Robert S. Bretzlaff, and Ciriaco Valdez-Flores (1998). Probabilistic Risk Assessment for Atrazine and Simazine in Triazine Herbicides: Risk Assessment, ACS Symposium Series 683, Ed. Larry G. Ballantine, Janis E. McFarland, and Dennis S. Hackett, *American Chemical Society*, Oxford University Press, (1998).
- Feldman, Richard M. and Ciriaco Valdez-Flores. *Applied Probability and Stochastic Processes* PW&S Publishing Co., Boston, MA (1996).
- Valdez-Flores, Ciriaco, Robert L. Sielken Jr., Phillip A. Clifford, David E. Ludwig, Marcy I. Banton, Daniel E. Barchers, Robin D. Smith, and J. Scott Klingensmith (1996). Use of a Co-Located Distributions Procedure to Estimate Biota Tissue Concentrations at the Rocky Mountain Arsenal. *Environmental Science & Technology*. (Under Revision)
- Banton, Marcy I., J. Scott Klingensmith, Daniel E. Barchers, Phillip A. Clifford, David E. Ludwig, A. Michael Macrander, Robert L. Sielken Jr., Ciriaco Valdez-Flores (1996) An Approach for estimating Ecological Risks from Organochloride Pesticides to Terrestrial Organisms at Rocky Mountain Arsenal. *Human & Ecological Risk Assessment*, Vol. 3, pp. 499-526.
- Sielken, Robert L. Jr. and Ciriaco Valdez-Flores (1996). Comprehensive Realism's Weight-of-Evidence Based Distributional Dose-Response Characterization. *Human & Ecological Risk Assessment*, Vol. 2, pp. 175-193.
- Valdez-Flores, Ciriaco (1995). Comprehensive Realism's Weight-of-Evidence Based Distributional Dose-Response Characterization. Uncertainty in Toxicological Risk Assessment Workshop, Health Canada, Ottawa, Ontario. October 18-19, 1995.
- Sielken, Robert L. Jr. and Ciriaco Valdez-Flores (1994). Comprehensive Realism: The Next Tier in Risk Assessment. Workshop. Society for Risk Analysis: 1994 Annual Meeting. Baltimore, Maryland. December 4, 1994.
- Gray, George M., S. John Evans, Robert L. Sielken Jr., Andrew E. Smith, Ciriaco Valdez-Flores, and John D. Graham (1994). Use of Probabilistic Expert Judgment in Uncertainty Analysis of Carcinogenic Potency. Oral Presentation. Society for Risk Analysis: 1994 Annual Meeting. Baltimore, Maryland. December 5, 1994.

- Valdez-Flores, Ciriaco, Robert L. Sielken Jr., J. Scott Klingensmith, and Marcy I. Banton (1994). Designing Field Sampling Programs for Prey Species: Rocky Mountain Arsenal Case Study. Poster Session. Society of Environmental Toxicology and Chemistry: 1994 Annual Meeting. Denver, Colorado. November 3, 1994.
- Sielken, Robert L. Jr., Ciriaco Valdez-Flores, J. Scott Klingensmith, and Marcy I. Banton (1994). Overcoming Statistical Pitfalls in Ecological Risk Assessment. Poster Session. Society of Environmental Toxicology and Chemistry: 1994 Annual Meeting. Denver, Colorado. November 3, 1994.
- Sielken, Robert L. Jr., Ciriaco Valdez-Flores, Phillip A. Clifford, Marcy I. Banton, and J. Scott Klingensmith (1994). Use of Co-Located Distributions Method to Estimate Biota Tissue Concentrations at the Rocky Mountain Arsenal. Oral Presentation. Society of Environmental Toxicology and Chemistry: 1994 Annual Meeting. Denver, Colorado. November 3, 1994.
- Valdez-Flores, Ciriaco, and Robert L. Sielken Jr. (1994). DistFIT (Probability Distribution Fitting): A Software System for Fitting Parametric Distributions to Environmental Data. Poster Session. Society of Environmental Toxicology and Chemistry: 1994 Annual Meeting. Denver, Colorado. October 31, 1994.
- Sielken, Robert L. Jr., and Ciriaco Valdez-Flores (1994). DistGEN (Probability Distribution Generator): Monte Carlo Simulation Software for Environmental Phenomena and Statistical Methodology. Poster Session. Society of Environmental Toxicology and Chemistry: 1994 Annual Meeting. Denver, Colorado. October 31, 1994.
- Evans, S. John, George M. Gray, Robert L. Sielken Jr., Andrew E. Smith, Ciriaco Valdez-Flores, and John D. Graham (1994). Use of Probabilistic Expert Judgment in Uncertainty Analysis of Carcinogenic Potency. *Regulatory Toxicology and Pharmacology*, **20**: 15-36.
- Feldman, Richard M., Bryan L. Deuermeyer, and Ciriaco Valdez-Flores (1993). Utilization of the Method of Linear Matrix Equations to Solve a Quasi-Birth-Death Problem. *Journal of Applied Probability*, **f 30**: 639-649.
- Sielken, Robert L. Jr., Ciriaco Valdez-Flores, Phillip A. Clifford, David E. Ludwig, and Marcy I. Banton (1993). A Co-Located Distributions Approach to Estimating the Bioaccumulation Factor for Ecological Risk Assessment. Poster Session. Society of Toxicology: 1993 Annual Meeting. New Orleans, Louisiana. March 17, 1993. Received the Award for Outstanding Presentation from the Risk Assessment Specialty Section.

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- Sielken, Robert L. Jr., Ciriaco Valdez-Flores, John S. Evans, John D. Graham, George M. Gray, and Andrew E. Smith (1993). Evaluation of Chloroform Risk to Humans. The Toxicology Forum: 1993 Annual Winter Meeting. Washington, D.C. February 15, 1993.
- Valdez-Flores, Ciriaco and Richard M. Feldman (1992). An Improved Policy Iteration Algorithm for Semi-Markov Maintenance Problems. *IIE Transactions*, **24**: 55-63.
- Valdez-Flores, Ciriaco and Richard M. Feldman (1989). A Survey of Preventive Maintenance Models for Stochastically Deteriorating Single-Unit Systems. *Naval Research Logistics*, **36**: 419-446.
- Valdez-Flores, Ciriaco and Merbil Gonzalez Martinez (1989). *Engineering Economic Analysis Software* to accompany Blank-Tarquin: Engineering Economy, Third Edition, McGraw Hill, New York, NY.
- Blank, Leland T., Anthony J. Tarquin, Ciriaco Valdez-Flores and Merbil Gonzalez Martinez (1989). *User's Manual to accompany Engineering Economic Analysis Software*, McGraw Hill, New York, NY.
- Ingenieria Industrial: Mas que una Carrera un Estilo de Vida. Semana de Ingenieria Industrial, Institute of Industrial Engineers, Instituto Tecnologico de Cd. Victoria, Tam. Mexico, September 13, 2002.
- Referee on the Sixth National Contest of Creativity in Industrial Engineering of the Sistema de Institutos Tecnologicos de Mexico. Nuevo Laredo, Tam., Nov. 19-22, 1991.
- Short Course on Simulation in the Tecnologico de Saltillo, Mexico, 7/1/91--7/5/91.
- Tutorial on Simulation in the Industrial Engineering Departments at the Tecnologico de Monterrey and the Tecnologico de Saltillo, Mexico, 3/90.
- Procesos de Decision de Markov, Segundo Ciclo de Conferencias de Ingenieria Industrial, Instituto Tecnologico de Cd. Victoria, Tam. Mexico, November 1986.

Have refereed papers for the journals:

- Risk Analysis
- Operations Research
- Annals of Operations Research
- European Journal of Operational Research
- Information Systems and Operational Research (Canada).
- Naval Research Logistics
- International Journal of Production Economics
- The Engineering Economist

COMPUTER SYSTEMS DEVELOPED:

ENGINEERING ECONOMIC ANALYSIS SOFTWARE.

To accompany ENGINEERING ECONOMY, Third Edition, By Leland T. Blank and Anthony J. Tarquin, McGraw-Hill, 1989. \newline

A software system used in conjunction with the textbook to perform basic economic analysis computations, such as; present worth, future worth, equivalent uniform annual worth, using effective interest rates or nominal interest rates with different compounding periods. The software includes programs to evaluate competing projects, such as; ROIDS to determine the return on investment, and MINCL for the minimum cost life determination.

DistFIT, Sielken, Inc., 1992-1996.

Software system that can fit any of twelve parametric probability distributions to any user-specified sample data. DistFIT determines the best fitting parameter values which, when substituted into the type of probability distribution specified by the user, optimize the user-specified fitting criterion. The software has eleven possible fitting criteria, such as maximum likelihood, least squares, Kolmogorov-Smirnov, Chi-square, etc. Sample data can be in the form of uncensored observations, censored data or in the form of percentiles.

DistGEN, Sielken, Inc., 1991-1996.

General Monte Carlo simulator that allows the user to specify any FORTRAN based function of up to 3000 random variables. The software uses Latin Hypercube techniques to speed the convergence of the simulation. DistGEN has been used to simulate a wide diversity of environmental phenomena, such as: estimation of cancer risks, estimation of non-cancer risks, fate and transport of chemicals in the environment, exposure assessment through different routes of exposure, evaluation of the performance of statistical procedures, etc.

OFFSITE, Sielken, Inc., 1987-1994.

Software system used to developed distributional characterizations of risk to determine standards for multipathway and multimedia exposures to contaminants for populations indirectly affected by a contaminated site.

ONSITE, Sielken, Inc., 1987-1994.

Software system used to developed distributional characterizations of risk to determine standards for multipathway to contaminants for populations directly affected by a contaminated site.

GEN.T, Sielken, Inc., 1987-1996.

A software system that is a GENeral Tool for incorporating dose-response modeling and extrapolation techniques into quantitative cancer and noncancer risk assessments. GEN.T includes essentially all current dose-response model for high-to-low-dose extrapolations and benchmark dose determination. The software can reflect response-frequency data, time-to-response data, user-specified target site doses (delivered doses, physiologically based pharmacokinetic doses, and biologically effective doses), age-dependent doses and model parameters, cell proliferation, species and route extrapolations, and individual variability in background doses and susceptibility.

EPID.T, Sielken, Inc., 1989-1996.

A software system that together with GEN.T can be used to model EPIDemiological data. Each individual in the retrospective epidemiological study can have his or her own distinctive age-dependent exposure.

PBPK Modeler, Sielken, Inc., 1989-1996.

A physiologically-based pharmacokinetic modeler of the time-dependent delivered doses corresponding to user-specified parameterizations of a flow-limited, multi-compartment body undergoing inhalation, intravenous, or oral exposure. The exposure can be time dependent and the software can analyze the distribution of xenobiotic to up to twelve different compartments (organs) simultaneously.

UNRAVEL, Sielken, Inc., 1993-1996.

A software system that uses decision theory to determine distributional characterizations of the added cancer risks at user-specified dose levels and explicitly incorporates weights on the relative plausibility of competing alternatives in a weight-of-evidence analysis of the current state of knowledge concerning the carcinogenic effects of a specified substance.

UNRAVELN, Sielken, Inc., 1993-1996.

A software system that uses decision theory to determine distributional characterizations of the reference doses for the noncancer health effects of a

specific substance. The software facilitates a weight-of-evidence analyses of the competing indicator doses and uncertainty factor characterizations to include variability and uncertainty associated with the determination of reference doses.

TREE (in development), Sielken, Inc., 1995-1996.

A software system that uses decision theory to determine distributional characterizations of user-specified distributional values. TREE facilitates the decision making process using a weight-of-evidence analyses of alternative characterizations of stochastic phenomena.

ROBUST, Sielken, Inc., 1993-1995.

A computer package that fits observations that include truncated values (below the limit of detection) and estimates replacement values for the truncated observations.

MaxLIP, Sielken, Inc., 1998-1999

Maximum Likelihood Imputation Procedure for Imputing Single-Serving Residue Concentration Distributions from Composite Samples. MaxLIP is a two-step procedure that uses maximum likelihood estimation techniques and Monte Carlo simulation to estimate the distribution of residue concentrations in single units from a database of composite residue concentration values.

COURSES TAUGHT AT TEXAS A&M UNIVERSITY:

COURSE	SESSION	
INEN 421. Operations Research II	Summer	1985
INEN 662. Techniques for Risk Quantification	Summer	1989
INEN 618. Stochastic Processes in the Assurance Sciences	Fall	1989
INEN 662. Techniques for Risk Quantification	Spring	1990
INEN 662. Techniques for Risk Quantification	Spring	1990
INEN 662. Techniques for Risk Quantification	Summer	1992
INEN 618. Stochastic Processes in the Assurance Sciences	Summer	1990
INEN 661. Network-Based Planning and Scheduling Systems	Fall	1990
INEN 662. Techniques for Risk Quantification	Fall	1990
INEN 618. Stochastic Processes in the Assurance Sciences	Fall	1990
INEN 618. Stochastic Processes in the Assurance Sciences	Fall	1990
INEN 618. Stochastic Processes in the Assurance Sciences	Fall	1992

MASTER'S PROJECTS SUPERVISED:

Interactive Branch and Bound Technique to Solve Mixed Integer Programming Problems

An Enhanced CARBD Software Package

Selection of Best-Fit Reliability Growth Model

Comparative Analysis of Reliability Model: Fault Tree, Block Diagram and Markov Graph

Repair Maintenance Level Probabilities

A Design of Experiments for Composite Cure Cycles

Repairable Systems Failure Data Analysis

Estimating Optimal Transformation for Experimental Data

Forecasting the Number of Spare Parts Needed Through the Application of Several Commonly Used Forecasting Models

Reliability Estimates for Fatigue Design Based on the Safety Factor

Abstract Finite State Logic Machine

Baseball Under Control?

Reliability Prediction of a Centrifugal Pump using Failure Rate Models

Life Cycle Cost Analyzer: A Software Package for Simulating System Life Cycle Costs

Process Quality Cost Prediction by Computer Simulation

Data Reduction and Reliability Prediction "DR²P"

Fault Detection Through Laser Vibration Analysis

Laser Inspection of Engine Components

Fault Detection Using Vibration Analysis

Laser Vibration Inspection System: An Automated System to Diagnose the Condition of Vehicle Gearboxes Using Vibration Analysis

Test Plan to Evaluate the Effects of Chemical Protective Equipment on the System's Mean Time to Repair (MTTR) and Operational Availability (A_o)

Interactive Computer Program for Solving Mixed Integer Problems Using Branch and Bound

Automated Two-Dimensional Cutting Layout Using Dynamic Nesting Emulation

Sequential Probability Ratio Test Modeled by Gamma Distribution

A Comparative Analysis of Application Techniques for Coating Selected Components of the M2/M3 Bradley Infantry Fighting Vehicle

A Computer Aided Approach to Solving Problems in Markov Chains