SHILAD SEN

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EDUCATION

Aug '04 - March '09 **University of Minnesota**, Minneapolis, MN – (GPA: 3.80/4.00)
Ph.D. in Computer Science, nominated for best dissertation; advisor: John Riedl.

Sept '94 - June '99 **Northwestern University**, Evanston, IL – (GPA: 3.52/4.00)
B.A. Mathematics / B.M. Saxophone Performance

POSITIONS HELD

Aug '14 – present **Macalester College**, *Associate Professor,* St. Paul, MN

Aug '08 – Aug '14 **Macalester College**, *Assistant Professor,* St. Paul, MN

- Led undergraduate research teams in building two websites that serve as experimental platforms (Macademia and Poliwiki) and conducted research that explores balkanization in Wikipedia.
- Taught classes in Collective Intelligence, Algorithms, Internet Programming, Object-Oriented Programming, Operating Systems, Networking.

Oct '14 – present **Target Corporation**, *Research Data Scientist*, Minneapolis, MN

- Serving as a data scientist approximately half-time while on sabbatical in 2014-2015.
- Adapting and developing state-of-the-art recommender algorithms for petabyte-scale datasets.
- Leveraging massively scalable technologies such as Hadoop, Spark, and Hive.

Aug '11 – June '12 **University of Minnesota**, *Visiting Researcher,* Minneapolis, MN

- Collaborating with psychologists at Carnegie Mellon University to devise, implement, and evaluate strategies for increasing newcomer participation in Wikipedia.
- Measuring the gender gap between Wikipedia editors, exploring possible reasons underlying the gap, and assessing the affects of the gap on article quality.
- Conducting an online experiment that identifies differences in tagging behavior between users of two cultures (American and Chinese).
- Developing NLP algorithms that mine semantic relationships from Wikipedia.
- Conducting an online experiment that explores visualizations supporting interdisciplinary research collaborations.

Oct '04 – Aug '08 **GroupLens Research Group,** *Research Assistant*, University of Minnesota, Minneapolis, MN

- Social Tagging Systems (e.g. http://flickr.com, http://del.icio.us):
  - Analyzed factors influencing vocabulary development in social tagging systems.
  - Built human and machine-learning systems to classify individual tags as good or bad.
  - Explored methods for combining tagging systems and recommender systems.
- Recommender Systems:
  - Implemented and evaluated a wide range of recommender algorithms on multiple datasets.
- Assisted in creation of http://wikilens.org, a member-maintained recommender community.

Summer '07 **Google, Inc,** *Software Engineering Intern*, Mountain View, CA

- Conceived, designed, and implemented a social feature for Google Checkout in Java.

Summer '06 **Thomson Legal Research and Development Group,** *Research Intern*, Eagan, MN

- Improved recommendation system for over 10 million documents on westlaw.com.
- Designed and evaluated hybrid metadata/clickstream clustering algorithms using offline usage data.

POSITIONS HELD (continued)

Summer '05 **IBM Research Collaborative User Experience Group**, *Research Intern,* Cambridge, MA
- Improved Activity Explorer, a Java application supporting ad-hoc group collaboration, by creating a general alert management system employing rules-based and predictive software alert filtering.
- Served as lead author of *CSCW 2006* research paper based on research.
- Filed six patents based on research results.

Sep. '98 – Oct '04 **Sourcelight Technologies,** *Lead Engineer and Software Manager*, Evanston, IL
- Promoted to lead engineer after one year
- Created and oversaw maintenance of hosted movie recommendation service for clients such as Blockbuster Inc., Hollywood Video, and Comcast Cable written in Java, Python, and C.
- Designed a scalable, redundant, recommender system architecture in C/C++ and Python that supports features such as millisecond response times and automatic failover and on-the-fly addition of new servers. Demonstrated performance improvements of up to 20X over original system.
- Developed clustering models for music prediction built from one half billion ratings

AWARDS

Most recent first:
- **Best Paper Winner,** awarded to top 1% of submissions, CSCW Conference, 2015
- **Best Paper Nominee,** awarded to top 5% of submissions, CHI Conference, 2015
- **Best Paper Winner,** awarded to top submission, WikiSym Conference, 2011
- **Best Paper Nominee,** awarded to top 1% of submissions, IUI Conference, 2011
- **Best Dissertation Nominee,** Physical Sciences at Engineering, Univ of MN, 2009
- **Best Paper Award Winner,** awarded to top submission, IUI Conference, 2009
- **Best of CSCW Award Winner,** awarded to top 1% of submissions, CSCW Conference, 2006
- **IBM Patent Plateau Award (for four or more patents)**, 2006
- **Second Place,** North American Saxophone Alliance Jazz Competition, 1999

PUBLICATIONS

Book chapters:
- Shafer, **Sen**, Frankowski, Herlocker, "Collaborative Filtering Recommender Systems" in *Adaptive Web-Based Systems*. Springer, 2007.

Journal articles:
- J. Vig, **S. Sen,** J. Riedl, The Tag Genome: Encoding Community Knowledge to Support Novel Interaction, *ACM Transactions on Interactive Intelligent Applications*, September, 2012.

Conference Proceedings (most recent first):
- **Sen, S.**, Johnson, I., *Harper, H., *Mai, H., *Horlbeck Olsen, S., *Mathers, B., *Souza Vonessen, L., Wright, M., Hecht, B. "Towards Domain-Specific Semantic Relatedness: A Case Study". To appear in *Proceedings of IJCAI 2015*. AAAI Press (28% acceptance rate).
- **Sen, S.**, Ford, H., Musicant, D., Graham, M., Keyes, O., and Hecht, B. 2015. "Barriers to the Localness of Volunteered Geographic Information". To appear in *Proceedings of CHI 2015*. ACM Press. (22% acceptance rate). Best paper nomination (awarded to top 5% of submissions).
- **Sen, S.**, *Lesicko, M., *Giesel, M., *Gold, R., *Hillman, B., *Naden, S., *Russell, J., *Wang, Z., and Hecht, B. 2015. "Turkers, Scholars, "Arafat" and "Peace": Cultural Communities and Algorithmic Gold Standards." *Proceedings of CSCW 2015*. ACM Press. (28% acceptance rate). Best paper award (awarded to top 1% of submissions).
- **Sen, S.**, Toby Jia-Jun Li, *Lesicko, M., *Weiland, A., *Gold, R., *Li, Y., *Hillmann, B., and Brent Hecht. 2014. "WikiBrain: Democratizing computation on Wikipedia." In OpenSym '14. ACM (45% acceptance rate).
- Li, T. J-J, **Sen, S.** and Hecht, B. 2014. Leveraging Advances in Natural Language Processing to Better Understand Tobler's First Law of Geography. Proceedings of the 22nd ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems. New York: ACM Press.
- H. Ford, **S. Sen**, D. Musicant, *N. Miller. Getting to the Source: Where does Wikipedia Get Its Information? *Proceedings of the 9th International Symposium on Wikis and Open Collaboration*. ACM, 2013.
- Kluver, D., Nguyen T., Ekstrand M., **Sen S**., and Riedl J. , "How many bits per rating?", RecSys 2012, 09/2012, Dublin, Ireland, p.99-106 (20% acceptance rate).

PUBLICATIONS

Conference Proceedings (continued)

- R. Preidhosky, **S. Sen**, L. Terveen, "Recommending Routes in the Context of Bicycling: Algorithms, Evaluation, and the Value of Personalization," *CSCW 2012.*
- Z. Dong, C. Shi, **S. Sen**, L. Terveen, J. Riedl , "War Versus Inspirational in Forrest Gump: Cultural Effects in Tagging Communities." *ICWSM 2012*.
- S.K. Lam, A. Uduwage, Z. Dong, **S. Sen**, D.R. Musicant, L. Terveen and J. Riedl, "WP:Clubhouse? An Exploration of Wikipedia's Gender Imbalance." *WikiSym 2011* **winner of Best Paper**.
- *E. Sparling and **S. Sen**: Rating: How difficult is it? *RecSys 2011* (20% acceptance rate).
- J. Vig, **S. Sen**, and J. Riedl. 2011. Navigating the tag genome. In *Proceedings of the 16th international conference on Intelligent user interfaces* (IUI '11) **nominated for Best Paper**.
- **S. Sen**, *H. Charlton, *R. Kerwin, *J. Lim, *B. Maus, *N. Miller, *M. Naminski, *A. Schneeman, A. Tran, E. Nunes, and E. Isaac Sparling. 2011. Macademia: semantic visualization of research interests. In *Proceedings of the 16th international conference on Intelligent user interfaces* (IUI '11).
- J. Vig, M. Soukup, **S. Sen**, J. Riedl, "Tag Expression: Tagging with Feeling," UIST 2010 (18% acceptance rate).
- **S. Sen**, J. Vig, J. Riedl, "Tagommenders: Connecting Users to Items Through Tags," to appear in *WWW 2009* (12%).
- **S. Sen**, J. Vig, J. Riedl, "Learning to Recognize Valuable Tags," to appear in *IUI 2009* (25% acceptance rate).
- J. Vig**, S. Sen,** J. Riedl, "Tagsplanations: Explaining Recommendations Using Tags," to appear in *IUI 2009* (25% acceptance rate) **winner of Best Paper (**awarded to less than 1% of submissions).
- S. Drenner, **S. Sen**, L. Terveen, "Crafting the initial user experience to achieve community goals", RecSys 2008 (accptance rate: 30%).
- **S. Sen**, F. Harper, A. LaPitz, J. Riedl, "The Quest for Qualtiy Tags." *GROUP 2007* (28% acceptance rate).
- F. Harper, **S. Sen**, D. Frankowski, "Supporting Social Recommendations with Activity-Balanced Clustering." To appear, *2007 ACM Recommender Systems*.
- D. Frankowski, S. Lam, **S. Sen**, F. Harper, S. Yilek, M. Cassano, J. Riedl, "Recommenders Everywhere: The WikiLens Community-Maintained Recommender System." *WikiSym 2007*.
- **S. Sen**, S. Lam, D. Cosley, M. Al-Rashid, D. Frankowski, F. Harper, J. Osterhouse, J. Riedl, "tagging, communities, vocabulary, evolution." *CSCW 2006.* (22% acceptance rate) **Winner of Best of CSCW Award** (awarded to 1% of all submissions).
- **S. Sen,** W. Geyer, M. Muller, M. Moore, B. Brownholtz, E. Wilcox, "FeedMe: A Collaborative Alert Filtering System." *CSCW 2006*. (22% acceptance rate).
- D. Frankowski, D. Cosley, S. **Sen**, L. Terveen, J. Riedl, "You Are What You Say: Privacy Risks of Public Mentions." *SIGIR 2006* (19% acceptance rate).

Posters:

- A. Bristol, M. Huffman, *N. Leech, G. Wang, P. Codenotti, S. Sen, The Lifecycle of Wikipedia Editors, 2013 Joint Mathematics Meeting.

FUNDING

External Funding:

- Wikimedia Foundation Individual Engagement Grant "WikiBrainTools". $29,500 from March 2015 to August 2015. With Brent Hecht, University of Minnesota.
- NSF: "Guiding Folksonomy Development to Enable Novel Tagging Applications," (Macalester PI Shilad Sen, Univ of MN PI Loren Terveen and Co-PI John Riedl). $1,200,000 from May 2010 to May 2014 (Macalester College portion of grant is $250,000).
- Associated Colleges of the Midwest: "Opening the Macademia Website to all ACM Institutions," (PI Shilad Sen). Funded for $19,717 from June 2010 – June 2011.
- Amazon.com: $10000 of computational time to support Wikipedia research, June 2010 to present.

Internal Macalester College Funding:

- Keck: "Building the Poliwiki Experimental Web Platform," (PI Shilad Sen). Funded for $7000.
- Wallace: "Tagommenders: Connecting Users to Items Through Tags." Travel grant for $3000 to present research at the World Wide Web Conference in Madrid, Spain.

INVITED TALKS

- **"Retail Recommender Systems"**, INFORMS 2014
- **"Choosing Tags"**, CSCW 2008
- **"Nurturing Tagging Communities"**, Google Tech Talk 2007

MEDIA COVERAGE

- "Wikipedia's Gender Gap," Spark, Canadian Broadcasting Corporation, to air in October 2011.
- "Wikileaks the Class," Chronicle of Higher Education, 2011.
- "What is Tagging?" KARE11 News Tech Watch, 2006.

PROJECTS

WikiBrain data mining framework: http://wikibrainapi.org

- Wikibrain is a software framework that makes state-of-the-art Wikipedia-based algorithms available to practitioners and researchers (http://wikibrainapi.org).
- Using WikiBrain, a developer can click a single button that 1) Downloads Wikipedia databases, 2) Imports the data into a highly optimized database, and 3) Builds state-of-the-art algorithms from AI and NLP.
- Awarded $29,500 Individual Engagement Grant to support WikiBrain development from the Wikimedia Foundation.

June '09 - present **Macademia Faculty Research Collaboration Website: http://macademia.macalester.edu**

- Designed and developed the Macademia website, which visualizes research interest relationships from approximately 2000 faculty members who have created profiles.
- Led 15 undergraduate researchers in projects centered around the Macademia website.
- Launching an extensive online study evaluating new algorithms and visualizations for self-tagging systems such as Facebook.

June '09 - present **Poliwiki Experimental Web Platform, http://www.poliwiki.org**

- Developing a community-maintained political website that will serve as an experimental platform for exploring multiple points of view about polarizing issues.
- Led a team of 12 students in building a prototype version of the website.
- Publicly launching the site this spring.

Sept '98 - June '99 **Computer Jazz Improvisation System**, **http://www.shilad.com/jazz**

- Created software system in Java that allows users to input chords, harmonic devices, and songs.
- Derived and implemented expert-based rules to generate improvisational solos using these constructs.

April '06 - present **Co-producer and saxophonist**, **http://www.snowblindmusic.com**

- Released "Arctic Fury" and "Taking Shape" CDs with *Snowblind*, a jazz quintet.
- Performed at the 2006 Twin Cities Summer Festival and the 2007 Twin Cities Winter Jazz Festival.

PROFESSIONAL

General Chair

- ACM Conference on Recommender Systems (RecSys), 2016

Program Committee Member:

- ACM Conference on Wikis and Open Collaboration (WikiSym), 2015
- International Conference on User Modeling and Personalization (UMAP), 2014
- ACM Workshop on Recommender Systems and the Social Web (RSWEB), 2014
- WWW Workshop on Social Recommender Systems (SRS), 2014
- ACM Conference on Wikis and Open Collaboration (WikiSym), 2014
- ACM Conference on Wikis and Open Collaboration (WikiSym), 2013
- WWW Workshop on Social Recommender Systems (SRS), 2013
- ACM Conference on Recommender Systems (RecSys), 2012
- ACM Special Interest Group in Computer Science Education (SIGCSE), 2012
- ACM Conference on Recommender Systems (RecSys), 2011
- ACM Conference on Social Communications (COSN), 2010
- ACM Conference on Recommender Systems (RecSys), 2010
- International Conference on Intelligent User Interfaces (IUI), 2009
- International Conference on Electronic Commerce (EC), 2009
- International Conference on Electronic Commerce - Web Technologies (EC-Web), 2009

Referee: *The Interdisciplinary Journal of HCI*, *The Journal of Machine Learning Research*, *The New Journal of Physics*, *ACM Transactions on Information Systems*, and over twenty conference proceedings.

SKILLS

Programming Languages: C/C++, Java, Python, Perl, SQL, Tcl, VB, LISP, ML, Groovy, Matlab
Operating Systems: Linux, MacOS, Sun/Solaris, Windows
Technologies: HTTP, TCP/IP, J2EE, XML, Apache, Tomcat, Hadoop, Spark, Hive
Tools: Standard unix tools (vi, make, sed, awk, etc.) Eclipse, JBuilder, Webstudio, Visual Studio, ant
Databases: Postgresql, MySQL, Sybase, Oracle

INTERESTS

Playing jazz saxophone, squash, traveling, building things, basketball