

Curriculum Vitae

Personal Data

Wesley Royce Elsberry
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Concord, California 94519
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Education

- 08/1978–08/1982 B.S. (Zoology), University of Florida, Gainesville, FL
08/1986–08/1989 M.S.C.S. (Computer Science), University of Texas at Arlington, Arlington, TX
08/1993–08/2003 Ph.D. (Wildlife & Fisheries Sciences), Texas A&M University, College Station, TX

Employment

- 11/2003–present National Center for Science Education
Information Project Director
Information technology infrastructure, web site design and maintenance, database design and implementation. Analysis and writing concerning threats to science education.
- 04/1998–09/2003 Science Applications International Corporation
Behavioral Research Programmer
Software and hardware design, implementation, and operation for audiometric, behavioral, and acoustic studies of cetaceans and pinnipeds.
- 08/1994–04/1998 Texas A&M University at Galveston
Graduate Research/Teaching Assistant, Marine Biology
- 10/1991–06/1993 Battelle, Pacific Northwest Laboratories
Research Scientist Level 2
General computer software engineering, with emphasis on Unix C graphical user interface based systems.
Organized and chaired special interest group on artificial neural network applications, 1991-1993.
- 08/1989–06/1991 General Dynamics, Data Systems Division
Computer Systems Engineer
Real-time embedded avionics software programming in JOVIAL for the Fire Control Computer in F-16 Multi-Role Aircraft. System administrator for a heterogenous Sun workstation LAN.
- 1989–1991 Lawrence Erlbaum, Publishers
Production and Research Assistant
Assisting Dr. Dan Levine in producing camera-ready copy for his book, "Introduction to Neural and Cognitive Modeling."
- 10/1983–07/1986 University of Florida, Gainesville, Florida
Laboratory Technologist 1983–1985

Documentary photography, videography, production of presentation materials, audio-visual support, calibration of clinical instruments, and computer use in support of anesthesiology research.

Biological Scientist 1985–1986

Use and programming of microcomputers, statistical analysis, technical writing, biological photography, copy photography, videography in support of physiological research on *Balaenoptera physalus* (fin whales).

1984–1986

Shands Hospital, Gainesville, Florida

Hyperbaric Chamber Attendant

Provided direct patient care in a high-pressure environment.

Public Relations Photographer

Production of high-quality color slides and silver prints for publication under deadlines.

1985

Lane, Trohn, Clarke, Bertrand, and Williams, P.A., Lakeland, FL

Statistical Consultant

Provided first low-level critique of statistical analysis entered by the opposition in a case with \$8 million in disputed damages, contributing to a successful defense.

1982–1983

Media Image Photography, Gainesville, Florida

Darkroom Technician

Produced high-quality silver prints, made high-resolution negatives from prints, and provided photographic expertise for product, still-life, and architectural photography.

1980–1982

Independent Florida Alligator, Gainesville, Florida

Staff Photographer

Weekday deadlines for photojournalism.

1977–1982

Superior Paving, Lakeland, Florida

Rodman, Survey Crew

Research Interests

Animal cognition and behavior, computational biology, evolutionary computation, artificial neural networks, and bioacoustical analysis.

Teaching Experience

1994–1995

Texas A&M University at Galveston

Graduate Teaching Assistant, Marine Sciences

Taught MARS 250 "BASIC Programming" laboratory sections. Taught CPSC 203 "Introduction to computing" laboratory sections. Primarily an introduction to the FORTRAN programming language.

1992

Washington State University, Tri-Cities Campus

Adjunct Faculty, Computer Science

Taught CS 440, Introduction to Artificial Intelligence, Fall, 1992.

1993

Columbia Basin College, Computer Science Department

Adjunct Faculty

Taught third quarter introductory Pascal course.

Courses Using Materials Authored by Wesley R. Elsberry

California State University at Fullerton, Honors 305: Honors Seminar on Evolution and Creation

Syracuse University, Science for the 21st Century (PHY106)

Student Research Opportunities and Mentoring

- 2004 Collaboration with Jennifer Pettis, M.S. student at Georgetown University, for analysis of click trains correlated with behavioral state in bottlenose dolphins at Shark Bay, Australia.
- 1996 MARB 486 Undergraduate Research course, use of audio recordings to document acoustic interference in lekking male Greater Prairie Chickens. One undergraduate student participated. Texas A&M University at Galveston, Galveston, Texas.
- 1995 MARB 486 Undergraduate Research course, use of event recording and video to analyze movement patterns of an Atlantic Spotted Dolphin in rehabilitation. Two undergraduate students participated. Texas A&M University at Galveston, Galveston, Texas.

Skills

Histology: Preparation and use of preservatives and stains.

Bioacoustics: Specification, calibration, and deployment of sound measurement equipment, particularly broadband hydrophones.

Behavior: Programming and use of event recording software. Psychophysical techniques (stairstep method for hearing threshold detection, randomized equal frequency stimulus presentation, etc.).

Computer languages: Professional software production in C, JOVIAL, and Pascal (Delphi) languages. Current use of Perl and PHP for web applications. Familiar with C++, BASIC, FORTRAN, and Lisp.

Computer operating systems: Professional sysadmin for Sun OS 4, FreeBSD v. 2.15 to 5.4 systems. Administered Windows v. 2 to WinXP Pro.

Computer networking: Ethernet configuration using TCP/IP for peer-to-peer networking. Services include SMTP, FTP, SSH, HTTP, POP3, IMAP, and Samba. Wireless network configuration.

Computer techniques: Artificial neural systems, Monte Carlo, Leslie matrix, and lumped parameter modelling. Digital signal processing using Fourier analysis. Web server installation, configuration, and maintenance. Weblog and Content Management Systems. Office software packages, including Microsoft Office applications. Use of DDE and OLE for interapplication client/server techniques.

Photographic processes: Development and printing of black-and-white, color negative, and color slide materials. Digital photo manipulation and printing. Kodalith, Kodak X-Ray reproduction film use for presentation slides. Digital slide production.

Digital electronic circuit design and implementation using VLSI logic.

Photomicrography with photomicroscopes, including setting up Kohler illumination, use of Namarski phase contrast, etc.

Falconry: “Master” level in joint state/federal permitting system.

Certified SCUBA diver.

Scholarships and Fellowships

1978–1982	National Merit Scholarship
1993–1994	Texas A&M University Regents Fellowship
1995–1996	Texas Institute of Oceanography Fellowship
1998–1999	Texas Institute of Oceanography Fellowship

Society activity

	American Association for the Advancement of Science (AAAS)
	Association for Computing Machinery (ACM)
Admitted 3/1994	Gamma Sigma Delta, agriculture honor society
Admitted 5/1997	Phi Kappa Phi, academic honor society
1989–1993	Institute of Electrical and Electronic Engineers
1992–1993	International Neural Network Society
1987–present	Metroplex Institute for Neural Dynamics

Awards, Honors, and Grants

05/2003	“Friend of Darwin” Award (National Center for Science Education)
12/2001	Fred Fairfield Memorial Award for Innovation in Marine Mammal Research (Society for Marine Mammalogy, presented at the 14th Biennial Conference on the Biology of Marine Mammals, Vancouver, British Columbia)
1996-1997	P. Levin (P.I.), D. J. Blackwood, W. R. Elsberry, and D. W. Weller. “Computer Assisted Photo-identification of Individual Bottlenose Dolphins”, \$110K grant from Advanced Research Program, Texas Higher Education Coordinating Board. This research project was the basis of the FinScan photoidentification system.
1987	University of Texas at Arlington Art Festival Photography Competition, First Place

Published Book Reviews

Review of Neural Network Experiments on Personal Computers and Workstations by Granino Korn, MIT Press, Cambridge, MA. Neural Networks 6:737-739 (1993).

Review of The Design Inference by William A. Dembski, Cambridge University Press, Cambridge, UK. Reports of the National Center for Science Education 19(2):32-35 (1999).

Review of Tower of Babel by Robert Pennock, Massachusetts Institute of Technology Press, Cambridge, MA. Friends Journal, Nov. 1999.

Invited Presentations

- 06/06/2006 “How should Evolutionary Biology Be Taught in Schools” panel discussion at Pacific Union College, Angwin, CA
- 04/29/2006 “Ever Since Kitzmiller”, presentation to the North Texas Skeptics, Dallas, TX
- 04/27/2006 “Ever Since Kitzmiller”, presentation to Prof. Ray Eve’s sociology class, University of Texas at Arlington
- 04/25/2006 “Should Intelligent Design Be Taught in Schools?”, debate with Dr. Ray Bohlin, Political Science Symposium, Southern Methodist University
- 02/24/2006 “Evolution and the Public Schools”, presentation to the Carolina Law Review, U.N.C. Chapel Hill, Chapel Hill, NC
- 02/04/2006 “Analysis of the Kitzmiller Decision”, presentation to the New Orleans Theological Seminary’s Greer-Heard Forum, Marietta, GA
- 11/10/2005 “Evolutionary Biology Ever Since Darwin”. Presentation for “college hour” associated with classics reading course, Chabot College, Hayward, California.
- 11/07/2005 “Intelligent Design in a Nutshell”. Presentation to sophomore seminar on pseudoscience, Mills College, Oakland, California.
- 10/19/2005 “Hot Topics”. Part of a panel on “intelligent design” and other threats to science education for the annual meeting of the Geological Society of America, Salt Lake City, Utah.
- 10/05-09/2005 “Evolution, Intelligent Design, and the Law”, seminar for the Oklahoma Scholar-Leadership Enrichment Program, University of Oklahoma, Norman, OK
- 02/23/2003 “Intelligent Design, Science, and Science Education”. San Diego Association for Rational Inquiry, Joyce Beers Community Center, San Diego, California.
- 06/21/2002 “Intelligent Design: Politics and Science Education”. Committee for the Scientific Investigation of Claims of the Paranormal (CSICOP) Fourth World Skeptics Conference, Burbank, California.
- 06/17/2001 “Order and Design: Philosophical Issues”. Center for Theology and the Natural Sciences/American Association for the Advancement of Science “Interpreting Evolution” conference, Haverford College, Haverford, Pennsylvania.
- 1991 “Artificial neural networks: probing AI from the bottom up”. Presented at IEEE MetroCon ’91: Computing Comes of Age, Arlington, Texas.

Peer-Reviewed Publications

- Ridgway, S.H., D.A. Carder, T. Kamolnick, R.R. Smith, C.E. Schlundt and W.R. Elsberry. 2001. Hearing and whistling in the deep sea: depth influences whistle spectra but does not attenuate hearing by white whales (*Delphinapterus leucas*) (Odontoceti, Cetacea). *J. Exp. Biol.* 204:3829-3841.

Wilkins, John S. and Elsberry, Wesley R. 2001. The advantages of theft over toil: the Design Inference and arguing from ignorance. *Biology and Philosophy* 16(5):711-724.

Ridgway, S. H., D. A. Carder, T. Kamolnick, C. E. Schlundt, W. Elsberry and M. Hastings. 1998. Comments on "Broadband spectra of seismic survey air-gun emissions, with reference to dolphin auditory thresholds." *J. Acoust. Soc. Am.* 103, 2177- 2184.

Books and Book Chapters

Shallit, Jeffrey and Wesley Elsberry. 2004. Playing Games with Probability: Dembski's "Complex Specified Information". In *Why Intelligent Design Fails: A Scientific Critique of the New Creationism*, Matt Young and Taner Edis, eds., Rutgers University Press.

Levine, Daniel and Wesley Elsberry, eds. 1997. *Optimality in Biological and Artificial Neural Networks?* Lawrence Erlbaum Associates.

Popular Publications

Elsberry, Wesley R. and Jeffrey O. Shallit. 2003. Eight challenges for intelligent design advocates. *Reports of the NCSE* 23(5-6, Sept.-Dec. 2003):23-25.

Elsberry, W.R. 2000. Enterprising science needs naturalism. *Science and Faith* Vol. 6 No. 2.

Elsberry, W.R. 1992. Information access: what's available and where to get it. *CoNNections*, Newsletter of the IEEE Neural Network Council, 2(2):7-8.

Theses and Dissertations

Elsberry, Wesley R. 2003. *Interrelationships Between Intranarial Pressure and Biosonar Clicks in Bottlenose Dolphins (Tursiops truncatus)*. Ph.D. dissertation, Texas A&M University, College Station, Texas.

Elsberry, Wesley R. 1989. *Integration and hybridization in neural network modelling*. Master's thesis, University of Texas at Arlington. Available through University Microfilms.

Conferences

Elsberry, W., Cranford, T., Ridgway, S., Carder, D., Van Bonn, W., Blackwood, D., Carr, J., and Evans, W. (2001). Interrelationships between intranarial pressure and biosonar clicks in the bottlenose dolphin (*Tursiops truncatus*). 14th Biennial Conference on the Biology of Marine Mammals (Vancouver, British Columbia).

Cranford, T., Elsberry, W., Blackwood, D., Carr, J., Kamolnick, T., Van Bonn, W., Carder, D., and Ridgway, S. (2001). Anatomy and physiology of bilateral sonar signal generation in the bottlenose dolphin. 14th Biennial Conference on the Biology of Marine Mammals (Vancouver, British Columbia).

Cranford, T., Elsberry, W., Van Bonn, W., Carr, J., Blackwood, D., Carder, D., Kamolnick, T., Todd, M., Decker, E., Bozliniski, D., and Ridgway, S. (2000). Physiologic evidence for two independent sonar signal generators in the bottlenose dolphin. *J. Acoust. Soc.*

Am. 108(5(1)), 2613.

- Elsberry, W.R., D.A. Carder, T.W. Cranford, J.A. Carr, and S.H. Ridgway. 1999. Multi-channel digital acquisition methods applied to simultaneous physiological and acoustic events. 13th Biennial Conference on the Biology of Marine Mammals (Wailea, HI), poster presentation.
- Blackwood, D.J.; Evans, W.E.; Steinessen, S. & Elsberry, W.R. 1998. Dolphin Echolocation during foraging: the role of habitat. NATO Conference on Biological Sonar, Carvoeiro, Portugal.
- Ridgway, Sam, Don Carder, Carolyn Schlundt, Tricia Kamolnick, and Wesley Elsberry. 1997. Temporary shift in delphinoid masked hearing thresholds. *The Journal of the Acoustical Society of America* Volume 102, Issue 5, p. 3102.
- Ridgway, Sam, Donald Carder, Rob Smith, Tricia Kamolnick, and Wesley Elsberry. 1997. First audiogram for marine mammals in the open ocean and at depth: Hearing and whistling by two white whales down to 30 atmospheres. *The Journal of the Acoustical Society of America* Volume 101, Issue 5, p. 3136.
- Weller, D.W., A. Acevedo-Gutierrez, B. Würsig, W. Elsberry, H. Fortenberry, R.H. Defran, R. Constantine, L. Miller, A. Schiro, and D. Blackwood. 1998. Geographical variation in dorsal fin shape characteristics of the bottlenose dolphin *Tursiops truncatus*. Abstract of the World Marine Mammal Conference, Monaco, 20-24 Jan., 1998.
- Elsberry, W.R. 1997. Enterprising Science Needs Naturalism. Conference on Naturalism, Theism, and the Scientific Enterprise, Austin, TX.
- Elsberry, W.R. & D.J. Blackwood. 1996. Event Recording with Multiple Observers: Lessons Learned. Animal Behavior Society Annual Conference, Flagstaff, AZ.
- Blackwood, D.J., M.M. Davis, W.R. Elsberry, & I.M. Berk. 1996. Evidence of Acoustic Interference in Vocalizations of Lekking Male Greater Prairie Chickens (*Tympanuchus cupido pinnatus*). Animal Behavior Society Annual Conference, Flagstaff, AZ.
- Elsberry, W.R. & D.J. Blackwood. 1995. Cetacean Behavior Event Recording. 11th Biennial Conference on the Biology of Marine Mammals, Orlando, FL.
- Blackwood, D. J.; Wissore, L; Remy, A & Elsberry. W. R. 1995. Vocalization and Behavior Analysis of a Recovering Stranded Atlantic Spotted Dolphin, *Stenella frontalis*. 11th Biennial Conference on the Biology of Marine Mammals, Orlando FL.
- Elsberry, W.R. 1992. Putting Optimality in Its Place. Presentation to the INNS/MIND Workshop on Optimality in Biological and Artificial Neural Networks.
- Leven, S.J., & W.R. Elsberry. 1990. Interactions among embedded extensive networks under uncertainty. Proc. IEEE/INNS Joint Conference on Neural Networks.
- Blackwood, D.J., W.R. Elsberry, & S. Leven. 1988. Competing network models and problem-solving. Poster presentation at the 1988 International Neural Network Society confer-

ence.

Foundations and Corporations

- 2005/08-present Director, Superior Paving, Inc., Lakeland, Florida.
2004/06-present President, TalkOrigins Foundation (Texas 501(c)(3) corporation).

Citations

- Hull, David L. Recent philosophy of biology: A review. ACTA BIOTHEOR 50 (2): 117-128 2002. (Cites Wilkins & Elsberry 2001.)
- Kastak, D., and Schusterman, RJ. Changes in auditory sensitivity with depth in a free-diving California sea lion (*Zalophus californianus*). J. ACOUST SOC AM 112 (1): 329-333 JUL 2002. (Cites Ridgway et alia 2001.)
- Madsen PT, Payne R, Kristiansen NU, et al. Sperm whale sound production studied with ultrasound time/depth-recording tags. J EXP BIOL 205 (13): 1899-1906 JUL 2002. (Cites Ridgway et alia 2001.)
- Finneran JJ, Carder DA, Dear R, et al. Pure tone audiograms and possible aminoglycoside-induced hearing loss in belugas (*Delphinapterus leucas*). JOURNAL OF THE ACOUSTICAL SOCIETY OF AMERICA 117 (6): 3936-3943 JUN 2005. (Cites Ridgway et alia 2001.)
- Au WWL. Echolocation signals of wild dolphins. ACOUSTICAL PHYSICS 50 (4): 454-462 JUL-AUG 2004. (Cites Ridgway et alia 2001.)

Internet and Online Activity

- 1989–1996 Central Neural System BBS
System Operator
Provided system administration for a dial-up bulletin board system specializing in science topics, especially artificial neural networks.
Established first RBBS-Net BBS devoted to Artificial Neural Network (ANN) discussion and code; created and moderated first and only ANN nationwide Echo discussion area, the NEURAL_NET Echo; collected and made available the largest and most complete selection of ANN PC simulations, tutorials, and text available by direct dial-up. Created and moderated the EVOLUTION Echo on FidoNet.
- 1995 Configured and maintained first Gopher server for TAMUG Research Office
Produced first WWW pages and configured servers for:
Department of Wildlife and Fisheries Sciences, TAMU (1994)
Department of Marine Biology, TAMUG (1995)
Texas Marine Mammal Stranding Network (1995)
Web page designs:
Protected Marine Species (<http://www.rtis.com/nat/user/elsberry/marspec.html>, 1994)
Online Zoologists (<http://inia.cls.org/welsberr>, 1997; <http://www.onlinezoologists.com> 2002)

Dolphin Doctor (<http://www.dolphin-science.com>, 1997)
Antievolution.org (<http://www.antievolution.org>, 2002)
Austringer.net (<http://www.austringer.net>, 2002)

Web page hosting:

Whale Science (<http://www.whalescience.com>, 1999)
Dolphin Science Press (<http://www.dolphin-science.com>, 1999)

Domains Coordinated:

TalkOrigins.org
TalkDesign.org
PandasThumb.org
Florida Citizens for Science (flcfs.org)
Antievolution.org

W.R. Elsberry. 1996. Frequently Asked Questions About "Punctuated Equilibria". <http://www.talkorigins.org/faqs/punc-eq.html>

W.R. Elsberry. 1994. The talk.origins/Evolution Echo Jargon File. <http://www.talkorigins.org/origins/jargon/jargon.html>

1987–1990 Author of PASCAL, PHOTOTIPS, and MIND columns on StarText, the Fort Worth Star-Telegram's online information service

Software Applications and Utilities

AC - Acoustics Calculator. Coded in Delphi v.2. Windows 95/98 application. This application provides an easy-to-use interface for solving various common equations in underwater acoustics.

AdLib - Ad Libitum acoustic recording. Coded in Delphi v.4. Windows 95/98 application. Allows user control of a National Instruments data acquisition board for recording acoustic events. A simplified user interface helps make configuration and use easy. Can be set to periodically record data.

AIP - AI Project. Coded in Delphi v.2. Windows 95/98 application. This application puts a Windows wrapper around a project in information analysis originally written in Turbo Pascal v.3 for a 1987 artificial intelligence course. The program analyses a reference text and produces binomial probabilities that a comparison text is taken from that distribution. The original program could analyze at most a 14 kilobyte reference text given the 704 kilobyte memory limit on the 8088 based machine I used in 1987, and took about 20 minutes per run. This version can analyze the complete etext of Darwin's Origin of Species and takes about 20 seconds to do so.

ADAL - Adaline simulation. Coded in Delphi v.2. Windows 95/98 application. This program simulates Bernard Widrow's ADALINE (adaptive linear neuron) artificial neural system. Provision is made for logging training and running the system from file inputs, as well as storing and reading weight sets.

AN - Biosonar Analysis. Coded in Delphi 5. Time domain and spectral analysis of click sounds, finding peak-to-peak amplitude, energy flux density, radiated acoustic power, peak frequency, -3 dB bandwidth, and click classifications. Production of graphics including waterfall displays of clicks in click trains, bivariate plots, and histograms.

ANNCOMP - ANN composer. Coded in Turbo Pascal v.5.5. MS-DOS application. Multi-module integrated artificial neural system which performs melody composition.

ANSPIX - Artificial neural systems for PIX records. Coded in Delphi v.4. Windows 95/98 application. This program applies artificial neural systems, such as ADALINE, to the problem of recognizing responses in PIX data records. (The PIX record is a reduced data format that stored one value per millisecond of acoustic data.)

ART1 - Adaptive Resonance Theory 1. Coded in Turbo Pascal v.5.5 as a support unit. Provides generic simulation services for Carpenter and Grossberg's Adaptive Resonance Theory 1 artificial neural systems.

ASC2BIN - RACAL Storeplex ASCII record to binary converter. Coded in Delphi v.2. Windows 95/98 application. This program converts an ASCII representation of a RACAL Storeplex data file and produces a binary integer equivalent. Used for converting biosonar data recorded by D.J. Blackwood and T. Muir.

BACKPROP - Back-propagation. Coded in Turbo Pascal v.5.5 as a support unit. Provides generic simulation services for Werbos and Parker's backward-propagation of errors artificial neural system.

BAM - Bidirectional Associative Memory. Coded in Turbo Pascal v.5.5 as a support unit. Provides generic simulation services for Kosko's Bidirectional Associative Memory artificial neural system.

BARG - Bargainer simulation. Coded in Turbo Pascal v.5.5. MS-DOS application. Multi-module artificial neural system to demonstrate non-linear interactions between agents.

BREAC - Behavioral REAC. Coded in Delphi v.2. Windows 95/98 application. Data collection application for administering hearing tests with vocal responses from the subject. Utilizes stair-step threshold determination, the ability to set a rate for catch trials, timed catch trials, and user logging of false positive responses. Uses a National Instruments multi-function data acquisition board to produce hearing test tones, record an acoustic response window, accept user signals, and control external devices. Each response window waveform is displayed to the user. Utilizes D.J. Blackwood's "hound" response recognition software for automated response detection.

BSP - Biosonar Data Reduction. Coded in Delphi 5. Computer-assisted biosonar click detection and extraction of information from multi-channel digital recordings of bottlenose dolphin biosonar trials.

CALIB - Calibration application. Coded in Delphi v.4. Windows 95/98 application. An application for calibrating transducers. One mode utilizes a "known source" model, as is the case for the Bruel and Kjaer pistonphone calibrator, and provides visual display of recorded calibration data, adjustment for atmospheric pressure, and logging of calibration data. Another mode produces a series of ten short time period waveforms for projection while recording from a second transducer. Use of distantly spaced short time period waveforms eliminates most problems with interference from surface or bottom reflections.

CUTPASTE - Cut & Paste. Coded in Turbo Pascal v.5.5. MS-DOS application. Utility to split a binary source file into smaller files and later reassemble them. Useful for transferring files that would not fit on a single floppy disk.

DEEPSEAL - Hearing testing for sea lions at depth. Coded in Delphi v.2. Windows 95/98 application. This program produces pure tone stimuli for hearing testing of sea lions using a Tucker-Davis QDA2 digital to analog conversion board. It also logs responses made via paddle press using a digital input on a Keithley-Metrabyte DAS4 multifunction data acquisition board.

ENTROPY - Information Entropy. Coded in Delphi v.2. Windows 95/98 application. Applies the Shannon informational entropy equation to an input string to derive H, the information entropy in bits-per-symbol.

ERIS - Event Recorder Information System. Coded in Turbo Pascal v.7 with TurboVision user interface. MS-DOS application. Provides event recording capability, including the ability to link two machines for simultaneous multiple observers. Available under the "Citation-ware" concept. Citation-ware is free software which, if used in data collection or analysis, will be cited in the references of publications that result. The Citation-ware concept was introduced by W.R. Elsberry and D.J. Blackwood at the 1996 Animal Behavior Society meeting.

FIMPCALC - Finite Improbability Calculator. PHP based script to calculate change of base, combinations, permutations, and other equations relevant to antievolutionary arguments based on improbability. <http://www.antievolution.org/features/fimpcalc.php>

FinMorph - Fin Morphology. Coded in Delphi v.2. Windows 95/98 application. FinMorph is a computer-assisted data extraction program for bitmaps of dolphin dorsal fins. It steps the user through marking points on the fin corresponding to the methods used in the Weller et alia 1997 research on fin morphology. The program automatically calculates geometrical relationships and logs the fin data for offline analysis.

FinScan - Photo-identification from dolphin dorsal fins. Coded in Borland C++ Builder. FinScan was a prototype shell for a computer-assisted dolphin dorsal fin photo-identification system. The program at the time I left the project had areas for display of two images, user control of parameters for image manipulation, plus places to plug in image analysis routines from Amela Krehoe.

FMATCH - File Match. Written in Perl with String::Approx. Assesses how much of a subject text file comes from a reference text. Utilizes approximate match techniques.

FOSSPROB - Fossil Probability. Coded in Delphi v.2. Windows 95/98 application. Calculates expectations of fossil probability given various parameters concerning taphonomy and occurrence of beneficial and harmful traits.

FROC - Receiver Operating Characteristic. Coded in Delphi v.2. Windows 95/98 application. Calculates a modified Receiver Operating Characteristic given data on trials, responses, and false alarms.

Garmin - Garmin GPS interface. Coded in Turbo Pascal v.5.5. MS-DOS application. Downloads information from a Garmin 45 GPS unit over a serial port interface and displays information graphically.

HTN - Hopfield-Tank Network. Coded in Turbo Pascal v.5.5 as a support unit. Provides generic simulation services for Hopfield and Tank's Lyapunov energy minimization artificial neural systems.

Loganalyz - Logfile analysis. Coded in Turbo Pascal v.5.5. MS-DOS application. Reads, analyzes, and produces reports on data acquired in the DeepHear Project.

MAKEWAV - Make WAV files. Coded in Delphi v.2. Windows 95/98 application. Converts raw binary integer data files to WAV format by adding an appropriate RIFF WAV header.

NIDAQF - National Instruments Data Acquisition Form. Coded in Delphi v.2 as a support form. Provides user interface to the National Instruments Data Acquisition drivers and also programmatic encapsulation of commonly used functions into very high-level procedure calls.

PERL - PERL IDE. Coded in Delphi v.2. Windows 95/98 application. Provides an integrated development environment for editing and testing PERL scripts in the Windows environment.

QA - Questions and Answers. Coded in Delphi v.2. Windows 95/98 application. This program streamlines data entry from multiple-choice survey questionnaires. Available as Citationware.

RESS - Random Equal Stimulus Sequences. Coded in Delphi v.2 as a support unit. This unit provides the ability to generate random equal stimulus sequences for stimulus classes of two or more stimulus types.

STPWTCH - StopWatch. Coded in Delphi v.2 as a support unit. This unit provides a TStopWatch object which uses the Windows GetTickCount routine to provide millisecond resolution timing capabilities.

TIMELOG - Time Logger. Coded in Delphi v.2. Windows 95/98 application. A utility to track time usage according to a list of projects.

TRAIN - Training vocal responses. Coded in Delphi v.2. Windows 95/98 application. This program uses a standard sound card to play stimuli in WAV files and record vocal responses.

URL - Uniform Resource Locator. Coded in Delphi v.2. Windows 95/98 application. This program allows adding a Uniform Resource Locator to a text database, including classifying, annotating, and verifying the URL. The text database can then be processed to produce organized link pages for web sites.

WB - Wesley's Biosonar. Coded in Delphi v.4. Windows 95/98 application. Data collection application for biosonar tasks. Utilizes two National Instruments multifunction data acquisition boards to capture three channels of data at one megasample per second each and accept an external start signal. Produces random equal stimulus sequences for three stimulus classes, which can be considered an extension of Gellerman series, which is limited to two stimulus classes.

WBFILE - Wesley's Binary File access. Coded in Delphi v.2 as a support unit. Uses the

BlockRead and BlockWrite functions to provide efficient routines for moving data from files to memory buffers and vice versa.

WCATH - Wesley's program for Catheter data. Coded in Delphi v.4. Windows 95/98 application. Data collection application for simultaneous acoustic and physiological events. Splits the bandwidth specified for a National Instruments data acquisition board such that one channel of acoustic data always receives half the available bandwidth, and the remaining bandwidth is equally split among one to seven channels of physiological inputs.

WEASEL - Weasel simulation. Coded in Delphi v.2. Windows 95/98 application. This program simulates the "weasel" example of cumulative selection described by Richard Dawkins in "The Blind Watchmaker".

WEWOW - Wesley's Word Worrier. Coded in Delphi 5. A word guessing game.

Wplot - Wesley's Plot program. Coded in Delphi v.2. Windows 95/98 application. This application allows viewing, measuring, and extracting segments from raw integer data files, such as are recorded by data acquisition boards. Either little-endian or big-endian integer format can be specified and viewed, which allows reading of data files from Macintosh or Sun systems.

WPFS - Wesley's Plot, Full Screen. Coded in Delphi v.4. Windows 95/98 application. This application allows viewing of multi-channel data sets, with display parameters set on a per-channel basis. Can produce bitmap representations of data for use as thumbnails or for inclusion in figures. The user can specify vertical scaling marks on a per-channel basis, and horizontal scaling marks for the current data set. The display area occupies most of a resizable form, which means that when maximized the image area occupies most of the available screen. The size of a rendered bitmap can be specified separately, allowing the user to select the appropriate resolution for his application. Concord, California, 14 June 2006