

JOHN F. ELDER IV, PH.D.

ELDER RESEARCH, INC., 300 W Main St, Suite 301, Charlottesville, Virginia 22903
 (434) 973-7673 elder@datamininglab.com www.datamininglab.com

EDUCATION

- University of Virginia** Ph.D. in Systems Engineering, May 1993
 -- *Louis T. Rader Award*
- Rice University** Masters in Electrical Engineering, 1984 (Digital Signal Processing)
 BS in Electrical Engineering, 1983 (Computers)

EXPERIENCE

- 1995-present **Elder Research, Inc.** www.datamininglab.com *Chief Scientist*
 Successful applications include: investment timing, text mining, fraud detection, credit scoring, customer relationship management, process optimization, direct marketing, sales forecasting, cross-selling, analytic software design, drug efficacy analysis, optimal scheduling, biometrics, image recognition, document classification, and stock selection.
- 2003-present **University of Virginia** *Adjunct Professor (part-time)*
 Department of Systems and Information Engineering
- 1993-1995 **Rice University** *Research Scientist, NSF Fellowship*
 Department of Computational & Applied Mathematics
 & Center for Research on Parallel Computation, Houston, Texas
- 1989-1993 **University of Virginia** *Research Assistant (half time)*
 Department of Systems Engineering
 & Institute of Parallel Computation, Charlottesville, Virginia
- 1989-1992 **Delta Financial, Inc.** *Director of Research (half time)*
 Virginia Beach, Virginia
- 1984-1989 **Barron Associates, Inc.** *Research Scientist*
 Stanardsville, Virginia
- Summers **Texas Instruments** (*Applications Engineer*), **Adaptronics, Inc.** (*Programmer*),
 1978-1983 **National Geologic Survey** (*Junior Fellow*), **Smithsonian Institute** (*Intern*)

PROFESSIONAL ACTIVITIES

Technology Panel, *National Security Agency* (2001-2007). Chair, *Predictive Analytics World for Government* (2011-present); General Chair, *Knowledge Discovery & Data Mining (KDD)* conference (2009); Co-chair, *KDD Industrial & Government Program* (2004), Sponsorship (2003), Program committee (2003). Board, *Interface Foundation* of North America (1998-2002). Associate Editor, *Statistics and Computing* (1998-2000). Best Paper Award committee (*ICDM*, 2003; *KDD*, 1999). Technical Chair, *Adaptive and Learning Systems Group, IEEE Systems, Man, and Cybernetics (SMC) Society* (1996-1997). Reviewer for journals on Knowledge and Data Engineering, Computational and Graphical Statistics, Neural Networks, and Social Science. Frequent keynoter or organizer for Analytics and Finance conferences.



MAJOR PUBLICATIONS(many are available on www.datamininglab.com)

- (July 2012) “Driving Full Speed, Eyes on the Rear-View Mirror”, Chapter 5 of *Journeys to Data Mining: Experiences from 15 Renowned Researchers*, M. Gabor ed., Springer; hardback; ISBN 978-3642280467
- (Jan. 2012, with G. Miner, T. Hill, R. Nisbet, D. Delen, and A. Fast) *Practical Text Mining and Statistical Analysis for Non-structured Text Data Applications*, Academic Press (Elsevier); 2-color 1,000-page hardback; ISBN 978-0123869791; www.amzn.to/textmine
- (Jan. 2010, with G. Seni) *Ensemble Methods in Data Mining: Improving accuracy through combining predictions*, Morgan & Claypool; 200-page greyscale paperback; ISBN 978-1608452842; www.tinyurl.com/book2ERI
- (May 2009, with R. Nisbet and G. Miner) *Handbook of Statistical Analysis & Data Mining Applications*, Academic Press (Elsevier), 860-page 4-color hardback; ISBN 978-0123747655; www.tinyurl.com/bookERI
- (2007, with G. Seni) “From Trees to Forests and Rule Sets: A unified Overview of Ensemble Methods”, KDD tutorial; video: http://videlectures.net/kdd07_elder_ftfr/
- (Dec. 2003) The Generalization Paradox of Ensembles, *Journal of Computational and Graphical Statistics* **12**, no. 4: 853-864.
- (2000, with D. Brown) Induction and Polynomial Networks, Chapter 6 of *Network Models for Control and Processing*, M. Fraser, ed., Intellect, Bristol, UK, August.
- (1999) The Interface Conference – A Resource for KDD, *SIGKDD Explorations*, Vol. 1, Issue 1, Association for Computing Machinery, June.
- (1996) A review of *Machine Learning, Neural and Statistical Classification*, (eds. Michie, Spiegelhalter & Taylor; Ellis Horwood, 1994), *Journal of the American Statistical Association* **91**, no. 433: 436-437, March.
- (1996, with D. Pregibon) A Statistical Perspective on Knowledge Discovery in Databases, Chapter 4 in *Advances in Knowledge Discovery and Data Mining*, eds. U. M. Fayyad, G. Piatetsky-Shapiro, P. Smyth, and R. Uthurusamy, AAAI/MIT Press.
- (1996) Heuristic Search for Model Structure: the Benefits of Restraining Greed, Chapter 13 in *Learning from Data: Artificial Intelligence and Statistics V*, Lecture Notes in Statistics, eds. D. Fisher and H.-J. Lenz, Springer-Verlag: New York.
- (1994) Invited Comment on "Prosecution Views" by Furnas and Buja, *Journal of Computational and Graphical Statistics* **3**, no. 4: 355-362.
- (1993) *Efficient Global Optimization through Response Surface Modeling: A GROPE Algorithm*, Ph.D dissertation, University of Virginia, May.
- (1993, with M. S. Fenster and R. Dolan) A New Method for Predicting Shoreline Positions from Historical Data, *Journal of Coastal Research* **9**, no. 1: 147-171, Winter.
- (1991, with M. T. Finn) Creating ‘Optimally Complex’ Models for Forecasting. *Financial Analysts Journal*, Jan/Feb: 73-79.

PRESENTATIONS AND PROCEEDINGS

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~20 technical reports and over 80 conference papers and talks, including many keynote addresses
– several of which are available on www.datamininglab.com.

CLEARANCES

Department of Defense: TS/SCI

Social Security Administration: Background

TUTORIALS & SHORT COURSES on Data Mining tools, techniques, and applications
(ranging from 2 hours to a week in length, from 1988 to the present) to:

Universities: MIT Sloan Business School, Harvard School of Public Medicine, University of Virginia (McIntire School of Commerce, Darden Business School, Systems and Information Engineering, Statistics), The College of William & Mary School of Business, Fairfield University School of Business, Rice University (Computational and Applied Mathematics, Statistics, Continuing Education), George Mason Applied Engineering & Statistics, Baylor Medical School Urology, Virginia Polytechnic Institute Aerospace and Oceans Engineering, U. of Alabama at Huntsville Computer Science.

Corporations: AT&T Bell Labs, Capital One, HSBC, Bell Atlantic, The Nature Conservatory, AstraZeneca, Pharmacia & Upjohn, Continental Airlines, SunTrust, Pitney Bowes, Becton-Dickinson, American Management Systems, Citibank (England), Daimler-Benz (Germany), Uni-Strategic (Malaysia), Insurance Services Office, Lindner Funds, Northfield, Rio Grande Medical Technologies, Electronic Warfare Associates, Peoples Bank, World's Foremost Bank, Federal Data Corporation, Glaxo-Wellcome, Smith-Kline Beecham, Salford Systems, Martin Marietta.

Government Agencies: National Security Agency, National Science Foundation, IRS, National Academy of Sciences, Social Security Administration, Defense Finance & Accounting Agency, U.S. Naval Weapons Center.

Professional Associations: Predictive Analytics World, INFORMS Roundtable, Society for Industrial and Applied Mathematics, Biopharmaceutical Society, American Statistical Association, Knowledge Discovery & Data Mining, VA Piedmont Technology Council, Institute of Electrical and Electronics Engineers (IEEE), Institute for Professional Education, Interface Foundation of North America, IEEE Systems, Man & Cybernetics Society; American Marketing Association, Pharmaceutical Management Science Association, International Communications Forecasting, Richmond Society of Financial Analysts, Applied Statistics Society, Systems Engineering Society (Chile), Gordian Institute, Operations Research Society.

