

Miles Efron

Graduate School of Information and Library Science
University of Illinois, Urbana-Champaign.
501 E. Daniel St.
Champaign, IL 61820
+1.217.419-4472
mefron@illinois.edu

I. Personal History and Professional Experience

A. Educational Background

Occidental College (Los Angeles, CA), Bachelor of Arts, English and Comparative Literature, summa cum laude, 1994.

University of North Carolina (Chapel Hill), Master of Science in Information Science, 2000.

University of North Carolina (Chapel Hill), Doctor of Philosophy, Library and Information Science, 2003.

B. List of Academic Positions since Final Degree

August 2003-August 2004, Postdoctoral researcher, University of North Carolina, Chapel Hill.

August 2004-June 2009, Assistant Professor, School of Information, University of Texas, Austin.

August 2009-present, Assistant Professor, Graduate School of Library and Information Science, University of Illinois, Urbana-Champaign.

C. Other Professional Experience

2003-2004, Instructor, School of Information and Library Science, University of North Carolina, Chapel Hill.

D. Honors, Recognitions, and Outstanding Achievements

2013. Best paper nominee/short-list for: Efron, Miles. (2013). Query representation for cross-temporal information retrieval. *Proceedings of the 36th Annual ACM SIGIR Conference on Research and Development in Information Retrieval*. Dublin, Ireland. 383-392.

2011. Best paper award for: Efron, Miles and Peter Organisciak and Katrina Fenlon. (2011). “Building topic models in a federated digital library through selective document exclusion.” *Proceedings of the Annual Meeting of the American Society for Information Science and Technology*.
2009. Best paper nomination for: Generative model-based metasearch in digital libraries. ACM/IEEE Joint Conference on Digital Libraries.
2002. A. R. Zipf Fellowship, Council on Library and Information Resources.
2001. Fellowship to attend the Complex Systems Summer School at the Santa Fe Institute.
2001. Louis Round Wilson Fellowship, University of North Carolina, Chapel Hill.
2000. Beta Phi Mu, University of North Carolina, Chapel Hill.
2000. University Graduate Merit assistantship, University of North Carolina, Chapel Hill.
2000. Asheim fellowship for graduate study, University of North Carolina, Chapel Hill.
1998. Margaret Kalp fellowship for graduate study, University of North Carolina, Chapel Hill.
1994. Sigma Tau Delta (the English honor society), Occidental College.
1993. Phi Beta Kappa, Occidental College (early induction).

E. Invited Lectures and Invited Conference Presentations

- “Making sense of Twitter search.” Presented by invitation to GSLIS Alumni Fall Reunion. 2011.
- “Making sense of microblog search.” Presented by invitation to the Executive Club of Champaign County, 2011.
- + “Temporal index growth: Time-based measures of term importance in information retrieval.” Presented by invitation at the University of Wisconsin, Milwaukee, 2009.
- + “Where will we search: Information retrieval in the cloud and in pieces.” Presented by invitation at the University of Wisconsin, Milwaukee, 2009.

F. Offices Held in Professional Societies

NA

G. Editorships

Editorial board member, *Journal of the American Society for Information Science and Technology*.

H. Grants Received

\$408,000. PI. III: Small: Improving Information Retrieval by Analysis of Temporal Evidence in a Unified Model. National Science Foundation. August 2012-July 2015.

\$22,317. PI. Google Faculty Research Award. “Defining and solving key challenges in microblog search.” 2011.

\$45,711. Investigator (Michael Twidale, PI). Options for Improving Knowledge Reuse at Caterpillar. 2010.

\$349,469. Co-PI (Carole Palmer, PI). IMLS Digital Collections and Content. 2010-2012.

\$46,733. PI. Google Digital Humanities Research Award. “Meeting the challenge of language change in text retrieval with machine translation techniques.” 2010.

\$45,563. PI. Google Faculty Research Award. “Defining and solving key challenges in microblog search.” 2010.

\$700. University of Texas Special Research Grant, “Collecting Multiple Query Representations,” 2009.

\$10,000. John P. Commons Teaching Fellowship, 2009.

\$6,800. Temple teaching fellowship, 2008.

\$157,152. Miles Efron (co-PI) OpenChoice: A platform for content classification and filtering. U.S. Institute for Museum and Library Services. #LG-06-05-003-05, 2005-2007.

I. Review Panels

Review panelist, 2014 NSF CAREER Award (IIS Division).

Review panelist, 2014 NSF IIS-SMALL Award.

Member of the A. R. Zipf Award selection committee, yearly 2004 to 2009.

Israeli Science Foundation proposal reviewer, 2008.

See § III.3.A.2 (Service to Disciplinary and Professional Societies or Organizations) for peer review activity.

II. Publications and Creative Works

Denotes publication derived from the candidate's thesis.

* Denotes publication that has undergone stringent editorial review by peers.

+ Denotes publication that was invited and carries special prestige and recognition.

A. Doctoral thesis title

Eigenvalue-based Estimators for Optimal Dimensionality Reduction in Information Retrieval.

B. Books Authored or Co-Authored (in print or accepted)

NA

C. Books Edited or Co-Edited (in print or accepted)

NA

D. Chapters in Books (in print or accepted)

NA

E. Monographs (in print or accepted)

NA

F. Articles in Journals (in print or accepted)

* Lin, Jimmy and Miles Efron. (2013). Evaluation as a service for information retrieval. *ACM SIGIR Forum*. 47(2). 8-14.

+* Efron, Miles. (2011). Information search and retrieval in microblogs. *Advances in Information Science. Journal of the American Society for Information Science and Technology*. 62(6), 996-1008.

* Efron, Miles. (2010). Linear time series models for term weighting in information retrieval. *Journal of the American Society for Information Science and Technology*. 61(7). 1299-1312.

* Efron, Miles and Megan Winget. (2010). Query polyrepresentation for ranking retrieval systems without relevance judgments. *Journal of the American Society for Information Science and Technology*. 61(6). 1081-1091.

- * Efron, Miles (2009). Using multiple query aspects to build test collections without human relevance judgments. *Proceedings of the European Conference on Information Retrieval (ECIR). Lecture Notes in Computer Science 5478*. 276-287.
- * Efron, Miles (2008). Shannon Meets Shortz: A Probabilistic Model of Crossword Puzzle Difficulty. *Journal of the American Society for Information Science and Technology*. 59(6). 856-886.
- * Efron, Miles (2008). Query Expansion and Dimensionality Reduction: Notions of Optimality in Rocchio Relevance Feedback and Latent Semantic Indexing. *Information Processing and Management*, 44(1). 163-180.
- + Efron, Miles (2007). Metadata use in OAI-Compliant Institutional Repositories. *Journal of Digital Information*. 8(2). <http://journals.tdl.org/jodi/article/view/196/169>.
- + Efron, Miles. (2006). "Using Cocitation Information To Estimate Political Orientation in Web Documents." 9(4). *Knowledge and Information Systems*. 492-511.
- # Efron, Miles. (2005). "Eigenvalue-based Model Selection During Latent Semantic Indexing." 56(9). *Journal of the American Society for Information Science and Technology*. 969-998.

H. Patents

NA

I. Bulletins, Reports, or Conference Proceedings (in print or accepted)

- * Efron, Miles and Jimmy Lin and Jiyin He and Arjen de Vries. (2014). Temporal feedback for tweet search with non-parametric density estimation. *Proceedings of the 37th Annual ACM SIGIR Conference on Research and Development in Information Retrieval*. Gold Coast, Australia. (to appear).
- * Efron, Miles and Craig Willis and Garrick Sherman. (2014). Learning sufficient queries for entity filtering. *Proceedings of the 37th Annual ACM SIGIR Conference on Research and Development in Information Retrieval*. Gold Coast, Australia. (to appear).
- * Voorhees, Ellen and Jimmy Lin and Miles Efron. (2014). On run diversity in "Evaluation as a service." *Proceedings of the 37th Annual ACM SIGIR Conference on Research and Development in Information Retrieval*. Gold Coast, Australia. (to appear).
- * Lin, Jimmy and Miles Efron. (2014). Infrastructure Support for Evaluation as a Service. *Proceedings of the 23rd International World Wide Web Conference Companion (WWW 2014)*, pages 79-83, April 2014, Seoul, South Korea.

Lin, Jimmy and Miles Efron. (2014). Overview of the TREC-2013 Microblog Track. *Proceedings of the Twenty-Second Text REtrieval Conference (TREC 2013)*, November 2013, Gaithersburg, Maryland.

* Karimzadehgan, Maryam and ChengXiang Zhai and Miles Efron. (2013). Statistical Translation Language Model for Twitter Search. In *Proceedings of the 2013 Conference on the Theory of Information Retrieval (ICTIR '13)*, Oren Kurland, Donald Metzler, Christina Lioma, Birger Larsen, and Peter Ingwersen (Eds.). 121-124.

* Willis, Craig and Miles Efron. (2013). Finding information in books: characteristics of full-text searches in a collection of 10 million books." *Proceedings of the Annual Conference of the American Society for Information Science and Technology (ASIST)*. Montreal, Quebec, Canada. (no page numbers; electronic proceedings).

Efron, Miles, Craig Willis and Peter Organisciak and Brian Balsamo and Ana Lucic. (2013). The Graduate School of Library and Information Science at TREC 2013. *Proceedings of the 2013 Text REtrieval Conference (TREC)*.

* Efron, Miles. (2013). Query representation for cross-temporal information retrieval. *Proceedings of the 36th Annual ACM SIGIR Conference on Research and Development in Information Retrieval*. Dublin, Ireland. 383-392. (short-listed for conference best paper award).

* Lin, Jimmy and Miles Efron. Temporal Relevance Profiles for Tweet Search. *Proceedings of the SIGIR 2013 Workshop on Time-Aware Information Access*, August 2013, Dublin, Ireland.

* Efron, Miles and Peter Organisciak and Katrina Fenlon. (2012). Improving retrieval of short texts through document expansion. *Proceedings of the 35th Annual ACM SIGIR Conference on Research and Development in Information Retrieval*. Portland, Oregon, USA. 911-920.

* Fenlon, Katrina and Miles Efron and Peter Organisciak. (2012). Augmenting the aggregator's eye: Metadata visualization through statistical text analysis. *Proceedings of the Annual Meeting of the American Society for Information Science and Technology*.

* Organisciak, Peter and Miles Efron and Katrina Fenlon. (2012). Unreliable and uncertain annotators: Evaluating rater quality and rating difficulty in online annotation activities. *Annual Meeting of the American Society for Information Science and Technology*.

Efron, Miles and Jana Deisner and Peter Organisciak and Garrick Sherman and Ana Lucic. (2012). The Graduate School of Library and Information Science at TREC 2011. *Proceedings of the 2012 Text REtrieval Conference (TREC)*.

* Efron, Miles and Peter Organisciak and Katrina Fenlon. (2011). Building topic models in a federated digital library through selective document exclusion. *Proceedings of the Annual Meeting of the American Society for Information Science and Technology*. Winner, Conference best paper award.

- * Fenlon, Katrina and Peter Organisciak and Miles Efron. (2011). Semi-automated collection evaluation for large-scale aggregations. *Proceedings of the Annual Meeting of the American Society for Information Science and Technology*. (Poster).
 - * Efron, Miles. (2011). A game with many purposes: Improving information retrieval through pleasurable competition. CIS 2011 Workshop; Collaborative Information Seeking. *The Annual Meeting of the American Society for Information Science and Technology*.
 - * Efron, Miles and Gene Golovchinsky. (2011). Estimation methods for ranking recent information. *Proceedings of the 34th Annual ACM SIGIR Conference on Research and Development in Information Retrieval*. Beijing, China. (495-504).
- Efron, Miles and Adam Kehoe and Peter Organisciak and Sunah Suh. (2011). The Graduate School of Library and Information Science at TREC 2011. *Proceedings of the 2011 Text REtrieval Conference (TREC)*.
- * Efron, Miles and Megan Winget. (2010). A taxonomy of questions in a microblogging environment. *Proceedings of the 2010 Annual Meeting of the American Society for Information Science and Technology (ASIS&T)*. Pittsburgh, Pennsylvania. 47(1). 1-10.
 - * Efron, Miles (2010). Hashtag retrieval in a microblogging environment. *Proceedings of the 33rd Annual ACM SIGIR 2010 Conference on Research and Development in Information Retrieval*. Geneva, Switzerland. 787-788.
 - * Efron, Miles (2009). Finding expert authors in institutional repositories. *Proceedings of the 2009 Annual Meeting of the American Society for Information Science and Technology (ASIS&T)*. Vancouver, Canada.
 - * Efron, Miles (2009). "Generative model-based metasearch for data fusion in information retrieval." *JCDL '09: Proceedings of the 2009 joint international conference on Digital Libraries*. 153-162. (best paper nominee).
 - * Efron, Miles (2008). "Large-Scale Multiple Hypothesis Testing in Information Retrieval: Towards a new Approach to Document Ranking." *Proceedings of the 2008 Annual Meeting of the American Society for Information Science and Technology*. Columbus, OH.
 - * Efron, Miles (2008). "What Crossword Puzzles Teach us about Information." *Proceedings of the Annual Conference of the American Society for Information Science and Technology (ASIST)*. (no page numbers; electronic proceedings)
 - * Efron, Miles. (2007). "Model-Averaged Latent Semantic Indexing." *Proceedings of the 30th annual international ACM SIGIR conference on Research and development in information Retrieval (SIGIR)*. 755—756.

Efron, Miles, Donald Turnbull and Carlos Ovalle. (2007). University of Texas School of Information at TREC 2007. *Proceedings of the 2007 Text REtrieval Conference (TREC)*.

* Efron, Miles. (2004). The Liberal Media and Right-Wing Conspiracies: Using Cocitation information to Estimate the Political Orientation of Web documents.” *Proceedings of the 2004 ACM Conference on Information and Knowledge Management (CIKM)*. 390--398.

* Efron, Miles. (2004). “Cultural orientation: Classifying Subjective Documents by Cocitation Analysis.” *Proceedings of the 2004 AAAI Fall Symposium on Style and Meaning in Language, Art, Music, and Design*.

* Efron, Miles, Jon Elsas, Gary Marchionini, Junliang Zhang. (2004). “Machine Learning for Information Architecture.” *Proceedings of the ACM & IEEE Joint Conference on Digital Libraries (JCDL 2004)*.

* Efron, Miles and Donald Sizemore. (2003). “Link Attachment, Preferential and Otherwise.” *Proceedings of the ACM & IEEE Joint Conference on Digital Libraries (JCDL 2003)*. 369-371.

J. Abstracts (in print or accepted)

NA

K. Book Reviews (in print or accepted)

Efron, Miles. (2012). Marti A. Hearst and Ian Ruthven and Diane Kelly. *Search User Interfaces and Interactive Information Seeking, Behavior and Retrieval*. In *Journal of the American Society for Information Science and Technology*. (to appear).

Efron, Miles. (2010). Ayşe Göker, John Davies (eds): Information retrieval: Searching in the 21st century. In *Information Retrieval Journal*. 1386-4564.

L. Other

Workshop Overview

* Fernando Diaz, Susan Dumais, Miles Efron, Kira Radinsky, Maarten de Rijke, and Milad Shokouhi. 2013. SIGIR 2013 workshop on time aware information access (#TAIA2013). In *Proceedings of the 36th international ACM SIGIR conference on Research and development in information retrieval (SIGIR '13)*. ACM, New York, NY, USA, 1137-1137.

Peer-reviewed conference and workshop presentations

* Golovchinsky, Gene and Miles Efron. (2010). Making sense of Twitter Search. *Proceedings of CHI2010 Workshop on Microblogging*. Atlanta, Georgia. April 11, 2010.

* Efron, Miles. (2006). "Metadata use in OAI-Compliant Institutional Repositories," given at the Workshop on Digital Curation as part of the Joint ACM/IEEE Conference on Digital Libraries.

* Turnbull, Donald and Miles Efron. (2006). "OpenChoice: A Platform for Web Content Classification and Filtering," given at the 15th International World Wide Web Conference on Open Source Workshop. Edinburgh, Scotland.

Zhang, Junliang; Tim Shearer, Gary Marchionini, Miles Efron, and Jon Elsas. (2004). "Relation Browser++: an information exploration and searching tool. *The National Conference on Digital Government Research*.

Efron, Miles, Gary Marchionini and Junliang Zhiang. (2003). "Implications of the Recursive Representation problem for Automatic Concept Identification in On-line Governmental Information." *ASIST SIG-CR Workshop*.

Efron, Miles and Paul Jones and Serena Fenton. (2002). "The Problem of Access in Contributor-Run Digital Libraries," given at the Digital Resources in the Humanities Conference. Edinburgh, Scotland.

* Efron, Miles and Gary Geisler. (2001). "Is it All About Connections? Factors Affecting the Performance of a Link-Based Recommender System," presented at the ACM SIGIR Workshop on Recommender Systems.

* Efron, Miles and Gary Geisler. (2001). "Using Dimensionality Reduction to Improve Similarity Judgments for Recommendation," presented at the joint DELOS/NSF Workshop on Personalisation and Recommender Systems in Digital Libraries.

Working papers and reports

Efron, Miles. (2002). "Amended Parallel Analysis for Optimal Dimensionality Reduction in Latent Semantic Indexing." SILS Technical Report TR-2002-03.

III. Resident Instruction

A. Summary of Instruction

1. Descriptive Data

- a. Created a new course LIS 590HCI, human-centered information retrieval. 590HCI was a doctoral seminar. The main work of the class involved syllabus construction and active student mentoring, especially helping students write and critique research papers.
- b. Created a new course LIS 590EE, information management in emerging environments. 590EE was a doctoral seminar. The main work of the class

- involved syllabus construction and active student mentoring, especially helping students write and critique research papers.
- c. Developed new course material for LIS 456, information storage and retrieval. 2011 section used two new textbooks, reflecting changed course emphasis. Additionally, students completed new homework and exams (created by me) during their coursework.
 - d. Developed new course material for LIS 546, information storage and retrieval (i.e. materials in addition to my syllabus from previous versions of a similar class at the University of Texas). New materials included units on search interfaces using a recently published textbook. Additionally, students completed a newly introduced final project (optionally) using software that I wrote specifically for the course.
 - e. Acted as a mentor to members of the unofficial mathematics club at GSLIS.
 - f. Served as a mentor during the doctoral consortium at the 2009 iSchools conference.
 - g. Formed a group of students to undertake GSLIS's participation in the 2010 Text REtrieval Conference (TREC).

2. Supervision of Graduate Students

Doctoral:

Garrick Sherman. Graduate School of Library and Information Science, University of Illinois, Urbana-Champaign. Advisor from 2013 to present.

Craig Willis. Graduate School of Library and Information Science, University of Illinois, Urbana-Champaign. Advisor from 2013 to present.

Ana Lucic. Graduate School of Library and Information Science, University of Illinois, Urbana-Champaign. Advisor from 2011 to 2014.

Peter Organisciak. Graduate School of Library and Information Science, University of Illinois, Urbana-Champaign. Advisor from 2010 to present.

Daniel Wright, Graduate School of Library and Information Science, University of Illinois, Urbana-Champaign. Committee member from August 2009 to 2010. [Graduated]

Yunseon Choi, Graduate School of Library and Information Science, University of Illinois, Urbana-Champaign. Committee member from January 2010 to 2011. [Graduated]

Samuel Burns, School of Information, University of Texas, Austin. Chair from 2007-2009, now committee member. Currently preparing proposal.

Shen-Chang Huang, School of Information, University of Texas, Austin. Committee member from 2007-2009.

Certificate of Advanced Study:

James Hahn. Advisor. Graduate School of Library and Information Science, University of Illinois, Urbana-Champaign. 2011.

Master of Science

Practicum advisor, Graduate School of Library and Information Science, University of Illinois, Urbana-Champaign.

2011, Emma Brock and Gemma Petrie.

Academic advisor to approximately eight School of Information students (University of Texas, Austin), 2004-2009.

3. Other Contributions to Instructional Programs

Developed and taught the course *Data Mining* at the School of Information and Library Science, University of North Carolina, Chapel Hill.

Developed and taught the course *Concepts of Information Retrieval*, School of Information, University of Texas, Austin.

Developed and taught the course *Mathematical Foundations of Information Studies*, School of Information, University of Texas, Austin.

Conducted *ad hoc* work with the curriculum committee regarding the core requirements for the masters of science degree at the School of Information, University of Texas, Austin.

Wrote software to support student experimentation in the field of information retrieval.

Supervised three masters capstone projects, School of Information, University of Texas, Austin.

3. Service (Public Engagement, Professional/Disciplinary, and University)**A. Summary of Service****1. Public Engagement**

Volunteered for the 2010 Science Olympiad National Tournament.

Assisted San Marcos, TX public library in configuration Internet filtering software.

Volunteered as an information technology expert at the emergency headquarters for Hurricane Katrina survivors, Austin, TX.

2. Service to Disciplinary and Professional Societies or Associations

co-chair of Workshop Program Committee, ACM/IEEE Joint Conference on Digital Libraries, 2013.

Member program committee for ACM/IEEE Joint Conference on Digital Libraries 2008-2012.

Member American Society for Information Science and Technology Nomination Committee 2010-2011.

Member American Society for Information Science and Technology Leadership Committee 2009-2010.

Member program committee for ACM Annual Conference on Research and Development in Information Retrieval (SIGIR) 2007, 2008, 2009, 2011, 2012, 2013, 2014.

Member program committee for ACM Annual Conference on Information and Knowledge Management (CIKM) 2014.

Member program committee for IEEE Conference on Semantic Computing, 2007.

American Library Association (ALA) Library research round table mentor program: volunteer mentor, 2007.

Member American Society for Information Science and Technology Communications and Publications Committee 2009-2010.

Member American Society for Information Science and Technology Nominations Committee 2011.

Peer reviewer for:

- **Journals:**
 - *Journal of the American Society for Information Science and Technology*
 - *Information Processing and Management*
 - *ACM Transactions on Information Systems*
 - *Journal of Digital Information*
 - *Information Sciences*
 - *Information Processing Letters*
 - *Information Retrieval.*

- **Conferences:**
 - ACM Annual Conference on Research and Development in Information Retrieval (SIGIR)
 - ACM/IEEE Joint Conference on Digital Libraries
 - Annual Meeting of the American Society for Information Science and Technology
 - Conference on Digital Government.

3. University/Campus Service

Task force on GSLIS/Media institutional merger, University of Illinois, Urbana-Champaign, 2013.

Executive committee, Graduate School of Library and Information Science, University of Illinois, Urbana-Champaign, 2013-present. (vice-chair).

Faculty hiring committee, Graduate School of Library and Information Science, University of Illinois, Urbana-Champaign, 2013-2014. (chair).

Third-year review committee for Vetle I. Torvik. 2013-2014. (chair).

Campus Research Board reviewer, 2014.

Graduate School of Library and Information Science, University of Illinois, Urbana-Champaign Research Showcase working group. 2010, 2011.

Doctoral Studies Committee, Graduate School of Library and Information Science, University of Illinois, Urbana-Champaign, 2010-2011.

Admissions committee member, Graduate School of Library and Information Science, University of Illinois, Urbana-Champaign, 2009-2010.

Literatures, Languages and Textual Analysis Planning Team (LLTA), University of Illinois, Urbana-Champaign, 2009.

Literatures, Languages and Textual Analysis sub-committee to create a constituent survey, University of Illinois, Urbana-Champaign, 2009.

Research environment committee, School of Information, University of Texas, Austin, 2008-2009.

Grievance hearing panel, University of Texas, Austin, 2008-2009.

Committee for new building interior design, School of Information, University of Texas, Austin, 2008-2009.

University *ad hoc* committee to negotiate data acquisition from Wal-Mart, 2008.

Faculty search committee, School of Information, University of Texas, Austin, 2007-2008.

Committee for new building design, School of Information, University of Texas, Austin, 2007-2008.

Faculty search committee, School of Information, University of Texas, Austin, 2005-2006.

Guest lecturer INF 382C, Understanding and Serving Users, taught by Philip Doty, fall 2008.

Guest lecturer INF 180J, Introduction to Information Studies, taught by Lynn Westbrook, fall 2008.

Guest lecturer INF390N.1, Introduction to Doctoral Research and Theory, taught by Philip Doty, fall 2007.

Guest lecturer INF180J, Introduction to Information Studies, taught by Mary Lynn Rice-Lively, fall 2006.

V. Research

A. Candidate's Statement of Research Goals and Accomplishments

See attached document.

B. Departmental Evaluation of Research Accomplishments

See attached document.

C. Departmental Evaluation of Future Potential

See attached document.

VI. External Evaluations

NA