Kendall Giles

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(Last revised January 2017)

Education

PhD Computer Science, Johns Hopkins University, May 2007
MFA Creative Writing, University of Southern Maine, Jan 2013
MS Computer Science, Johns Hopkins University, May 2004
MS Information Systems, Virginia Commonwealth University, August 2002
MS Electrical Engineering, Purdue University, May 1993
BS Electrical Engineering, Virginia Tech, May 1991

Academic Experience

Assistant Professor of Practice, Department of Electrical and Computer Engineering
Virginia Tech, Blacksburg, Virginia, August 2016 – Current

Created course: ECE 5984: Cybersecurity and the Internet of Things

Taught undergraduate and graduate courses:

- ECE 5484: Fundamentals of Computer Systems, fall 2016, 1 section
- ECE 5984: Cybersecurity and the Internet of Things, spring 2017, 1 section
- CS 4264: Principles of Computer Security, spring 2017, 1 section

Received Mentoring Program Project Grant: $1500.00, December 2016 — May 2018.

Instructor, Department of Electrical and Computer Engineering
Virginia Tech, Blacksburg, Virginia, May 2016 – August 2016

Course redesign of ECE 5484 Fundamentals of Computer Systems for the Masters of Information Technology program.

Instructor for True Information Assurance, LLC
Orions Arrow, Appomattox, Virginia, September 2015 – May 2016

Taught online training courses offered through the US Department of Veterans Affairs Accelerated Learning Program, covering the fundamentals of cybersecurity, computer networks, and information assurance. Students were US veterans. Fall 2015: taught two 15-week sections of 20 students each, four hours of instruction per week per section. Spring 2016: taught four sections of 205 students in total, with four hours per week of instruction per section, for 15 weeks.

Assistant Professor, Department of Statistical Sciences and Operations Research
Virginia Commonwealth University, Richmond, Virginia, Jan 2008 – Aug 2011

Taught 11 Statistics and Operations Research courses at the undergraduate and graduate levels:

- STAT 544: Statistical Methods II, 1 section

- STAT 736/OPER 736: Mathematics of Knowledge and Search Engines, 2 sections
- STAT 543: Statistical Methods I, 1 section
- STAT 541: Applied Statistics for Engineers and Scientists, 5 sections
- STAT 321: Introduction to Statistical Computing, 2 sections

Researched computational statistics algorithms and methods, primarily focused on analyzing text documents and computer network traffic data. Applied for and won research grants. Produced applications that optimized performance metrics and visualized complex datasets. Wrote algorithms primarily in R, Python, C++, and Java. Collaborated with a disparate research group in a variety of disciplines, including Statistics, Operations Research, Mathematics, Computer Science, and the Humanities.

Journal reviewer for the INFORMS Journal on Computing (JOC), Journal of Computational and Graphical Statistics (JCGS), Journal of Statistical Computation and Simulation (JSCS), and Journal of Biomedicine and Biotechnology (JBB). Served on student comprehensive exam and thesis committees, and on university committees.

Received funding for two research grants:

1. "A Hierarchical and Iterative System for the Analysis of Streamed Text Data", Human Language Technology Center for Excellence, Baltimore, Maryland, May–September 2008, $7,512, Primary Investigator.
2. "The Design and Implementation of a System for Fusion and Inference from Multiple Disparate Data Sources", Johns Hopkins University, June 2009–May 2014, $102,560, Primary Investigator.

Visiting Assistant Professor, Department of Mathematics
College of William and Mary, Williamsburg, Virginia, Jan 2006 – May 2007

Taught seven undergraduate courses in probability, statistics, and machine learning:

- M106: Elementary Probability and Statistics, 4 sections
- M351: Applied Statistics, 2 sections
- M410: Topics in Mathematics-Statistical Learning & Applications to Text Analysis, 1 section
- M459: Guest Lecturer for Math 459: Knowledge Discovery for Bioinformatics, January 2006

Conducted data mining research.

Adjunct Instructor and Graduate Teaching Assistant, Department of Information Systems
Virginia Commonwealth University, Richmond, Virginia, Aug 1998 – Dec 2000, Aug 2001 – Dec 2001

Taught the following six courses:

- INFO 610: Analysis and Design of Database Systems, 1 section
- INFO 258: Visual Basic Programming, 2 sections on campus and 1 section at WhiteOak Semiconductor, Richmond, Virginia
- INFO 362: Computer Hardware and Software, 1 section

- INFO 291: Topics: Web Development, 1 section at Software Development Center-Lee, the U.S. Army's largest software development center, Fort Lee Army Base, Fort Lee, Virginia

Graded and lectured:

- INFO 491: Electronic Commerce, with Dr. Alexander Yap, 1 section.

Industry and Research Experience

Research Scientist, Human Language Technology Center of Excellence (HLTCOE)
Johns Hopkins University, Baltimore, Maryland, Jun 2015 – Aug 2015
Summer Camp for Applied Language Exploration (SCALE) workshop.

Web Developer and Project Manager, Various Customers
Orion's Arrow, Appomattox, Virginia, Sept 2011 – May 2015
Managed and tracked multiple development and multimedia projects. Used Microsoft Project and Open Project to create Gantt charts. Provided regular status reports and maintained a budget. Collaborated and tracked tasks with remote teams.
Improved customer and in-house business processes through presenting/lecturing, writing, creating websites, developing iOS applications, and building social media brands. Coded Apple iOS timing application (in Objective-C). Edited and wrote technical manuals and blog posts.
Designed and created websites using WordPress, HTML, and CSS. Supported Apple and Windows desktop users, providing network, computer security, and email solutions. Gained publishing experience at the literary agency Foundry Literary and Media in New York, primarily reviewing and evaluating incoming manuscripts and editing book proposals.

Senior Research Scientist, Human Language Technology Center of Excellence (HLTCOE)
Johns Hopkins University, Baltimore, Maryland, Jun 2009 – Aug 2009
Summer Camp for Applied Language Exploration (SCALE) workshop.

Faculty Mentor, Research Fellow, Institute for Pure and Applied Mathematics
University of California – Los Angeles, Los Angeles, California, Jun 2007 – Dec 2007
Mentored math undergraduates working with Symantec for the Research in Industrial Projects for Students program to develop a webpage reputation scoring system (summer). The goal of this project was to create a scoring system to evaluate any website for possible threats to the Internet user and to communicate this score to the user in an informative manner. Research Fellow for the Mathematics of Knowledge and Search Engines program (fall). Participated in research discussions and seminars based on knowledge discovery, machine learning, numerical and graph-based tools, and social networks.

Research Assistant, Department of Applied Mathematics and Statistics
Johns Hopkins University, Baltimore, Maryland, Aug 2002 – May 2006

Developed novel computational statistics and machine learning algorithms for use in network data analysis and computer security. Research and analysis on denial of service attacks and other types of network data, as well as text documents. Analysis and application development for Fast Iterative Denoising problem: how to extract knowledge from various types of large datasets. Development of (stochastic) process models to characterize events in computer network data. Analysis and application/algorithm development for probabilistic path planning problem.

Senior Systems Engineer
Raytheon Systems, Falls Church, Virginia, May 2001 – Nov 2005

Team Lead of small prototyping development group. Gained software and systems design and implementation experience on a variety of security and defense projects. Analyzed competing technologies and algorithms in order to find optimal solutions. Wrote and made presentations to technologists as well as upper management. Developed, implemented, and supported the software engine of a new product. Prototyped a network technology application; architected, implemented, and supported elements of the resulting system. Used primarily C++, Java, and Visual Basic.

Windows Software Engineer, CUNA Mutual Credit Union and American Family Insurance
SPR Technology Consultants, Milwaukee, Wisconsin, Feb 1996 – Aug 1998

Architected, designed, and implemented an “Information Catalog” data warehouse for an insurance provider. The Catalog is a web-based system utilizing Visual Basic, ActiveX, and ASP. Designed and implemented a corporate Intranet website. Conducted Object Oriented and software development training sessions for other software developers.

Designed, implemented, and released into production four key applications optimizing workflow processes, providing inventory management, transaction processing, order adjustment, and record conversion abilities for an insurance lending operations center. Using a three-tier architecture and Object Oriented concepts, applications were designed using Visual Basic and data was stored in an Oracle database.

Added new features to enhance an electronic notice-of-claims application using Visual Basic. To help improve workflow processes, designed an online help system for a Claims Reengineering project. Configured and resolved software and hardware issues with the Claims Reengineering project during development and implementation release cycles. Designed software installation mechanisms and procedures for local and remote customer offices.

Unix Software Engineer
GE Medical Systems, Milwaukee, Wisconsin, Aug 1991 – Feb 1996

Graduated from GE's Edison Technical Leadership Program. Gained experience across five medical modalities developing 2D and 3D medical image visualization libraries and

applications for global customers using UNIX, C, C++, Motif, and OpenGL. Worked as a member of the design team for five months in Buc, France. Coordinated the design phase of an imaging project with a cross-functional team in Hino, Japan. Managed the GE Medical Systems/Purdue Scholarship Program. Hired intern personnel for and managed a system-test suite development project written in C, C++. Conducted PV-WAVE and C++ training sessions.

Research Publications

Baker, K., Bethard, S., Bloodgood, M., Brown, R., Callison-Burch, C., Coppersmith, G., Dorr, B., Filardo, W., Giles, K., Irvine, A., Kayser, M., Levin, L., Martineau, J., Mayfield, J., Miller, S., Phillips, A., Philpot, A., Piatko, C., Schwartz, L., Zajic, D. "Semantically Informed Machine Translation," Technical Report No. 002, Human Language Technology Center of Excellence, Johns Hopkins University, Baltimore, Maryland, January 2010.

Giles, K., M. Trosset, D. Marchette, and C. Priebe. "Iterative Denoising," Computational Statistics, 23:4, October, 2008.

Giles, K., D. Marchette, C. Priebe, and D. Waagen. "Iterative Denoising of Computer Network Application Traffic," Technical Report No. 655, Department of Applied Mathematics and Statistics, Johns Hopkins University, Baltimore, Maryland, November 2007.

Fishkind, D., C. Priebe, K. Giles, L. Smith, and A. Aksakalli. "Disambiguation Protocols Based on Risk Simulation," IEEE Transactions on Systems, Man, and Cybernetics, Part A, 37:5, 814-823, September, 2007.

Giles, K. "Knowledge Discovery in Computer Network Data: A Security Perspective," PhD. Dissertation, Johns Hopkins University, Baltimore, Maryland, October 2006.

Osei-Bryson, K. and K. Giles. "Splitting Methods for Decision Tree Induction: An Exploration of the Relative Performance of Two Entropy-Based Families," Information Systems Frontiers Journal, 8:195-209, Springer, July 2006.

Giles, K., M. Trosset, D. Marchette, and C. Priebe. "Fast Iterative Denoising," Technical Report No. 653, Department of Applied Mathematics and Statistics, Johns Hopkins University, Baltimore, Maryland, December 2005.

Giles, K., D. Marchette, and C. Priebe. "A Model of Backscatter as Escher Tessellations," 2005 Proceedings of the American Statistical Association, Statistical Graphics Section and Section on Statistics in Defense and National Security [CD-ROM], Alexandria, Virginia: American Statistical Association, 2005.

Giles, K., D. Marchette, and C. Priebe. "The Development and Exploration of Online Classifiers for Backscatter from Denial of Service Attacks," 2004 Proceedings of the American Statistical

Association, Statistical Computing Section [CD-ROM], Alexandria, Virginia: American Statistical Association, 2004.

Osei-Bryson, K. and K. Giles. "An Exploration of a Set of Entropy-Based Hybrid Splitting Methods for Decision Tree Induction," Journal of Database Management, 15:3, 2004.

Giles, K., D. Marchette, and C. Priebe. "On the Spectral Analysis of Backscatter Data," Proceedings of the Hawaii International Conference on Statistics, Mathematics, and Related Fields, 2004.

Giles, K., D. Marchette, and C. Priebe. "A Backscatter Characterization of Denial of Service Attacks," 2003 Proceedings of the American Statistical Association, Statistical Computing Section [CD-ROM], Alexandria, Virginia: American Statistical Association, 2003.

Bryson, K., K. Giles, and B. Kositanurit. "Exploration of a Hybrid Feature Selection Algorithm," Journal of the Operational Research Society, 54:7, 790-797, 2003.

Bryson, K. and K. Giles. "Splitting Methods for DT Induction: A Comparison of Two Families," Proceedings of AMCIS 2002 (Americas Conference on Information Systems), Dallas, Texas, August 2002.

Bryson, K., and K. Giles. "Attribute Discretization for Classification," Proceedings of AMCIS 2001 (Americas Conference on Information Systems), Boston, Massachusetts, August 2001.

Giles, K., K. Bryson, and Q. Weng. "Comparison of Two Families of Entropy-Based Classification Measures with and without Feature Selection," HICSS (Hawaii International Conference on System Sciences), Wailea Maui, Hawaii, January 2001.

Giles, K. "Understanding Ancient Martial Arts Texts: Pooh and Hermeneutics," InYo: The Journal of Alternative Perspectives on the Martial Arts and Sciences, December, 2000.

Um, D., B. Stankovic, K. Giles, T. Hammond, and V. Lumelsky. "A Modularized Sensitive Skin for Motion Planning in Uncertain Environments," Proceedings of the 1998 IEEE International Conference on Robotics and Automation, Leuven, Belgium, May 1998.

Research and Academic Presentations

"Publishing: Inside a Literary Agency," University of Southern Maine, Freeport, Maine, January 2013.

"A Brief Look at Information Technology," Copenhagen Business School, Copenhagen, Denmark, November 2012.

"Doomsayers and Deniers: Data Analysis, Science, Politics, and Public Opinion in Climate Change," Senior Symposium, Lynchburg College, Lynchburg, Virginia, February 2011.

"What do You do with an Engineering Degree?" Student Engineers Council, College of Engineering,

Virginia Tech, Blacksburg, Virginia, January, 2010.

"An Introduction to R," lecture for OPER/STAT 690 Research and Communications Seminar, and SYSM 681 Systems Seminar I, August 2009.

"Consulting Experiences," Panel Discussion, STAT/OR 490 Communications in Statistics and Operations Research, Virginia Commonwealth University, Richmond, Virginia, March 2009.

"Knowledge Discovery with Iterative Denoising," BINF739 Text Data Mining in Bioinformatics, Department of Bioinformatics and Computational Biology, George Mason University, Manassas, Virginia, March 2009.

"Knowledge Discovery with Iterative Denoising," Seminar, Computer Science Department, Virginia Commonwealth University, Richmond, Virginia, October 2008.

"Interactive Text Analysis with Iterative Denoising," Interface 2008, Text Data Analysis Session, Durham, North Carolina, May 2008.

"Communication in Industry: Lessons Learned the Hard Way," Lecture Presentation to STAT/OR 490: Communications in Statistics and Operations Research, Virginia Commonwealth University, Richmond, Virginia, April 2008.

"Text Analysis with Iterative Denoising," International Biometric Society, Eastern North American Region (ENAR), Arlington, Virginia, March 2008.

"Iterative Denoising: A Flexible (and applicable to bioinformatics?) Knowledge Discovery Methodology," Bioinformatics Colloquium, George Mason University, Manassas, Virginia, February 2008.

"Scan Statistics on Enron Graphs," Mathematics of Knowledge and Search Engines research program, University of California, Los Angeles, Institute for Pure and Applied Mathematics, Los Angeles, California, October 2007.

"An Introduction to Google's PageRank," Mathematics of Knowledge and Search Engines research program, University of California, Los Angeles, Institute for Pure and Applied Mathematics, Los Angeles, California, September 2007.

"Basics of Knowledge Discovery Engines," Mathematics of Knowledge and Search Engines research program, University of California, Los Angeles, Institute for Pure and Applied Mathematics, Los Angeles, California, September 2007.

"Data Mining," Annual Graduate Faculty Meeting, MCV Campus, Virginia Commonwealth University, Richmond, Virginia, April 10, 2001.

"Comparison of Two Families of Entropy-Based Classification Measures With and Without Feature Selection," with Kweku-Muata Bryson, Hawaii International Conference on System Sciences (HICSS) 2001, Maui, HI, January 5, 2001.

"Data Mining: Decision Tree Induction and Feature Selection Algorithms," Richmond-Tidewater Chapter of INFORMS Fall Kick-off Meeting, Defense Supply Center Richmond, Richmond, Virginia, October 19, 2000.

"Falsifiability and the Nolan Stage Hypothesis," a seminar based on a working paper by Allen Lee and Kendall Giles, Information Systems Department, Virginia Commonwealth University, Richmond, Virginia, September 29, 2000.

"Robotics, E-commerce, and LEGO Mindstorms: The Value of Virtual Community," Information Systems Department, Virginia Commonwealth University, Richmond, Virginia, March 14, 2000.

"E-commerce in a Digital World," ITEC '99 (an information technology industry trade show), with Carmel Vacarre, Richmond, Virginia, October 5 and 6, 1999.

"Y2K: Where will you be on 12/31/1999?" Invited Presentation by the Society of Advancement of Management, Virginia Commonwealth University, Richmond, Virginia, April 1999.

"Mobile Robots," School of Mechanical Engineering, University of Wisconsin-Madison, Madison, Wisconsin, 1997.