

Steven K. Graham

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Work:

2004 – present Dakota State University

- Assistant Professor, Computer Science

2001-2004 University of Kansas,

-Director Information Systems & Research Computing,
Civil, Environmental & Architectural Engineering

-Heterogeneous network administration (MS, Mac, Linux), web-programming (PERL, CGI, Python), database design, online training development, data cleansing, meta-data modeling for structures

1997-2001 Digital Archaeology/Delano Technologies

-Senior Computer Scientist (1998-2001), Vice-President of Development (1997-1998)

-Grew R&D team from 1 to 10 individuals, managed development of initial versions of data analysis client/server suite for Windows NT and UNIX through second round of venture funding. Shifted to technical role and worked as architect/technologist during ongoing development of the analysis suite.

Product development efforts were primarily on Windows systems using C++.

-Core of product suite was a visual data-flow language for analytic operations on (very large) sets of data.

-Digital Archaeology was acquired in fall of 2000 by Delano Technologies for \$17 million cash and \$70 million stock.

2000-2001 University of Kansas

-Lecturer in Programming Languages

1990-2001 Graham & Associates

-Consulting

-Freelance writing and editing for: *C/C++ Users Journal*, *SysAdmin*, *Network Administrator*, and *Unique*

1992-1997 Comdisco Systems/Alta Group/Systems & Networks/Cadence Design Systems

-Comdisco Systems was acquired by Cadence Design Systems as Alta Group. Systems & Networks was spun off and then re-acquired.

-Senior Engineer, Senior Consultant, Manager Professional Services, Senior Engineering Manager, Senior Services Manager

-Software design and development of BONEs simulation system in Lisp and C/C++ on SunOS/Solaris and HP/UX systems. Consulting, training, managing of consultants, and managing technology transfer for Systems & Networks and for Cadence Design Systems applications of BONEs and SPW systems. Grew technology transfer team from 1 to 10 employees and increased annual bookings from \$400,000 to \$1,000,000

1991-1992 Artificial Intelligence Research, Inc.

- Member Technical Staff
- Design and development work on the Logistica language system in Lisp: Logistica could loosely be described as a cross between Scheme and Prolog. Principle application was implementing modal logic proof systems for non-monotonic reasoning

1984-1992 University of Missouri-Kansas City

- Instructor, Assistant Professor in Computer Science
- Key role in building Computer Science/Telecommunications Program
- Taught a wide variety of courses including: programming languages and semantics, artificial intelligence and knowledge-based systems, Lisp programming, algorithms and optimization, and discrete mathematics.
- Investigator on approximately \$500,000 in grants
- Research in artificial intelligence including genetic algorithms, neural networks, non-monotonic reasoning, knowledge representation, computer-assisted learning, and networking applications. Worked with a variety of languages and systems including: Lisp (various flavors), Prolog, Scheme, Smalltalk, Xerox Lisp machines, Windows, Macintosh, UNIX(various flavors), and VMS.

1980-1984 Hewlett-Packard

- Software Design Engineer
- Re-targetable compiler development for HP64000 embedded systems development tools
- Design and development of software components for HP64000 System. Software included device drivers for in-circuit emulators, dis-assemblers, and GUI components.

Education:

1984-1987 University of Kansas, Ph.D. Computer Science

- Advisor: Adrian Tang
- Area: Domain Theory (programming language semantics)
- Dissertation: *Properties of a Probabilistic Domain Construction*

1980-1984 Stanford University, 54 hours toward [M.S.E.E.](#) (Computer Engineering)

- Area: Artificial Intelligence
- Note: degree not completed; transferred to KU and worked directly on Ph.D.

1976-1980 University of Kansas, B.S. Computer Science and B.A. Mathematics

- Graduated with Highest Distinction
- Departmental Honors in both Computer Science and Mathematics

Publications:

Ryan Pries, Wei Yu, Steve Graham, and Xinwen Fu, *On Performance Bottleneck of Anonymous Communication Networks*, In Proceedings of the 22nd IEEE International Parallel and Distributed Processing Symposium (IPDPS), Miami, Florida, April 14-18, 2008

Xinwen Fu, Wei Yu, Xukai Zou, Kevin Streff, and Steve Graham, *On Recognizing Virtual Honeypots and Countermeasures*, Journal of Autonomic and Trusted Computing (*JoATC*), Accepted 2007

W. Yu, Xinwen Fu, Steve Graham, D. Xuan and W. Zhao, *DSSS-Based Flow Marking Technique for Invisible Traceback*, In Proceedings of IEEE Symposium on Security and Privacy (S&P), Oakland, California, USA, May 20-23, 2007.

Steven Graham, Bin Lu and Xinwen Fu, *Network Security Fundamentals*, Encyclopedia of Computer Science and Engineering, John Wiley & Sons, Inc., 2007.

Xinwen Fu, Shu Jiang, Wei Yu, Steve Graham and Yong Guan, *On TCP Performance in Flow-Based Mix Networks*, The 3rd IEEE International Symposium on Dependable, Autonomic and Secure Computing (DASC), Loyola College Graduate Center, Columbia, MD, USA 25-27, September, 2007

Xinwen Fu, S. Graham, Y. Zhu, Y. Guan and D. Xuan, *Location Privacy in Wireless Networks*, Handbook on Mobile Ad Hoc and Pervasive Communications, American Scientific Publishers, 2006.

Xinwen Fu, W. Yu, D. Cheng, X. Tan, K. Streff, and S. Graham, *On Recognizing Virtual Honeypots and Countermeasures*, The IEEE International Symposium on Dependable, Autonomic and Secure Computing (DASC), Sep. 29-Oct. 1, 2006.

Graham, S. "Modifying DOS Boots", *MS-DOS System Programming* 3rd ed., 1994, R. Ward, D. Burki, eds., R&D Publications, Lawrence, KS.

Oh, Jonathan C.; Graham, Stephen "Does Every Difference make a Difference?", *Lecture Notes in Computer Science*, v. 754, p. 113-118, ISSN 0302-9743, in: Nagle, T.E. (ed.), Pfeiffer, H.D. (ed.); *Conceptual Structures: Theory and Implementation*. Proceedings.; p.3-12; ISBN 3-540-57454-9; Berlin, Heidelberg, New York, etc.: Springer Verlag (1993)

Graham, S. *Fundamentals of Curve Fitting*, The C Users Journal, vol. 10, no. 2, Feb. 1992.

Graham, S. *Evolution in Action*, The C Users Journal, vol. 10, no. 11, Nov. 1992.

Graham, S. *An Easy Road to Windows*, The C Users Journal, vol. 10, no. 12, Dec. 1992.

Graham, S. and Atkinson, J. "ARIA: Automated Revision Implication Assessment", in *Knowledge-Based Systems and Neural Networks: Techniques and Applications*, R.

Sharda, J. Cheung, and W.J. Cochran, eds., Elsevier, 1991.

Graham, S. and Wilson, M. "The Automation of Retrograde Analysis", *Fourth Oklahoma Symposium on Artificial Intelligence*, Stillwater, OK, Nov. 8-9, 1990.

Graham, S. and P. Schneider "A Knowledge-Based Assistant for Pesticide Identification", *Proceedings 1990 ACM & IEEE Symposium on Applied Computing*, IEEE Computer Society Press, 1990.

Yi, C. and S. Graham. "Real-time Reasoning with Prolog", *Proceedings 1990 ACM Symposium on Personal and Small Computers*, ACM Press 1990.

Graham, S. and Pradhan, S. "Circumscription Policy: An Important by Neglected Issue", *Proceedings Second Midwest Artificial Intelligence and Cognitive Science Society Conference*, Carbondale, Illinois, March 1990.

Graham, S. and J. Oh "Natural Languages and Programming Languages: Similarities and Differences", *Proceedings Second Midwest Artificial Intelligence and Cognitive Science Society Conference*, Carbondale, Illinois, March 1990.

Graham, S. and M. Carter "How Not to Build an ITS for Remedial Fractions", *Proceedings Second Midwest Artificial Intelligence and Cognitive Science Society Conference*, Carbondale, Illinois, March 1990.

Graham, S. and J. Oh. "Some suggestions on Parsing Free Ordered, Elliptic Languages", *Language Research*, 1989, vol. 25, no. 4.

S.K. Graham. "Closure properties of a probabilistic domain construction" in: Michael G. Main, A. Melton, Michael Mislove, and D. Schmidt, editors, *Mathematical Foundations of Programming Language Semantics (MFPLS '87)*, pages 213-233. Lecture Notes in Computer Science 298, Springer-Verlag, 1988.

Graham, S., B. McKeever, and K. Blundell, "FAULTS – An Expert Systems Environment for Fault Detection and Diagnosis", in *Knowledge-Based Expert Systems for Manufacturing*, ed. By Lu, S. C-Y. and Komandury, R., ASME, 1986.

Graham, S. W. Bulgren, and C. Nicholas, "Investigations of an Additive Random Number Generator", *Proceedings of Modeling and Simulation on Microcomputers*, 1982, San Diego, CA.

Software & Media:

Graham, Steven K., *A Blended Learning Module on Legal Issues for Managers*, Kansas Department of Transportation, April 2006.

Presentations & Reports:

Sudre ,Gustavo, Samuel Hanson, Adolfo Matamoros, and Steven K. Graham, *Ontology*

Engineering for Management of Data in the Transportation Domain, National Transportation Research Board (TRB 86th Annual Meeting), January 21-25, 2007, Washington, D.C.

Xinwen Fu, Wei Yu, Dan Cheng, Xuejun Tan, Steve Graham, On Recognizing Virtual Honeypots and Countermeasures, Technical Report, Dakota State University, April 2006

Odes, Quentin, Browning, JoAnn, and Graham, Steven K., *FINAL REPORT OF STATE TRANSPORTATION OFFICIAL SURVEYS FOR IMPLEMENTING COMPUTER-BASED LEARNING*, Kansas Department of Transportation, February 2006.

Graham, S., S. Krebsbach, O. El-Gayar, X. Fu, J. Vondruska, R. McTaggart, *DUSEL – Proposal for Education and Outreach Infrastructure*, Feb. 2006, Lead, SD.

Graham, Steven, *Playing well with Others: Challenges and Opportunities for Information Interchange*, Techknowledgy Nov 9, 2006, Sioux Falls, SD.

Graham, Steven, *Open Source Software*, FACTS, Oct 6, 2006, Madison, SD.

Graham, S., *Is War the Right Metaphor*, International Technology, Science, and Society Conference, Berkeley, CA, Feb. 18-20, 2005.

Graham, S., *Instant Perl Modules*, (review) UnixReview.com, 2001.

Spratt, L. & S. Graham, *An Overview of Expressions and Connector Parts Lists*, DA TN-44, April, 2001.

Ward, R. and S. Graham, “A Survey of Design Methodologies”, Bendix-King, 1992 (developed survey materials on Software Engineering practice).

Arraya, C., D. Leasure, and S. Graham, *A Pattern-matching Sublanguage for Logistica*, AIR, 1992.

Graham, S. *From Computer-Based Training to Intelligent Computer Assisted Learning*, SPTA, 1991.

Graham, S. *Belief Functions and Probabilistic Domains*, Fourth Workshop on the Mathematical Foundations of Programming Language Semantics, Boulder, CO, 1988.

Graham, S. and J. Stach, *State of the Art Assessment in Expert Systems Techniques for Packet Switched Networks*, US Army CECOM report (DAAL03-86-D-001), 1987.

Graham, S. *Retracts of SFP Objects: Probabilistic Domains*, Workshop on the Mathematical Foundations of Programming Language Semantics, Manhattan, KS, 1986.

Graham, S. *Expert Systems for Engineering Diagnosis*, DPC board meeting, 1985.

Graham, S. Schneider, P. *Sources of Uncertainty in the Pesticide Identification Assistant: A Knowledge-Based System to Aid the Analytical Chemist*, CSTP, 1991.

Graham, S., Wilson, M. *Knowledge Representation for Retrograde Analysis*, CSTP Technical Report, 1991.

Oh, J. and S. Graham, *An Idealized Automated Translation System*, CSTP Technical Report, 1990.

Oh, J. and S. Graham, *Ambiguity Reduction Based on Syntactic and Semantic Exceptions*, CSTP Technical Report, 1990.

Oh, J. and S. Graham. *Earliest Possible Ambiguity Reduction: A Parser-Interpreter based on Syntax Graphs Report*, CSTP, 1990.

Grants and Industrial Projects:

Mapping Ontologies for Physics Education (PI), Source: South Dakota Governor Individual Research Seed Grant Program, Duration: 9/2007 - 9/2008

MRI: Acquisition of Equipment to Establish an Information Assurance Infrastructure for Research and Education at Dakota State University (Co-investigator, with PI Dr. Xinwen Fu), Source: NSF, Duration: 8/2007 - 7/2010

DSU Faculty Research Initiative, 2005-2006.

Security Lead for Electronic Health Records (SDEHRA) Grant. w/ Dan Friedrich, Dorine Bennet and others.

A Taxonomy for Transportation Document Management, (with Adolfo Matamoros, KU), \$112,000, KDOT, 2004.

Collaborative Research: A Demonstration of the NEES System for studying Soil-Foundation-Structure Interaction, Information Management Component Sub-Contract, research Data Specialist, (with PI Adolfo Matamoros), \$130,000, NSF, 2003.

Data Preparation, Proof of Concept, and Process Models for a Web-based Training Center, (with JoAnn Browning, KU), \$41,000, KDOT, 2003.

Query Generalization Project, \$17,000, through CAT Service Division. Application of neural networks to query generalization in a full-text database.

Establishment of an Artificial Intelligence Research Facility, \$56,000, UTI. Creation and management of AI research center with a variety of hardware and software tools.

Expert Systems in Fault Detection, \$92,000, UTI. Investigation and development of a shell using fault trees as a knowledge representation technique for expert diagnosis systems. (with K. Blundell)

Principle architect of proposal resulting in \$250,000 equipment grant from AT&T for

advanced instructional laboratory.

Applicability of Expert Systems Techniques to Connectivity Assessment and Component Failure Detection in Packet Switched Networks, \$18,000, US Army CECOM. (with J. Stach)

Computer Aided Instruction for Artificial Intelligence and Expert Systems, McDonnell-Douglas; subject matter expert for AI. (with K. Blundell and D. Heckathorn)

Intensive Introduction to Artificial Intelligence and Expert Systems, KCPL; industrial training program in AI developed and taught (with K. Blundell and J. Oh)

Professional Memberships:

AAAI, ACM, IEEE, Infragard

Service:

Director, DSU Information Assurance Lab, 2004-2007

Member, DSU Graduate Council, 2005-

Member, DSU Promotion & Tenure committee, 2005-2006

Member, DSU MSIA Admissions Committee, 2004-

Member, DSU GAF Committee, 2006-

Member, SDBOR, Computing Discipline Committee, 2005-2007

Member, DSU Center of Excellence Committee, 2006-

DSU Computer Club, co-advisor, 2004-

Member, University of Kansas, School of Engineering Technology Committee 2001-2004

Chair, UMKC Computer Science and Telecommunications Program Graduate Committee, 1984-1986

Chair, UMKC Computer Science Telecommunications Program Service Committee, 1987-1988, 1989-1992

Member, UMKC Council on Planning and Evaluation, NCS steering committee, 1987-1992

Coordinate and direct, UMKC AI lab 1984-1992

Co-organizer, Kansas City Area Expert Systems Group 1984-1992