Chris Mesterharm

jmesterharm@perspectalabs.com
http://www.research.rutgers.edu/~mesterha
cell: 732-690-1122

Background

I am an expert in machine learning with experience on a range of algorithms and problems. My research has focused on algorithms that can adapt to new users and changing situations using an on-line streaming model that allows the processing of large amounts of data. My recent interests include dealing with difficult machine learning problems such as predicting an unknown label that was not seen during training and dealing with production changes in the distribution of instances including cases where an adversary is allowed to change the instances.

Experience

March 2012 - current: I am a research scientist working at Perspecta Labs. I've worked on a range of projects that include various aspects of machine learning and computer science. (Perspecta Labs was known as Applied Communication Sciences when I was originally hired and has origins that date back to Bellcore.)

- (2016-Current) DARPA LADS Project: I was a key participant in designing an end to end system that gathers data from the environment and uses machine learning techniques to predict the behavior of electronic devices.
- (2016-Current) DARPA Murat Project: I designed a fault tolerant distributed system that gathers data on network quality and uses this information to configure the network to optimize traffic.
- (2015-2016) Interdigital JumpStart Project: I designed and implemented machine learning data analytics tools to extract useful patterns from a stream of events generated by applications. The experiments included various algorithms including Random Forests, Support Vector Machines, and Spectral Clustering.
- (2015) SEC Text Analytics Project: I implemented a natural language processing system that used millions of features to train using over 300,000 documents to make predictions with over 300 possible document labels.
- (2013-2014) DARPA Radio Map Project: I helped develop and implement a protocol to allow a distributed set of nodes to organize into a type of overlay network. I performed extensive experiments to ensure that the network was efficient and allowed an effective use of distributed resources.
- (2013-2014) CERDEC SMC Project: I developed a GUI interface to communicate with encryption software installed on an Android phone. I helped design and implement various aspects of the client server communication protocol.
- (2012) ACS Machine Learning with Hadoop Project: I used map reduce on a 50 node Hadoop cluster to implement an approximate nearest neighbor

algorithm. The code was based on a locality-sensitive hashing algorithm and resulted in a speed-up proportional to the number of cores in the cluster.

- (2012) IARPA Knowledge Discovery and Dissemination Project: This project required the extraction of information from over 100,000 documents and tables. I was responsible for coding an engine that took raw extracted information in a RDF format and unified references to identical objects include people and locations.

March 2010 - March 2012: I was a research scientist working at Rutgers University on a project to improve text based Internet advertisement. Other projects included active learning, Internet product recommendation systems, and Bayesian learning.

December 2008 - December 2009: I was a consultant for CSO Capital, an equity trading firm.

September 2007 - September 2008: I was a visiting professor at Fordham University. I taught classes that include data mining, C++ programming, web programming, and operating systems.

Publications

Dissertation

Chris Mesterharm. Improving On-line Learning. Ph.D. dissertation. Department of Computer Science, Rutgers University, October 2007.

Journals

Chris Mesterharm. Tracking Linear-threshold Concepts with Winnow. In *Journal of Machine Learning Research* 4, pages 819-838, 2003.

Conferences

Hira Agrawal, Ray Chen, Jeffrey K. Hollingsworth, Christine Hung, Rauf Izmailov, John Koshy, Joe Liberti, Chris Mesterharm, Josh Morman, Thimios Panagos, Marc Pucci, Işil Sebüktekin, Scott Alexander, and Simon Tsang. CASPER: an Efficient Approach to Detect Anomalous Code Execution from Unintended Electronic Device Emissions. Cyber Sensing 2018, 2018.

Ben Falchuk, Shoshana Loeb, Chris Mesterharm, and Euthimios Panagos. Machine Learning Techniques for Mobile Application Event Analysis. *Emerging 2016,* pages 50-55, 2016.

Chris Mesterharm and Michael J. Pazzani, Active Learning using On-line Algorithms. *KDD 2011,* pages 850-858, 2011.

Chris Mesterharm and D. Frank Hsu. Combinatorial Fusion with On-line Learning Algorithms. *Fusion 2008*, pages 1117-1124, 2008.

Alexander Strehl, Chris Mesterharm, Michael Littman, and Haym Hirsh. Experience-Efficient Learning in Associative Bandit Problems. *ICML 2006,* pages 889-896, 2006.

Chris Mesterharm. On-line Learning with Delayed Label Feedback. *ALT 2005*, pages 399-413, 2005.
Chris Mesterharm. Using Linear-threshold Algorithms to Combine Multi-class Sub-experts. *ICML 2003*, pages 544-551, 2003.

Chris Mesterharm. Tracking Linear-threshold Concepts with Winnow. *COLT 2002*, pages 138-152, 2002.

Chris Mesterharm. A Multi-class Linear Learning Algorithm. *NIPS 12,* pages 519-525, 2000.

Nick Littlestone and Chris Mesterharm. An Apobayesian Relative of Winnow. *NIPS 9*, pages 204-210, 1997.

ArXiv

Chris Mesterharm, Rauf Izmailov, Scott Alexander, and Simon Tsang. A Random Subspace Technique That Is Resistant to a Limited Number of Features Corrupted by an Adversary. arXiv:1902.07280 [cs.LG], 2019.

Workshops

Sergiu Goschin, Chris Mesterharm, and Haym Hirsh. Improving Repeated Labeling for Crowdsourced Data Annotation. Workshop on Machine Learning in Human Computation & Crowdsourcing, ICML 2012.

Education

Rutgers, The State University of New Jersey
Ph.D., Computer Science, October 2007

Virginia Tech
B.S., Computer Engineering, May 1992
Minor, Math

Awards

Invited to submit article for a special issue on learning theory in the Journal of Machine Learning Research covering the top learning theory results of 2003.

Technology

Java, Python, C, R, Lisp, Bash, SQL, Linux, Android, MATLAB, Maple, Hadoop.

Citizenship

United States

Clearance

Secret