Matthew V. Mahoney
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Objective
Academic position in computer science. My research interests are in information theory, data and language modeling and compression.

Education
Ph.D. in Computer Science**,** Florida Tech, 2003. Dissertation topic: "A Machine Learning Approach to Detecting Novel Attacks by Identifying Anomalies." GPA is 3.95.
MSCS, Florida Tech., 1998. Thesis: "The Complexity of Adaptive Spatial Indexing for Robust Distributed Data."
MSEE, Computer Engineering, Florida Tech., 1988. Thesis: "Grid Logic: Programmable Logic that Implements Neural Networks."
BSEE, Computer Engineering, UMass. Dartmouth, 1984.
A.S., Cape Cod Community College, 1982.

Research
- Since 2006 I have maintained the Large Text Compression Benchmark (http://cs.fit.edu/~mmahoney/compression/text.html) and served on the Hutter Prize committee to encourage open research in statistical natural language modeling.
- In 2003-05 my postdoctoral research under Philip. K. Chan was in time series anomaly detection funded by NASA/CSI to detect fuel valve failures in the Space Shuttle. A patent was applied for.

Experience
Adjunct Instructor, 1999-Present, Florida Tech.
- CSE1502 - Introduction to Software Development (C++).
- CSE2050 - Programming in a Second Language (C++).
- CSE3103/5232 - Network Programming (protocols, cryptography).
- CSE3101 - Assembly Language Programming (x86).
- CSE4001 - Operating Systems Concepts.
- CIS5100 - Data Structures and Programming (Java).

GSA - Web Development, 1997, Florida Tech.
- Designed and developed WHEAT, a web-based HTML editing and annotation tool for collaborative document generation for NASA. Supervisor: Dr. Lina Khatib.

Instructor/Consultant, 1995-1998, Koster Assoc., W. Melbourne FL.
- Taught seminars in C, C++, Java, and UNIX shell programming.

Instructor/Software developer, 1984-1995, Harris Corp., Melbourne FL.
- Developed and taught in-house courses in C, C++, Java, Introduction to Networks, and Introduction to Object-Oriented Programming.
- Designed and supervised a team developing a printed circuit board rule checking system.
- Developed tools to integrate schematic capture, PC board layout, and digital circuit simulation tools (translation and verification).

Fire Control Technician - US Navy, 1976-1980.
- Maintained and repaired missile control radar.

Publications

- Philip K. Chan & M. Mahoney, "Modeling Multiple Time Series for Anomaly Detection", *Proc. IEEE Intl. Conf. on Data Mining*, p. 90-97, 2005.
- M. Mahoney and P. Chan, "Trajectory Boundary Modeling of Time Series for Anomaly Detection", Workshop on Data Mining Methods for Anomaly Detection, *Proc. SIGKDD*, 2005.
- M. Mahoney and P. Chan, "Learning Rules for Anomaly Detection of Hostile Network Traffic", *Proc. ICDM*, 2003.
- M. Mahoney and P. Chan, "An Analysis of the 1999 DARPA/Lincoln Laboratory Evaluation Data for Network Anomaly Detection," *Proc RAID,* 2003.
- M. Mahoney, "Network Traffic Anomaly Detection Based on Packet Bytes," *Proc. ACM-SAC*, Melbourne FL, 2003.
- M. Mahoney and P. Chan, "Learning Nonstationary Models of Normal Network Traffic for Detecting Novel Attacks," *Proc. Eighth Intl. Conf. Knowledge Discovery and Data Mining*, Edmonton, Alberta, 376-385, 2002.
- M. Mahoney, "Fast Text Compression with Neural Networks," *Proc. AAAI/FLAIRS*, Orlando FL, 2000.
- M. Mahoney, "Text Compression as a Test for Artificial Intelligence," (poster), *Proc. AAAI/FLAIRS*, Orlando FL, 1999.
- S. Alaoui Mounir, N. Goharian, M. Mahoney, A. Salem, O. Frieder, "Fusion of Information Retrieval Engines (FIRE)," *Proc. International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA'98),* Las Vegas NV, 1998.

Awards

- Certificate of appreciation for "Text Compression as a Test for Artificial Intelligence" and "Fast Text Compression with Neural Networks", Florida Tech. IEEE Computer Society, Mar. 29, 2000.
- Calgary Compression Challenge, Jan. 2004. http://mailcom.com/challenge/. See "The PAQ Data Compression Programs", http://cs.fit.edu/~mmahoney/compression/, for ongoing research.

References

- Dr. William D. Shoaff, Department Head, Computer Sciences, Florida Tech., (321) 674-8066, wds@cs.fit.edu
- Dr. Phillip K. Chan, associate professor at Florida Tech., dissertation supervisor. (321) 674-7280, pkc@cs.fit.edu
- Dr. Pat Bond, associate professor at Florida Tech. He is familiar with my work at Harris Corp. while he was a senior manager there. (321) 674-7563, pbond@cs.fit.edu
- Jan Koster, President, Koster Associates, Inc. 4155 Dow Road, Suite D, W. Melbourne, Florida 32934, (321) 723-7669, info@koster.net