Brett Walenz

4806 Tapestry Terrace, Durham, NC 27713
402.880.3053
bwalenz@cs.duke.edu
http://cs.duke.edu/~bwalenz

Duke University
308 Research Dr., Durham, NC, 27705
Department of Computer Science
https://cs.duke.edu

Education

2018 Ph.D, Computer Science, **Duke University**, expected.
Dissertation: Perturbation Analysis of Database Queries
2010 MS, Computer Science, **University of Nebraska at Omaha**
Specialization in Artificial Intelligence
Thesis: Temporal Tracking of Named Entities
2010 Graduate Student of the Year
2003 BS, Computer Science, **University of Nebraska at Omaha**

Publications

- Brett Walenz, Sudeepa Roy, and Jun Yang. "Optimizing iceberg queries with complex joins." In Proceedings of the 2017 ACM SIGMOD International Conference on Management of Data, Chicago, Illinois, USA, May 2017.
- Brett Walenz and Jun Yang. "Perturbation analysis of database queries." Proceedings of the VLDB Endowment, 9(14), 2016.
- You Wu, Brett Walenz, Peggy Li, Andrew Shim, Emre Sonmez, P.K. Agarwal, Chengkai Li, Jun Yang, and Cong Yu. "iCheck: computationally combating 'lies, damned lies, and statistics'." In Proceedings of the 2014 ACM SIGMOD International Conference on Management of Data, Snowbird, Utah, USA, June 2014. Demonstration track.
- Brett Walenz, William Mahoney, Robin Gandhi, Quiming. Zhu, "Exploring Social Contexts along the Time Dimension: Temporal Analysis of Named Entities", in Proceedings of the 2009 IEEE International Conference on Social Computing, Minneapolis, MN, 2010.
- Nathan Denny, Brett Walenz, "Mission Profiles and Evidential Reasoning for Estimating Information Relevancy in Multi-Agent Supervisory Applications", in 15th International Command and Control Research and Technology Symposium (ICCRTS), Santa Monica, CA, 2010.
- Michael Gosnell, Joseph Barker, Brett Walenz, Robert Woodley, and Warren Noll, "Adaptable Framework for Cultural Response Measurement," International Journal of Computational Intelligence: Theory and Practice, Volume 5, Number 1, 2010.

Informal Publications

- Brett Walenz et. al. "Fact checking congressional voting claims." In Proceedings of the 2016 Computation+Journalism Symposium, Stanford, California, USA, September 2016. Informal publication.
- Brett Walenz et. al. "Finding, monitoring, and checking claims computationally based on structured data." In Proceedings of the 2014 Computation+Journalism Symposium, New York City, New York, USA, October 2014. Informal publication, with contents drawn from SIGMOD 2014 and VLDB 2014 demos.

Experience

Current 8/2013

Graduate Research Assistant at Duke University

Research into areas of computational journalism, analysis of database queries. Query optimization techniques for aggregate-having queries in SQL. Developed lead-finding and fact-checking site for Congressional representatives, analyzes vote patterns and correlations across multiple dimensions.

11/2008 - 8/2013

Scientist at 21st Century Systems, Inc., Omaha, NE

Developed application to count and monitor blackjack hands in casino surveillance video feeds. Written in Python using PySide (QT), and OpenCV for computer vision. Wrote utility to train OpenCV's Haar classifier using picked images from training video. Used hierarchical clustering approach to identify individual hands and group cards together.

Research and development of information extraction library in Java. Utilized machine learning libraries for maximum entropy and support vector machines to provide support for named entity recognition, text classification, sentence parsing, and part of speech tagging. Wraps libraries such as Apache OpenNLP and Stanford NLP library to provide uniform interface.

Technical lead of an intranet search engine application used by enterprise applications. Java-based web services application using Apache CXF for web services, Lucene, Tomcat, and Hadoop for large-scale distributed requirements.

Funded Research Projects

Multi-INT Fusion Tool (DoD SBIR, 2010) - 6 month research project investigating correlating information across multiple information sources (text, video, signal). Developed Java-based architecture for discovering and creating trends, topics, and events in open source intelligence.

Independent Anomaly Detection (DoD SBIR, 2012) - 6 month research project focused on creating an application capable of identifying anomalous entries in data without manual development of anomaly detectors. Extensive use of Python and scikit-learn using a mixture of classification, regression, and statistical deviation techniques to examine a dataset across all dimensions and attributes.

11/2003 - 11/2008

Technical Lead at 21st Century Systems, Inc., Omaha, NE

Technical Lead for information sharing and hypothesis management application. Managed team of developers and provided technical direction for project. Led team in developing web-based application using J2EE, Tomcat, and AJAX.

Technical Lead for collaborative scientific application. Java-based proof of concept for distributed collaboration between scientists at different national laboratories.

Selected Talks

- "Do Numbers Lie?", Science Cafe, North Carolina Museum of Natural Sciences. Raleigh, NC, October 2016.
- "iCheck: Interactive Exploration of How Congress Votes", Visualization Friday Forum, Duke University, April 2016.
- "iCheck: computationally combating 'lies, damned lies, and statistics"', Tech and Check, Duke University, March 2016.
- "Finding, Monitoring, and Checking Claims Computationally Based on Structured Data", Computation + Journalism, October 2014.