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Education

1990 Ph.D. in Statistics, Harvard University.

1986 A.M. in Statistics, Harvard University.

1983 B.S. with honors in Mathematics, California Institute of Technology.

Work Experience

Statistical and Computer Science Research

2010-Present *Associate Professor,* Department of Educational Psychology and Learning Systems, College of Education, Florida State University.

1999-2010 *Senior Research Scientist,* Educational Testing Service, Research Statistics Group.

1996-1999 *Research Scientist,* Educational Testing Service, Research Statistics Group.

1995-1996 *Research Associate,* RRA, Inc.

1992-1995 *Research Scientist,* StatSci division of MathSoft, Inc. (now Insightful) 1700 Westlake Ave, N, Suit 500, Seattle, WA, 98109.

1990-1991 *Acting (Visiting) Assistant Professor,* University of Washington, Department of Statistics.

1987-1989 *Research Assistant* to Professor Arthur P. Dempster, Harvard U. Dept. of Statistics.

1984-1987 *Research Assistant* to Professor Peter J. Huber, Harvard U. Dept. of Statistics.

1985-1986 *Statistical Consultant* for U. S. Windpower, Burlington, MA.

1979-1982 *Student Summer Intern* at Honeywell, Process Control Division, Ft. Washington, PA.

Teaching

2005–2010 *Volunteer Mentor with MentorPower, Inc.* (Renamed Science Mentors 1-to-1 in 2008). Mentored a local high school student working on a science or engineering project.

2002, 2004, 2006, 2007, 2008, 2009, 2010, 2011 *NCME Tutorial: Bayesian Networks in Educational Assessment.* Full day tutorial presented jointly with R. Mislevy, D. M. Williamson, and D. Yan.

Fall, 1996 *Visiting Lecturer,* Department of Statistics, Wharton School of Business, University of Pennsylvania.

1990-1992 *Acting Assistant Professor*, University of Washington, Department of Statistics.

1983-1984 *Teaching Fellow* under Professors Arthur Dempster and Willis Davis, Harvard U. Dept. of Statistics.

Awards

2005, ETS Team award for participation in ICT (Information Communications Technology) Literacy Assessment development team.

2003, ETS Bright Idea Award. (For "Four Process Architecture for Assessment Delivery", see Almond, Steinberg and Mislevy[2002])

2000, NCME (with Robert J. Mislevy and Linda S. Steinberg) National Council on Measurement in Education Award for Outstanding Scientific or Technical Contribution to Educational Measurement. (For "Evidence–Centered Design, see Mislevy, Steinberg and Almond [2003])

1998, ETS (with Robert J. Mislevy and Linda S. Steinberg) New Product Development Award for Most Outstanding Breakthrough. (For Portal)

Publications

Books

Almond, R. G., R. J. Mislevy, L. S. Steinberg, and D. Yan [In Preparation], *Bayesian Networks in Educational Assessment*. Springer, with contributions from D. M. Williamson. (In press, to appear in 2014).

Almond, R. G. [1995], *Graphical Belief Modeling*. Chapman and Hall, ISBN 0-412-06661-0.

Papers in Journals

Almond, R. G. [2014], "Using automated essay scores as an anchor when equating constructed response writing tests." *International Journal of Testing*, **14**(1), pp. 73–91.
URL `http://dx.doi.org/10.1080/15305058.2013.816309`

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URL `http://dx.doi.org/10.1016/j.ijar.2009.04.005`

Almond, R. G., J. Mulder, L. A. Hemat, and D. Yan [2009a], "Bayesian network models for local dependence among observable outcome variables." *Journal of Educational and Behavioral Statistics*, **34**(4), pp. 491–521.

Almond, R. G., V. J. Shute, J. S. Underwood, and J.-D. Zapata-Rivera [2009b], "Bayesian networks: A teacher's view." *International Journal of Approximate Reasoning*, **50**, pp. 450–460.

van der Gaag, L. and R. Almond [2009], "Preface to special issue on Bayesian applications." *International Journal of Approximate Reasoning*, **50**, p. 415.

Almond, R., D. Yan, and L. Hemat [2008], "Parameter recovery studies with a diagnostic Bayesian network model." *Behaviormetrika*, **35**(2), pp. 159–185.

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URL `http://www.ijaied.org/iaied/ijaied/abstract/Vol_18/Shute08.html`

Almond, R. G. [**2007**], "Cognitive modeling to represent growth (learning) using Markov decision processes." *Technology, Instruction, Cognition and Learning (TICL)*, **5**, pp. 313–324.
URL `http://www.oldcitypublishing.com/TICL/TICL.html`

Almond, R. G., L. V. DiBello, B. Moulder, and J.-D. Zapata-Rivera [**2007**], "Modeling diagnostic assessment with Bayesian networks." *Journal of Educational Measurement*, **44**(4), pp. 341–359.

Sinharay, S. and R. G. Almond [**2007**], "Assessing fit of cognitively diagnostic models—a case study." *Educational and Psychological Measurement*, **67**(2), pp. 239–257.

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URL `http://www.jtla.org/`

Mislevy, R. J., R. G. Almond, and L. S. Steinberg [**2002**], "Design and analysis in a task-based language assessment." *Language Testing*, **19**(4), pp. 477–496.

Almond, R., C. Lewis, J. Tukey, and D. Yan [**2000**], "Displays for comparing a given state to many others." *The American Statistician*, **54**, pp. 89–93.

Almond, R. G. and R. J. Mislevy [**1999**], "Graphical models and computerized adaptive testing." *Applied Psychological Measurement*, **23**, pp. 223–238.

Mislevy, R., L. Steinberg, F. Breyer, R. Almond, and L. Johnson [**1999**], "A cognitive task analysis, with implications for designing a simulation-based assessment system." *Computers and Human Behavior*, **15**, pp. 29–42.

Madigan, D., K. Mosurski, and R. Almond [**1997**], "Graphical explanation in belief networks." *Journal of Computational Graphics and Statistics*, **6**(2), pp. 160–181.
URL `http://www.tandfonline.com/doi/abs/10.1080/10618600.1997.10474735`

Martz, H. and R. Almond [**1997**], "Using higher-level failure data in fault tree quantification." *Reliability Engineering and Safety Systems*, **56**, pp. 29–42.

Almond, R. [**1995**], "Fuzzy logic: Better science or better engineering." *Technometrics*, **37**(147), pp. 267–270, comment to M. Laviolette, J.W. Seaman, Jr., J.D. Barrett and W.H. Woodall, A probabilistic and statistical view of fuzzy methods.

Almond, R. G. [**1991**], "Building blocks for graphical belief models." *Journal of Applied Statistics*, **18**, pp. 63–76.

Papers in Edited Collections

Almond, R. [**2014**], "A comparison of two mcmc algorithms for hierarchical mixture models." In K. B. Laskey, J. H. R. Jones, and R. G. Almond (Eds.), *Bayesian Modelling Application Workshop at the Uncertainty in Artificial Intelligence (UAI) Conference*.
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Almond, R. G., I. Goldin, Y. Guo, and N. Wang [**2014**], "Vertical and stationary scales for progress maps." In J. Stamper, Z. Pardoz, M. Mavrikis, and B. M. McLaren (Eds.), *Proceedings of the 7th International Conference on Educational Data Mining*, pp. 169–176.
URL `http://educationaldatamining.org/EDM2014/uploads/procs2014/long%20papers/169_EDM-2014-Full.pdf`

Almond, R. G., Y. J. Kim, V. J. Shute, and M. Ventura [**2013**], "Debugging the evidence chain." In Almond and Mengshoel (2013), pp. 1–10.
URL `http://ceur-ws.org/Vol-1024/paper-01.pdf`

Almond, R. G. and O. Mengshoel (Eds.) [**2013**], *Proceedings of the 2013 UAI Application Workshops: Big Data meet Complex Models and Models for Spatial, Temporal and Network Data (UAI2013AW)*, number 1024 in CEUR Workshop Proceedings, Aachen, ISSN 1613-0073.
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Almond, R., U. Tokac, and S. Al Otaiba [**2012**], "Using POMDPs to forecast kindergarten students reading comprehension." In J. M. Agosta, A. Nicholson, and M. J. Flores (Eds.), *The 9th Bayesian Modelling Application Workshop at UAI 2012*, Catalina Island, CA.
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Almond, R. G. [**2010**a], "Using evidence centered design to think about assessments." In V. J. Shute and B. J. Becker (Eds.), *Innovative Assessment for the 21st Century: Supporting Educational Needs*, Springer, pp. 75–100.

Almond, R. G. [**2010**b], "Graphical models." In P. Peterson, E. Baker, and B. McGaw (Eds.), *The International Encyclopedia of Education*, Elsevier, 3rd edition, pp. 197–202.

Shute, V. J., E. G. Hansen, and R. G. Almond [**2007**], "Evaluating aced: The impact of feedback and adaptivity on learning." In R. Luckin, K. R. Koedinger, and J. Greer (Eds.), *Intelligence in Education: Building Technology Rich Learning Contexts that Work*, IOS Press, chapter 8, pp. 230–237.

Mislevy, R. J., L. S. Steinberg, R. G. Almond, and J. F. Lukas [**2006**], "Concepts, terminology and basic models of evidence-centered design." In D. M. Williamson, R. J. Mislevy, and I. I. Bejar (Eds.), *Automated Scoring of Complex Tasks in Computer-Based Testing*, Lawrence Erlbaum Associates, pp. 15–47.

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Frase, L., M. Chudorow, R. Almond, J. Burstein, K. Kukich, R. Mislevy, L. Steinberg, and K. Singley [**2003**], "Technology and assessment." In H. O'Neil and R. Perez (Eds.), *Technology applications in assessment: A learning view*, Erlbaum, pp. 213–244.

Mislevy, R. J., L. Steinberg, R. Almond, G. Haertel, and W. Penuel [**2003**], "Leverage points for improving educational assessment." In B. Means and G. Haertel (Eds.), *Evaluating the Effects of Technology in Education*, Earlbaum, pp. 149–180.

Almond, R. G., L. S. Steinberg, and R. J. Mislevy [**2002**], "A framework for reusing assessment components." In H. Yanai, O. A., K. Shigemasu, Y. Kano, and J. J. Meulman (Eds.), *New Developments in Psychometrics*, Springer, pp. 281–288.

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Williamson, D. M., R. J. Mislevy, and R. G. Almond [**2000**], "Model criticism of Bayesian networks with latent variables." In C. Boutilier and M. Goldszmidt (Eds.), *Uncertainty in Artificial Intelligence 16*, Morgan Kaufmann, pp. 634–643.

Almond, R., E. Herskovits, R. Mislevy, and L. Steinberg [**1999**], "Transfer of information between system and evidence models." In D. Heckerman and J. Whittaker (Eds.), *Artificial Intelligence and Statistics 99*, pp. 181–186.

Almond, R. G. [**1999**], "Undoing statistical advice." In D. Hand, J. Kok, and M. Berthold (Eds.), *Advances in Intelligence Data Analysis*, Springer, pp. 357–368.

Mislevy, R. J., R. G. Almond, D. Yan, and L. S. Steinberg [**1999**], "Bayes nets in educational assessment: Where the numbers come from." In K. B. Laskey and H. Prade (Eds.), *Uncertainty in Artificial Intelligence '99*, Morgan-Kaufmann, pp. 437–446.

Madigan, D. and R. Almond [**1995**], "Test selection strategies for belief networks." In D. Fisher and H. Lenz (Eds.), *Learning from Data: AI and Statistics V*, Springer-Verlag, pp. 89–98.

Almond, R., J. Bradshaw, and D. Madigan [**1994**], "Reuse and sharing of graphical belief network components." In P. Cheeseman and W. Oldford (Eds.), *Selecting Models from Data: Artificial Intelligence and Statistics IV*, Springer-Verlag, pp. 113–122.
URL `http://ralmond.net/pubs/ontology.pdf`

Madigan, D., A. E. Raftery, J. C. York, J. M. Bradshaw, and R. G. Almond [**1994**a], "Strategies for graphical model selection." In P. Cheeseman and W. Oldford (Eds.), *Selecting Models from Data: Artificial Intelligence and Statistics IV*, Springer-Verlag, pp. 91–100.

Madigan, D., J. York, J. Bradshaw, and R. Almond [**1994**b], "Bayesian graphical models for predicting errors in databaes." In P. Cheeseman and W. Oldford (Eds.), *Selecting Models from Data: Artificial Intelligence and Statistics IV*, Springer-Verlag, pp. 123–132.

Almond, R. G. [**1993**], "Lack of information based control in expert systems." In D. Hand (Ed.), *Artificial Intelligence Frontiers in Statistics: AI and Statistics III*, Chapman and Hall, pp. 82–89.

Bradshaw, J., C. Chapman, K. Sullivan, R. Almond, D. Madigan, D. Zarley, J. Gavrin, J. Nims, and N. Bush [**1993**], "Ks-3000: an application of DDUCKS to bonemarrow transplant patient support." In *Proceedings of the Sixth Annual Florida AI Research Symposium (FLAIRS '93)*, pp. 78–83.
URL `http://pages.cpsc.ucalgary.ca/~gaines/BooseBradshaw/EKAW93KS-3000.doc`

Almond, R. G. [**1990**], "Breaking dependence in graphical belief models." In C. Page and R. LaPage (Eds.), *Computing Science and Statistics: Proceedings of the 22nd Symposium on the Interface*, Springer-Verlag, pp. 296–299.

Almond, R. G. [**1988**], "Fusion and propagation in graphical belief models." In E. J. Wegman, D. T. Gantz, and J. J. Miller (Eds.), *Computing Science and Statistics: Proceedings of the 20th Symposium on the Interface.*, American Statistical Association, pp. 365–370.
URL `http://ralmond.net/pubs/captain.pdf`

Presentations

Almond, R. [**2014**], "Weighing educational evidence." In *76th Annual Meeting of the National Council on Measurement in Education (NCME)*, Philadelphia, PA.

Almond, R. and T. Li [**2014**], "Hierarchical mixture models for pause events during essay writing." In *76th Annual Meeting of the National Council on Measurement in Education (NCME)*, Philadelphia, PA.

Kim, Y. J., R. G. Almond, V. J. Shute, and M. Ventura [**2014**a], "Constructing Bayesian networks for a stealth assessment of qualitative physics.", paper presented at the 76th Annual Meeting of the National Council on Measurement in Education (NCME).

Kim, Y. J., M. Cui, and R. G. Almond [**2014**b], "Empirical comparison of Bayesian networks and structural equation models in the context of educational assessment.", poster presented at the Annual Meeting of the American Educational Research Association (AERA).

Wu, H. and R. Almond [**2014**], "A comparison of general diagnostic models and bayesian networks." In *76th Annual Meeting of the National Council on Measurement in Education (NCME)*, Philadelphia, PA.

Li, T. and R. G. Almond [**2013**], "A bayesian hierarchical mixture approach to model timing data with application to writing assessment.", paper presented at the Annual Meeting of the Florida Educational Research Association (FERA).

Tokac, U. and R. G. Almond [**2013**], "Early prevention of reading difficulties by using formative assessment in partially observed Markov decision process." Poster preseted at Annual Meeting of the American Educational Research Association (AERA).

Wu, H. and R. G. Almond [**2013**], "The comparison of the general diagnostic model (GDM) and Bayesian networks using a middle school mathematics test." Poster preseted at Annual Meeting of the American Educational Research Association (AERA).

Almond, R. G. [**2012**], "Democratize ECD?", discussion presented at the Games and Learning Society conference, gls 8.0.

Almond, R. G., Y. J. Kim, G. Velasquez, and V. J. Shute [**2012**], "How task features impact evidence from assessments embedded in simulations and games.", paper presented at the International Meeting of the Psychometric Society (IMPS).

Kim, Y. J., M. Ventura, V. Shute, and R. G. Almond [**2012**], "Newton's playground: How to use evidence centered design (ecd) to develop game-based assessment.", workshop presented at the Games and Learning Society conference, gls 8.0.

Almond, R. [**2011**a], "Utilities and quasi-utilities for classification.", presented at the annual meeting of the National Committee on Measurement in Education (NCME), New Orleans, LA.

Almond, R. [**2011**b], "Challenges in mcmc, em and bayesian psychometrics.", discussion presented at the 2011 Annual Meeting of the National Committee on Measurement in Education (NCME), New Orleans, LA.

Almond, R. G. [**2011**c], "Measuring change in mental models.", discussion presented at the Annual Meeting of the American Educational Research Association (AERA).

Almond, R. G., P. Deane, T. H. Quinlan, and Y. Attali [**2011**], "Using timing logs to diagnose problems in writing performance.", presented at the Annual Meeting of the American Educational Research Association (AERA).

Almond, R. G. and V. J. Shute [**2011**], "ACED: An example of using bayesian networks for cognitive diagnosis.", presented at the Annual Meeting of the Association for Psychological Science (APS).

Ventura, M., Y. J. Kim, R. Almond, and L. Wang [**2011**], "Using crayon physics deluxe.", workshop Presented at Second FCR-STEM Conference, Destin, Florida.

Almond, R. G. and A. Lipnevich [**2009**], "Value of evidence: A decision theoretic approach to validity for diagnostic assessment." Paper presented at the 2009 Annual Meeting of the American Educational Research Association (AERA).

Almond, R. G. and V. J. Shute [**2009**], "Calibration of Bayesian network-based diagnostic assessment." Paper presented at the 2009 Annual Meeting of the American Educational Research Association (AERA).

Almond, R. G. [**2008**a], "Evidence-centered design as a tool for thinking about assessment.", keynote presentation at *Assessment for the 21st Century: Insight*. College of Education, Florida State Univeristy.

Almond, R. G. [**2008**b], "Modeling diagnostic assessments with Bayesian networks.", invited Paper presented at the 2008 Annual Meeting of the Society for Mathematical Psychology.

Graf, E. A., K. Harris, E. Marquez, and R. Almond [**2008**], "A cognitively based assessment system for mathematics competency.", presented at the Annual Meeting of the American Educational Research Association (AERA).

Almond, R. G. [**2007**], "'I can name that Bayesian network in two matrixes'." In K. B. Laskey, S. M. Mahoney, and J. A. Goldsmith (Eds.), *Proceedings of the 5th UAI Bayesian Modelling Applications Workshop*, CEUR Workshop Proceedings, volume 268, p. (online), held in conjunction with the 23rd Conference on Uncertainty in Artificial Intelligence (UAI-2007).
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Almond, R. G., R. J. Mislevy, and D. Yan [**2007**], "Using anchor sets to identify scale and location of latent variables.", paper presented at Annual meeting of the National Council on Measurement in Education (NCME).

Shute, V. J., E. G. Hansen, and R. Almond [**2007**a], "Towards accessible test delivery systems: A small-scale evaluation of a prototype system for improving the accessibility of mathematics tests by individuals with visual disabilities." Paper Presented at Annual meeting of the National Council on Measurement in Education (NCME).

Shute, V. J., E. G. Hansen, and R. G. Almond [**2007**b], "Evaluation of ACED: The impact of feedback and adaptivity on learning." In R. Luckin, K. Koedinger, and J. Greer (Eds.), *Artificial Intelligence in education—Building technology rich learning contexts that work*, pp. 230–237.

Almond, R. G. [**2006**a], "Cognitive modeling to represent growth (learning) using Markov decision processes." In *Annual meeting of the American Educational Research Association (AERA)*.

Almond, R. G. [**2006**b], "Building self-efficacy: How mentorpower works." Talk given as part of 2006 mentor training session.
URL `http://ralmond.net/pubs/MentorPower-Self-Efficacy.pdf`

Almond, R. G. [**2006**c], "XML for data analysts." Presentation given as part of the Tukey Seminar on Data Analysis at ETS.

Almond, R. G., V. J. Shute, J. S. Underwood, and J.-D. Zapata-Rivera [**2006**], "Bayesian networks: A teacher's view." In *Proceedings of the 4th Bayesian Modelling Applications Workshop*, held in conjunction with the 22nd Conference on Uncertainty in Artificial Intelligence (UAI-2006).

Yan, D., R. G. Almond, R. J. Mislevy, and D. M. Williamson [**2006**a], "Bayesian network applications." Presentation at National Tsing-Huan University, taipei, Taiwan.

Yan, D., R. G. Almond, R. J. Mislevy, and D. M. Williamson [**2006**b], "Bayesian network applications." Presentation at Institute of Information Science, academica Sinica.

Ye, F., R. Almond, and R. Mislevy [**2006**], "Diagnostic assessment of student learning of patterns in 8th grade math classes: an evidence-centered design approach.", paper presented at Annual meeting of the National Council on Measurement in Education (NCME).

Almond, R. G. and J. Mulder [**2005**], "Models for local dependence among observable outcome variables." In *Third Annual Bayesian Application Workshop at the 2005 Uncertainty in Artificial Intelligence Application Workshop*.

Yan, D. and R. Almond [**2005**], "Using ROC curves to improve evidence for diagnostic scoring." In *Third Annual Bayesian Application Workshop at the 2005 Uncertainty in Artificial Intelligence Application Workshop*.

Almond, R., L. Hemat, J. Zapata-Rivera, and D. Williamson [**2004**], "Procrustean method for reconciling expert opinion." In *2nd Bayesian Application Workshop at Uncertainty in Artificial Intelligence*.

Katz, I. R., D. M. Williamson, H. L. Nadelman, I. Kirsch, R. G. Almond, P. L. Cooper, M. L. Redman, and D. Zapata [**2004**], "Assessing information and communications technology literacy for higher education." In *International Association for Educational Assessment*.

Ye, F., R. Almond, R. Mislevy, and D. Yan [**2004**], "Sensitivity to prior distributions in calibration of a Bayesian network." In *Annual meeting of the National Council on Measurement in Education*.

Almond, R., D. Williamson, and D. Yan [**2003**], "Testing tests: Quality control for assessment design." In *1st Bayesian Application Workshop at Uncertainty in Artificial Intelligence*.

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Smythe, C. and R. Almond [**2001**], "The QTI framework for sharing assessment data and results." In *International Meeting of the Psychometric Society*.

Breyer, F., R. Mislevy, L. Steinberg, and R. Almond [**1999**], "Designing technology-based assessments: It's the evidence for the inferences that are important." In *Annual Convention of the Society for Industrial Organizational Psychology*.

Almond, R., R. Miselvy, and L. Steinberg [**1998**], "A multivariate frameork for educational testing." In *Taipei Interanational Statistics Symposium*.

Mislevy, R., L. Steinberg, and R. G. Almond [**1998**], "Evidence-centered assessment design." In *Annual Conference of the National Center for Research on Evaluation, Standards, Student Testing (CRESST)*.

Mislevy, R., R. Almond, and L. Steinberg [**1997**], "Task design, student modeling, and evidentiary reasoning in complex educational assessments." In *Section on Bayesian Statistical Science at the Annual Meeting of the American Statistical Association*.

Almond, R. G. [**1996**], "Intelligent support of secondary data analysis." In *6th International Workshop on AI and Statistics,*.

Selected Technical Reports

Almond, R. G., P. Deane, T. Quinlan, M. Wagner, and T. Sydorenko [**2012**], "A preliminary analysis of keystroke log data from a timed writing task." Research Report RR-12-23, Educational Testing Service.
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Almond, R. G. and S. Sinharay [**2012**], "What can repeated cross-sectional studies tell us about student growth?" Research Report RR-12-17, Educational Testing Service.
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Steinberg, L., R. Almond, A. Baird, C. Cahallan, H. Chernick, L. Dibello, A. Kindfield, R. Mislevy, D. Senturk, and D. Yan [**2003**], "Introduction to the Biomass project: An illustration of evidence-centered assessment design and delivery capability." CSE Report 609, National Center for Research on Evaluation, Standards, and Student Testing (CRESST).
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Almond, R. G. [**2002**], "Using evidence models to aggregate information.", white Paper developed for ONR call for suggestions about the future of assessment.
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Almond, R., E. Arbogast, M. Jaisimha, and S. Elston [**1994**], "Intelligent image browsing and feature extraction.", StatSci Research Report 25.

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Almond, R. G. and D. Madigan [**1993**], "Using Graphical-Belief to predict risk of coronary artery disease.", StatSci Research Report 19.
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Almond, R. G. [**1992**], "An approach to style in data analysis." Technical Report 225, University of Washington, Department of Statistics.
URL `http://ralmond.net/pubs/style.pdf`

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Almond, R. G. [**1991**], "Fiducial inference and belief functions." Technical Report 206, University of Washington, Department of Statistics.
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Yan, D., R. Almond, and L. Hemat [**2005**], "Bayesian network model for the ICT literacy assessment." Research Report Pending, Educational Testing Service, under Review.

Note: The ETS Research Report and Research Memorandum series are internally refereed.

Films

Almond, R., P. Huber, P. Kempthorne, and L. Roseman [**1987**], "Exploratory multivariate analysis: The crabs data." Harvard University, 20 min. film.

Almond, R., P. Huber, E. Ramos, L. Roseman, and M. Thoma [**1984**], "Visual aspects of 3d data graphics: A movie." Siam Conference on Computers is Statistics, 10 min. film.

Computer Experience

Operating Systems UNIX (Solaris, Sun OS, Mac OS X, Ubuntu, Red Hat Enterprise Linux), MacOS, Windows, Apollo Aegis, VAX/VMS, Honeywell Multics

Languages Java, Lisp, CLOS, C/C++, Fortran, APL, Basic, Pascal, Prolog, Assembler (68000 and 8080), PHP, Perl, Postscript, TEX, XML

Statistics S/S-Plus/R, Lisp-Stat, ISP, GLIM, Minitab, IMSL, BUGS, JAGS, Stan

Techniques Object-oriented design and analysis, User interface and human factors design (GUI), Artificial Intelligence, Rule-based programming, Constraint-based programming, Graphical Modeling, Language Design, Machine Learning, Neural Networks, and Databases.

Software Systems Designed

RNetcia Binding of the Netica API (for building and manipulating Bayesian networks) in R. `http://pluto.coe.fsu.edu/RNetica/RNetica.html`.

CPTtools Suit of tools for building conditional probability tables for Bayesian networks in R. `http://pluto.coe.fsu.edu/RNetica/CPTtools.html`.

Newton's Playground Game for assessing Creativity, Persistence and Physics. Responsible for Bayes net scoring engine design. `http://www.empiricalgames.org/projects.html`.

StatShop Suite of tools for statistical analysis of Evidence Centered Design models, in particular Bayesian networks. Includes scoring engine (evidence accumulation process), calibrator (MCMC based) and data simulator. All input/output is XML based.

ACED (Adaptive Content with Evidence-based Diagnosis) A prototype systems for delivering customized diagnostic assessment. Responsible for task selection algorithm and Bayes net scoring engine (StatShop). `http://ecd.ralmond.net/ecdwiki/ACED/ACED/`.

QTI Specification Active member of the IMS Global Consortium working group on Question and Test Interoperability. Key contributor to Version 1 XML specification development. `http://www.imsglobal.org/question/`

Evidence Accumulation Process An open architecture for supporting many possible scoring engines. Including number right and graphical model based scoring. Planned developments include discrete IRT and multivariate IRT models. Runs on Java 1.1 virtual machine (graphical model engine uses Win32 version of Ergo library).

Four Engine Delivery System A simple message passing architecture for implementing a modular assessment delivery system. The four processes do not need to be co-resident on the same computer and and both which processes are used and the message table can be customized for a particular architecture. Runs on Java 1.1 virtual machine.

Biomass Prototype Assessment Lead analyst/developer for a prototype web-delivered High School biology genetics assessment. Processes were implemented in Java, Visual Basic, IIS and Javascript. Includes a drag and drop library written in Java.

Portal Scoring Engine Graphical model based scoring system. Runs on Win32 (Windows NT/95/98).

NAEPVUE Prototype visual interface for analyzing NAEP data. Includes statistical advice and extensive data encyclopedia.

Definitions-Doc Software for extracting project documentation from XLISP-STAT projects.

Graphical-Belief Revised and extended version of Belief with many new capabilities and graphical user interface. Online (WWW) walk through at:
`http://ralmond.net/gb/index.html`

ElToY Program for eliciting Bayesian conjugate prior distributions through constraint based dynamic graphics. Written in XLISP-STAT. Copies available via StatLib:
URL `ftp://lib.stat.cmu.edu/xlispstat/eltoy`

Belief Program to manipulate graphical belief function models written in Common Lisp. Available via Carnegie Mellon Artificial Intelligence Repository:
URL `http://www.cs.cmu.edu/afs/cs/project/ai-repository/ai/areas/reasonng/probabl/belief/0.html`

Documentation

Almond, R. G. and L. A. Hemat [**2005**], "ICT model repository." ETS Internal Website.
URL `http://research.ets.org/~ralmond/ICT`

Hemat, L., R. Almond, and J. Lukas [**2005**], *StatShop Documentation*. Educational Testing Service, Version 2.0 edition, URL is internal to ETS.
URL `http://research.ets.org/~ralmond/StatShop`

Almond, R., A. Matukhin, L. Steinberg, S. Sinharay, D. Williamson, and D. Yan [**2002**a], "A framework for calibrating evidence models.", unpublished StatShop documentation.

Almond, R., A. Matukhin, L. Steinberg, D. Williamson, and D. Yan [**2002**b], "A framework for evidence accumulation.", unpublished StatShop design documention.

Almond, R. G. [**1994**], "ElToY: Implementing Bayesian computation through constraints.", StatSci Research Report 24.
URL `http://ralmond.net/pubs/eltoy.pdf`

Patents

Shute, V. J., E. G. Hansen, and R. G. Almond [**2010**], "Method and system for desiging adaptive, diagnostic assessments." U.S. Patent #7,828,552.

Steinberg, L. S., R. J. Mislevy, and R. G. Almond [**Pending**], "Portal assessment design system for educational testing." U.S. Patent application, attorney Docket No. 246400.0159, Wilmer, Culter and Pickering.

Professional Activities

Program Chair Bayesian Modeling Application Workshop at Uncertainty in Artificial Intelligence conference, 2005 and 2013. Co-chair in 2006 and 2014.

Program Committee Uncertainty in Artificial Intelligence, 1999, 2000, 2003, 2004, 2010, 2011, 2012, 2013, 2014; Artificial Intelligence and Statistics, 1997, 1999, 2001.

Review Panel Member IES Review Panel on Early Childhood Education and Special Education, Institute for Educational Statistics, U.S. Department of Education. Regular panelist from 2009–2011.

Standards Bodies Working group member for IMS Consortium group on Question and Test Interoperability, 1999–2001.

Professional Memberships American Statistical Association, Association for Computing Machinery, American Educational Research Association, and National Council on Measurement in Education.

Community Service and Other Interests

2006–2007 Board of Directors of Mentor Power, Inc, a local non-profit, science-based, one-to-one mentor program that instpires, motivates, and empowers under served high school students to develop academic discipline, cirticial thinking and personal responsibility. URL `http://www.sciencementors.org/`

2005–2010 Volunteer mentor with Mentor Power, NJ. (later renamed Science Mentors 1-to-1).

Other personal information including pictures of my twin daughters can be found at: `http://ralmond.net/`.