

List of Publications -- Dr. Joseph George Caldwell

Most of the publications listed below are reports to clients, not articles in peer-reviewed journals. While most of them are applications of mathematical, statistical and computer-science methodology, it some of them contain significant original mathematical research. The articles produced at Lambda Corporation were "peer reviewed" by well-known scientists in the fields of optimization and game theory, including Hugh Everett III, George E. Pugh and John P. ("Jim") Mayberry.

1. Caldwell, J. G., E. L. Hill, and W. K. Grogan, Determination of Shelter Configuration for Ventilation, Final Report R-OU-177, Research Triangle Institute / US Office of Civil Defense, Durham, North Carolina, 1965.
2. Caldwell, J. G., Synchronizable Error-Correcting Codes, Ph.D. Doctoral Dissertation, Institute of Statistics Mimeo Series No. 469, Department of Statistics, University of North Carolina, Chapel Hill, North Carolina, 1966.
3. Bose, R. C. and J. G. Caldwell, "Synchronizable Error-Correcting Codes," Information and Control, 10, 1967. Posted at <http://www.foundationwebsite.org/SynchronizableErrorCorrectingCodes.pdf>.
4. Caldwell, J. G., Economic Simulation and Analysis Report, Sales and Price Simulator, and New Product Generator, (reports on proprietary work done for client), Lambda Corporation, 1969.
5. Caldwell, J. G., T. S. Schreiber, and S.S. Dick, Some Problems in Ballistic Missile Defense Involving Radar Attacks and Imperfect Interceptors, ACDA/ST-145 SR-4, Special Report No. 4, Lambda Corporation / US Arms Control and Disarmament Agency, 1969. Unclassified summary (Optimal Attack and Defense for a Number of Targets in the Case of Imperfect Interceptors, 31 July 2001) of mathematics posted at Internet website <http://www.foundationwebsite.org/OptStratTerminalDefense.htm>.
6. Caldwell, J. G., Subtractive Overlapping Island Defense with Imperfect Interceptors, ACDA/ST-166, Lambda Corporation / US Arms Control and Disarmament Agency, 1969 (Secret). Unclassified summary (27 August 2001) of mathematics posted at Internet website <http://www.foundationwebsite.org/SubtractiveOverlappingIslandDefense.htm>.
7. Caldwell, J. G., Documentation for the time series analysis program: TIMES, Lambda Corporation, 1970. Extract TIMES Box-Jenkins Forecasting System, Reference Manual, Volume I, Technical Background, (revised March 1971,,reformatted September 2006), posted at <http://www.foundationwebsite.org/TIMESVol1TechnicalBackground.pdf>).
8. Caldwell, J. G., Conflict, Negotiation, and General-Sum Game Theory, Lambda Paper 45, Lambda Corporation, 1970. Reprint posted at Internet website <http://www.foundationwebsite.org/Conflict.htm>.
9. Caldwell, J. G., HARDPOINT: A Time-Sharing Model for Analysis of Minuteman Defense, Paper prepared for presentation at the Strategic Nuclear Force Exchange Modeling Symposium, National Military Command System Support Center, Washington, DC, March 23, 1971.
10. Caldwell, J. G., HARDSITE Defense Model, Volume 1 (Mathematical Description) and Volume 2 (Program Description and User's Manual), Lambda Corporation / Office of Deputy Assistant Secretary of Defense (Systems Analysis), 1971.
11. Caldwell, J. G., Box-Jenkins Filter Feasibility Study, Lambda Corporation, 1971.
12. Caldwell, J. G., AMTRAK Passenger Car Inspection Plan, American Management Systems, Arlington, Virginia, 1971.

13. Caldwell, J. G. and J. P. Mayberry, Naval Combat Damage Model, Lambda Corporation / Office of Naval Research, 1972.
14. Caldwell, J. G. and G. E. Pugh, Multiple Resource-Constrained Game Solution, Lambda Corporation, 1972. Also: Caldwell, J. G., Multiple Resource-Constrained Game Solution: Computer Program Description and User's Manual, Lambda Corporation, 1972.
15. Caldwell, J. G. et al., Correlation/Tracking Performance Study -- DCP Input (U), Vols I and II, Report R-1650, Planning Research Corporation / Navy Space Systems Activity (NAVELEX), 1973 (Secret).
16. Caldwell, J. G. and A. B. Tolk, Measures of Computer Resource Utilization, Planning Research Corporation PRC Data Services Company, 1973.
17. Caldwell, J. G. et al., Improvements to the Systems Simulation Program, Vols. I and II, Report R-1801, Planning Research Corporation / Navy Space Systems Activity (NAVELEX), 1974 (Secret).
18. Caldwell, J. George and Betty Duskin, Vocational Rehabilitation State Allocation Study, Social and Rehabilitation Service, JWK International Corporation, 1974.
19. Caldwell, J. G. and E. T. Duskin, Day Care Cost Benefit Study, Social and Rehabilitation Service, JWK International Corporation, 1974.
20. Caldwell, J. G., Sampling Manual for Utilization Review, JWK International Corporation, Office of Information Sciences, Social and Rehabilitation Service, US Department of Health, Education, and Welfare, 1974, 1975.
21. Caldwell, J. G. and Marcia S. Murdoch, Design Task for a Survey of Persons in Long Term Care Institutions, General Research Corporation / Office of Assistant Secretary for Planning and Evaluation, US Department of Health, Education and Welfare, 1975. The survey for which the questionnaires and sample design were constructed was conducted by the Bureau of the Census, and documented in the reports, *1976 Survey of Institutionalized Persons: Methods and Procedures*, Technical Paper 42, US Department of Commerce, Bureau of the Census, 1978; and *1976 Survey of Institutionalized Persons: A Study of Persons Receiving Long-Term Care*, Current Population Reports, Special Studies Series P-23, No. 69, US Department of Commerce, Bureau of the Census, 1978.
22. Caldwell, J. G., Sample Design for National Health Insurance Survey of BCHS Users, J. G. Caldwell and Associates / General Research Corporation / Health Services Administration, 1975.
23. Caldwell, J. G., Chuck Meike et al., Workload Reporting Validation Guidelines, Analytic Systems, Pennsylvania Bureau of Employment Security / Analytic Systems, Inc., 1976.
24. Caldwell, J. G. et al., Vocational Rehabilitation Performance Evaluation Standards Study, JWK International Corporation, Rehabilitation Services Administration, 1976.
25. Caldwell, J. G., Sampling Manual for Title XX Social Services Reporting Requirements (SSRR), JWK International Corporation, Social and Rehabilitation Service, 1976.
26. Caldwell, J. G. et al., Benefit-Cost Analysis of Alcoholism Treatment Centers, JWK International

Corporation, National Institute for Alcohol Abuse and Alcoholism, 1976.

27. Caldwell, J. G. et al., Assessment of Cost and Operational Impacts of SNF/ICF Standards, JWK International Corporation, Social and Rehabilitation Service, 1976.
28. Caldwell, J. George (project supervisor and statistician), Ernest L. Murphy (Project Director), Vincent R. McDonald, John R. Moore, Bradley R. Schiller and Eric Pierre, Agricultural Policy Studies in Haiti (Coffee, Cotton, Sisal, Mangoes and Meat), JWK International Corporation, US Agency for International Development, 1976.
29. Caldwell, J. G., Sample Design for PSRO Data Base Development Study, J. G. Caldwell and Associates, SysteMetrics, Inc., 1976. Final report was Oshel, Robert, James Lubalin, J. George Caldwell and Craig Spirka, Development of a Data Base to Determine the Impact of PSRO Concurrent Review on Hospital Utilization, General Research Corporation and SysteMetrics, Inc., 1977.
30. Caldwell, J. G. et al., Development of a Data Base to Determine the Impact of PSRO Concurrent Review on Hospital Utilization, General Research Corporation, McLean, VA, and SysteMetrics, Inc., Bethesda, MD, 1977.
31. Caldwell, J. G. et al., Analysis of Vocational Rehabilitation Agency Performance, JWK International Corporation, Rehabilitation Services Administration, 1977.
32. Caldwell, J. George, Judith T. Lessler, Robert Mason, George E. Pugh and Richard A. Rosthal, Subsampling of Nonrespondents in Longitudinal Studies, Killalea Associates / National Center for Education Statistics, 1977.
33. Caldwell, J. G., Sampling Plan for Selection of SMSAs in the Housing Market Practices Survey, JWK International Corporation, US Department of Housing and Urban Development, National Committee Against Discrimination in Housing, Washington, DC, 1977. Survey results presented in Measuring Racial Discrimination in American Housing Markets: The Housing Market Practices Survey by Ronald E. Wienk, Clifford E. Reid, John C. Simonson and Frederick J. Eggars, US Department of Housing and Urban Development, Office of Policy Research and Development, April 1979.
34. Caldwell, J. George, Simin Royanian and Leonard Greenberg, Analysis of Federal Matching Assistance Percentage (FMAP) Formula, JWK International Corporation, Health Care Financing Administration, 1978.
35. Caldwell, J. G., Sample Design for Study of Quality of Flow in Urban Arterials, J. G. Caldwell and Associates / Alan M. Voorhees & Associates / Planning Research Corporation / US Federal Highway Administration, 1978.
36. Caldwell, J. G. et al., Sampling Manual for Office of Child Support Enforcement Requirements, Vista Research Corporation, JWK International Corporation, US Office of Child Support Enforcement, 1978.
37. Caldwell, J. G. Sample Design for Development of Data Files on Hospital Utilization and Community Characteristics, Vista Research, Inc., SysteMetrics, Inc., National Center for Health Services Research, Office of the Assistant Secretary for Health, US Department of Health, Education and Welfare, 1978.

38. Caldwell, J. George, Helen Humphrey, Randall Russell and Steve Swadley, Measuring the Effectiveness of Social Services, Volumes I and II, Vista Research Corporation / State of West Virginia, 1978.
39. Caldwell, J. George, Joyce A. Hospodar and Randall H. Russell, Microsimulation Forecasting Model for Human Development Services Programs, Vista Research Corporation / Office of Planning, Research and Evaluation, Office of Human Development Services, US Department of Health and Human Services, 1980. Report consists of six volumes: (1) Report on Project Activities, Executive Summary; (2) Report on Project Activities; (3) MICROSIM: User's Manual; (4) MICROSIM: Detailed Model Description; (5) MICROSIM: User's Guide; and (6) MICROSIM: Utah Pilot Test. Related reports: Working Paper No. 17, A Conceptual Statistical Reporting System; Working Paper No. 16: Paper presented at Human Services Information Systems Conference, HEW Office of Human Development Services, Tucson, AZ, January 1980; Paper presented at the 1980 Annual Meeting, American Statistical Association, Houston, TX, August 1980
40. Caldwell, J. G. et al., Technical Memoranda for the project, Micro Component of the Economic and Social Impact Analysis / Women in Development (ESIA/WID) Project, National Economic Development Authority (NEDA), Vista Research Corporation / Government of the Philippines, 1979 – 1981.
41. Caldwell, J. G. et al., Dynamic Electromagnetic Combat Effectiveness Model (DESCEM): Measures of Message Delay, US Army Electronic Proving Ground, Electromagnetic Environmental Test Facility, 1984.
42. Caldwell, J. G. et al., Realistic Electromagnetic Environment for Stress Load Testing, US Army Electronic Proving Ground, Electromagnetic Environmental Test Facility, 1984.
43. Caldwell, J. G. et al., Simulation Model Architecture and Intelligence / Electronic Warfare Model Extension, US Army Electronic Proving Ground, Electromagnetic Environmental Test Facility, 1985.
44. "Modeling and Simulation Architecture for Dynamic Electronic System Testing at the US Army Electronic Proving Ground's Electromagnetic Environmental Test Facility," paper presented at the "Government/Industry -- Partners in Testing" US Army Test and Evaluation Symposium, US Army Test and Evaluation Command / American Defense Preparedness Association, Aberdeen Proving Ground, March 19-21, 1985.
45. Caldwell, J. G., Improved Algorithms for Estimation, Prediction and Control, Vista Research Corporation / Office of Naval Research, 1986.
46. How to Stop the IRS and Solve the Deficit Problem, book on reform of the US tax system, Vista Research Corporation, Sierra Vista, Arizona, 1987 (427 pages). Republished as The Value-Added Tax: A New Tax System for the United States, posted at Internet web site <http://www.foundationwebsite.org/VAT.htm> .
47. Caldwell, J. G., et al., Methodology for Analysis of Voice Scoring Facility Data, US Army Electronic Proving Ground, Electromagnetic Environmental Test Facility, 1988.
48. Caldwell, J. G., et al., Simulation Analysis of Alternative Voice Scoring Methodologies, US Army Electronic Proving Ground, Electromagnetic Environmental Test Facility, 1988.

49. Caldwell, J. G. and R. Reiner, "System Testing Using the Stress Loading Facility," The ITEA Journal of Test and Evaluation, Vol. IX, No. 1, pp. 36-47, March 1988.
50. Caldwell, J. G., Artificial Intelligence and Modeling and Simulation, paper presented to Eleventh Annual Technical Seminar, Arizona Chapter of Armed Forces Communications and Electronics Association (AFCEA), Sierra Vista, Arizona, March 9-10, 1988.
51. Caldwell, J. George, William O. Rasmussen and Gene C. Naden, Research in Artificial Intelligence for Noncommunications Electronic Warfare Systems, Final Report produced under contract to US Army Communications-Electronics Command, Vista Research Corporation, Sierra Vista, Arizona, 1988.
52. Caldwell, J. G., Theater Tactical Air Warfare Methodologies: Automated Scenario Generation, Final Report produced under contract to US Air Force Systems Command, Vista Research Corporation, Sierra Vista, Arizona, 1989.
53. Caldwell, J. G. et al., Input to the US Agency for International Development Request for Proposals RFP EGYPT 91-008, Management Information System for the Egyptian Health Insurance Organization Cost Recovery Program, produced under contract to the US Agency for International Development, Cambridge Consulting Corporation, Reston, Virginia, 1990.
54. Caldwell, J. George, William N. Goodhue, Sharon K. Hoting, William O. Rasmussen, Fletcher A. K. Aleong, Eric Weiss, Marty Diamond and Christopher S. Caldwell, Scenarist Automated Scenario Generation System, Final Report for the Project, Research in Artificial Intelligence for Noncommunications Electronic Warfare Systems, produced under contract to the US Army Communications-Electronics Command, Vista Research Corporation, Sierra Vista, Arizona, 1991.
55. Caldwell, J. G., Sample Design for Subproject Field Visitation System, Field Test in Sharqiya, and Sample Design Alternatives for Subproject Field Visitation System, sample design reports produced for the USAID-funded project, Local Development II - Provincial, Chemonics International Consulting Division, Cairo, Egypt, 1991.
56. Caldwell, J. G., Joyce Hospodar et al., Analysis of Survey of Nonoperational Subprojects, Chemonics International Consulting Division, Cairo, Egypt, 1991.
57. Caldwell, J. G., Joyce Hospodar et al., LDII-P Subproject Field Visitation System: Kafr El Sheikh, Chemonics International Consulting Division, Cairo, Egypt, 1992.
58. Caldwell, J. G., Joyce Hospodar et al., LDII-P National Subproject Field Visitation Survey, Chemonics International Consulting Division, Cairo, Egypt, 1992.
59. Caldwell, J. G., Susan Watts et al., Indicators for Local Development (5 volumes), Chemonics International Consulting Division, Cairo, Egypt, 1992.
60. Caldwell, J. G., "Scenarist Automated Scenario Generation System," article accepted for publication (but not published because of inability to contact author for final approval) in SIGNAL Magazine (official publication of the Armed Forces Communications-Electronics Association), 1992. Text (no graphics) posted at Internet web site <http://www.foundationwebsite.org/ScenaristAutomatedScenarioGenerationSystem.htm>.

61. Caldwell, J. G., Requirements Analysis and Specifications for the Statistical Subsystem of the Automated Receiver Operating Characteristic System, Western Research Company, Inc., Tucson, Arizona, 1993.
62. Caldwell, J. G., System Documentation for the Personnel Management Information System of the Government of Malawi Civil Service, including System Design Document, Software Requirements Specification, Software Design Document, Software Programmer's Manual, Software Product Specification, and Software User's Manual, Malawi Department of Human Resources Management and Development, Lilongwe, Malawi, 1994.
63. Caldwell, J. G., Description of the Statistical Subsystem of the Automated Receiver Operating Characteristic System, Western Research Company, Inc., Tucson, Arizona, 1995.
64. Caldwell, J. G., Sample Design for Malawi Annual Primary School Survey, J. G. Caldwell, PhD, Spartanburg, SC, July 1995.
65. Caldwell, J. G., Environmental Situation Assessment: Trinidad and Tobago, J. G. Caldwell, PhD, Spartanburg, SC, September 1995. Posted at Internet web site <http://www.foundationwebsite.org/Trin3.htm>.
66. Caldwell, J. G., Ghana Trade and Investment Program, Survey of Employment and Income Impact of Non-Traditional Exports, Sample Description, J. G. Caldwell, PhD, Spartanburg, SC, December 1995.
67. Caldwell, J. G., Can America Survive?, June 6, 1999, November 21, 2000. Book on relationship of global population and environment to fossil fuel availability. Posted at Internet web site <http://www.foundationwebsite.org/canam4x.htm> . Methodology for large-scale nuclear war posted (Optimal Attack in the Case of No Defense, 17 July 2001) posted at <http://www.foundationwebsite.org/OptStratNoDefense.htm>.
68. Caldwell, J. G., How to Play the Guitar by Ear (for mathematicians and physicists), 6 February 2000, updated 3 November 2002. Posted at Internet web site <http://www.foundationwebsite.org/Guitar.htm>. Related article, How to Play the Guitar by Ear in Six One-Hour Lessons (21 August 2008, updated 30 August 2008) posted at <http://www.foundationwebsite.org/HowToPlayTheGuitarByEar6HourCourse.htm> . Summary of Music Theory (11 May 2002) posted at <http://www.foundationwebsite.org/MusicTheorySummary.htm>.
69. Caldwell, J. G., Computer Software for Demographic Analysis and Synthetic Estimation. Dr. Caldwell developed the *DESTINY* microcomputer software for making demographic projections (cohort-component, synthetic estimation), described in Caldwell, J. G., DESTINY 2005 Demographic Estimation, Forecasting and Analysis System, Description of Capabilities, International Version 3.0.01, 1982, 1995, December 26, 2005, posted at <http://www.foundationwebsite.org/DestCapINTL.pdf>.
70. Caldwell, J. G., A Lagrangian Approach to Customer Relationship Management: Variable-Rate Pricing Strategy, 9 August 2006. Posted at Internet web site <http://www.foundationwebsite.org/LagrangianApproachToCRM.htm>.

71. Caldwell, J. G., The Box-Jenkins Forecasting Technique, June 1971, reformatted September 2006. Posted at <http://www.foundationwebsite.org/BoxJenkins.pdf>.
72. Caldwell, J. G., Computer Software for Time Series Analysis, Forecasting and Control. Dr. Caldwell developed the first commercially-available general-purpose Box-Jenkins computer-forecasting package (*TIMES*), described in Caldwell, J. G., TIMES Box-Jenkins Forecasting System, Reference Manual, Volume I, Technical Background, Revised March 1971 (reformatted September 2006), posted at <http://www.foundationwebsite.org/TIMESVol1TechnicalBackground.pdf>). A computer program for developing the most common Box-Jenkins models is posted at <http://www.foundationwebsire.org/BoxJenkinsForecastingProgram.exe>.
73. Caldwell, J. G., Sample Survey Design and Analysis: A Comprehensive Three-Day Course, with Application to Monitoring and Evaluation. 3 April 2007, updated 10 January 2010. Posted at Internet websites <http://www.foundationwebsite.org/SampleSurvey3DayCourseDayOne.pdf> , <http://www.foundationwebsite.org/SampleSurvey3DayCourseDayTwo.pdf> and <http://www.foundationwebsite.org/SampleSurvey3DayCourseDayThree.pdf>.
74. Caldwell, J. G., The Late Great United States, 23 March 2008, 17 December 2008. Posted at <http://www.foundationwebsite.org/TheLateGreatUnitedStates.htm>.
75. Statistical Methodology for Evaluation. An article describing Dr. Caldwell's approach to the design of analytical surveys (e.g., for impact evaluation of economic and social development programs) is Caldwell, J. G., Sample Survey Design for Evaluation (The Design of Analytical Surveys, 20 March 2009, updated 16 June 2010, posted at <http://www.foundationwebsite.org/SampleSurveyDesignForEvaluation.pdf>. A computer program for determining sample sizes for complex surveys is posted at <http://www.foundationwebsite.org/JGCSampleSizeProgram.mdb> (a Microsoft Access program). An illustrative example of use of this program is presented in the article *Determination of Sample Size for Analytical Surveys, Using a Pretest-osttest-Comparison-Group Design*, posted at <http://www.foundationwebsite.org/SampleSizeEstimationAnalyticalSurveysGeneric.htm>.
76. Caldwell, J. G., Statistical Design and Analysis in Evaluation, 9 January 2012 (updated 23 January 2012). Two-day course on sample survey design and analysis for evaluation and monitoring. Posted at Internet website <http://www.foundationwebsite.org/StatisticalDesignAndAnalysisInEvaluation2DayCourse.pdf>.
77. Caldwell, J. G., Foundation Website posted at <http://www.foundationwebsite.org>. Developed and maintain website on divers topics, including planetary management, energy, environment, statistics, optimization, demography, forecasting, population, politics, tax reform, music, guitar, defense, religion, spirituality, philosophy, science fiction, bridge, sailing. Examples of recent articles are (1) The Good Life, 17 October 2004, posted at <http://www.foundationwebsite.org/TheGoodLife.htm>; (2) Miscellany 51: Apparent Wind Speed and True Wind Speed, 7 December 2009, revised 9 December 2009, minor edits 9 February 2010, posted at <http://www.foundationwebsite.org/Miscellany51.htm> ; and (3) Joseph Caldwell Bridge Bidding System, Version 1.02, 4 October 2012, posted at <http://www.foundationwebsite.org/JosephCaldwellBridgeBiddingSystem.htm> .

In addition to the preceding, since 2005 I have produced many reports for clients in the field of impact evaluation. These reports (mainly sample survey design reports) are no longer added to this list of publications. Sample reports include the following, for the Millennium Challenge Corporation Farmer Training and Development Activity and Transportation Projects in Honduras.

78. Design Report, Design and Implementation of MCA Honduras Program Evaluation, NORC at the University of Chicago (Chicago, IL and Bethesda, MD), Millennium Challenge Corporation, Washington, DC., April 10, 2011. Posted at Internet web site <http://www.mcc.gov/documents/reports/report-042011-design-hon-transportation-and-farmer-training.pdf>.
79. Final Report (Revised), Impact Evaluation of the Farmer Training and Development Activity in Honduras, NORC at the University of Chicago (Chicago, IL and Bethesda, MD), Millennium Challenge Corporation, Washington, DC, September 25, 2012. Posted at Internet web site <http://www.mcc.gov/documents/reports/report-100512-evaluation-hon-farmer-training-and-development.pdf>.
80. Draft Final Report, Impact Evaluation of the Transportation Project in Honduras, NORC at the University of Chicago (Chicago, IL and Bethesda, MD), Millennium Challenge Corporation, April 4, 2012.

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