Reid Priedhorsky

Curriculum Vitae

Los Alamos National Laboratory
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Education

2010 **Ph.D., Computer Science**, *University of Minnesota*, Minneapolis, MN.
Advisor: Loren Terveen
Thesis: *The value of geographic wikis*

2001 **B.A., Computer Science**, *Macalester College*, St. Paul, MN.
magna cum laude
Advisor: Richard Molnar
Honors thesis: *λ, a sound synthesizer*

Research experience

2014–present **Scientist**, *Los Alamos National Laboratory*, High Performance Computing Division (HPC), Los Alamos, NM.
Focus: Large-scale data analysis from scientific and computing systems perspectives

2011–2014 **Postdoctoral research associate**, *Los Alamos National Laboratory*, Defense Systems Analysis Division (DSA), Los Alamos, NM.
Focus: Large-scale data analysis of human behavior traces from the internet.

2010–2011 **Research staff member**, *IBM Research*, Center for Social Software, Cambridge, MA.
Focus: Crowdsourcing information about the real world.

2006–2010 **Graduate research assistant**, *University of Minnesota*, GroupLens Research, Minneapolis, MN.
Focus: Operation and study of an online collaborative map for bicyclists.

Publications

H-Index: 11. Citation counts from Google Scholar. Abbreviations at end of section.

Peer-reviewed

2017 <u>Reid Priedhorsky</u>, Dave Osthus, Ashlynn R. Daughton, Kelly R. Moran, Nicholas Generous, Geoffrey Fairchild, Alina Deshpande, Sara Y. Del Valle. Measuring global disease with Wikipedia: Success, failure, and a research agenda. To appear in *Proc. CSCW*.

2016 Kelly R. Moran, Geoffrey Fairchild, Nicholas Generous, Kyle Hickmann, Dave Osthus, <u>Reid Priedhorsky</u>, James M. Hyman, Sara Y. Del Valle. Epidemic forecasting is messier than weather forecasting: The role of human behavior and internet data streams in epidemic forecast. To appear in *Journal of Infectious Diseases*.

2016 Ashlynn R. Daughton, Nileena Velappan, Esteban Abeyta, <u>Reid Priedhorsky</u>. Novel use of flu surveillance data: Evaluating potential of sentinel populations for early detection of influenza outbreaks. *PLOS ONE*.

2015 Benjamin M. Althouse, Samuel V. Scarpino, ... , <u>Reid Priedhorsky</u>, ... (36 authors). Enhancing disease surveillance with novel data streams: Challenges and opportunities. *EPJ Data Science*.

2015   Kyle S. Hickmann, Geoffrey Fairchild, <u>Reid Priedhorsky</u>, Nicholas Generous, James M. Hyman, Alina Deshpande, Sara Y. Del Valle. Forecasting the 2013–2014 influenza season using Wikipedia. *PLOS Computational Biology.*
- *22 citations*

2014   Nicholas Generous, Geoffrey Fairchild, Alina Deshpande, Sara Y. Del Valle, <u>Reid Priedhorsky</u>. Global disease monitoring and forecasting with Wikipedia. *PLOS Computational Biology.*
- *28 citations*
- *Extensive media coverage, including Washington Post, The Atlantic, Vox.com, and NPR. Selected by LANL as top media story of 2014.*

2014   Andrea Tapia, Nicolas LaLone, Elizabeth MacDonald, <u>Reid Priedhorsky</u>, Michelle Hall. Crowdsourcing rare events: Using curiosity to draw participants into science and early warning systems. *Proc. ISCRAM.*
- *Nominated for Best Paper*

2014   <u>Reid Priedhorsky</u>, Sara Y. Del Valle, Aron Culotta. Inferring the origin locations of tweets with quantitative confidence. *Proc. CSCW.*
- *27 citations*
- *Honorable Mention paper (in this case, approximately the top 3% of submissions)*

2014   Susan M. Mniszewski, Sara Y. Del Valle, <u>Reid Priedhorsky</u>, James M. Hyman, Kyle S. Hickmann. Understanding the impact of face mask usage through epidemic simulation of large social networks. *Theories and Simulations of Complex Social Systems*, Springer.

2012   <u>Reid Priedhorsky</u>, David Pitchford, Shilad Sen, Loren Terveen. Recommending routes in the context of bicycling: Algorithms, evaluation, and the value of personalization. *Proc. CSCW.*

2011   <u>Reid Priedhorsky</u>, Loren Terveen. Wiki grows up: Arbitrary data models, access control, and beyond. *Proc. WikiSym.*

2011   Mikhil Masli, <u>Reid Priedhorsky</u>, Loren Terveen. Task specialization in social production communities: The case of geographic volunteer work. *Proc. ICWSM.*

2010   Fernando Torre, S. Andrew Sheppard, <u>Reid Priedhorsky</u>, Loren Terveen. bumpy, caution with merging: An exploration of tagging in a geowiki. *Proc. GROUP.*

2010   Katherine Panciera, <u>Reid Priedhorsky</u>, Loren Terveen. Lurking? Cyclopaths? A quantitative lifecycle analysis of user behavior in a geowiki. *Proc. CHI.*
- *68 citations*
- *Honorable Mention paper*

2010   <u>Reid Priedhorsky</u>, Mikhil Masli, Loren Terveen. Eliciting and focusing geographic volunteer work. *Proc. CSCW.*
- *36 citations*

2009   Michael Ludwig, <u>Reid Priedhorsky</u>, Loren Terveen. Path selection: A novel interaction technique for mapping applications. *Proc. CHI.*

2008   <u>Reid Priedhorsky</u> and Loren Terveen. The computational geowiki: What, why, and how. *Proc. CSCW.*
- *51 citations*
- *Honorable Mention paper*

2007   <u>Reid Priedhorsky</u>, Jilin Chen, Shyong (Tony) K. Lam, Katherine Panciera, Loren Terveen, John Riedl. Creating, destroying, and restoring value in Wikipedia. *Proc. GROUP.*
- *339 citations*

2007	<u>Reid Priedhorsky</u>, Benjamin Jordan, Loren Terveen. How a personalized geowiki can help bicyclists share information more effectively. *Proc. WikiSym.* Short paper.
	○ *41 citations*
2007	Pamela J. Ludford, <u>Reid Priedhorsky</u>, Ken Reily, Loren Terveen. Capturing, sharing, and using local place information. *Proc. CHI.*
	○ *48 citations*

Other publications

2016	<u>Reid Priedhorsky</u>, Tim Randles. Charliecloud: Unprivileged containers for user-defined software stacks in HPC. LANL tech report, LA-UR 16-22370.
2012	Susanne Hupfer, Michael Muller, Stephen Levy, Daniel Gruen, Andrew Sempere, Steven Ross, <u>Reid Priedhorsky</u>. MoCoMapps: Mobile collaborative map-based applications. *Proc. CSCW.* Video.
2011	<u>Reid Priedhorsky</u>. Wiki, absurd yet successful. Position paper for *CHI Workshop on Crowdsourcing and Human Computation.*

Abbreviations

CHI – ACM Conference on Human Factors in Computing Systems

CSCW – ACM Conference on Computer Supported Cooperative Work

GROUP – ACM Conference on Supporting Group Work

ICWSM – AAAI Conference on Weblogs and Social Media

ISCRAM – International Conference on Information Systems for Crisis Response and Management

PLOS – Public Library of Science

WikiSym – ACM International Symposium on Wikis

Funding

2016	<u>Reid Priedhorsky</u>. Real-time, real-world time series forecasting using internet data. LANL LDRD, <u>funded</u> at $446,000.

Open source projects

2016–present	**Charliecloud**, *founder and project leader*, https://github.com/hpc/charliecloud.
	Lightweight user-defined software stacks for high-performance computing.
2013–present	**QUAC** (Quantitative Analysis of Chatter or any related expansion), *founder and project leader*, https://github.com/reidpr/quac.
	Python package for acquiring and analyzing internet content. Supports parallel processing using an included map-reduce framework, QUACreduce.
2006–2010	**Cyclopath**, *co-founder and project leader*, http://cyclopath.org/wiki/Tech:Source_Code.
	Web application to present an editable street map and compute bicycle-friendly routes. I led the user experience design and technical design of both client and server.
2006–2008	**Yabman** (Yet another bibliography manager), *founder and sole contributor*, http://yabman.sourceforge.net.
	Citation manager with a sophisticated data model which is still well beyond those in modern solutions such as Zotero.
1997	**GNU Scientific Library**, *contributor*, http://www.gnu.org/software/gsl.
	C library of numeric routines for scientific and mathematical applications. I wrote and documented the original root-finding code.

Teaching experience

2006 **Instructor**, *Dept. of Computer Science and Engineering, University of Minnesota.*
- CSCI 1902: Structure of Computer Programming II

2003–2006 **Teaching Assistant**, *Dept. of Computer Science and Engineering, University of Minnesota.*
- CSCI 1902, Structure of Computer Programming II (2 semesters)
- CSCI 2021, Machine Architecture and Organization (3 semesters)
- CSCI 1121, Introduction to the Internet (1 semester)

Selected talks

2014 Measuring disease with Wikipedia. Next Generation Surveillance for the Next Pandemic workshop, Santa Fe Institute.

2014 Measuring influenza with the internet: A dim present and bright future. MIDAS Network meeting, Atlanta, GA.

2014 Measuring the real world with people. Georgia Tech School of Interactive Computing.

2013 Inferring origin locations of tweets with quantitative confidence. MIDAS Network meeting, Austin, TX.

2012 Leveraging humans to gather quantitative information about the real world: Beyond "citizen sensors". CNLS / LANL.

2011 Geographic wikis and beyond. University of New Mexico Dept. of Computer Science.

2010 The value of geographic wikis. University of Saskatoon, Saskatoon, Canada.

2008 The computational geowiki: What, why, and how. IBM Research HCI Symposium, Hawthorne, NY.

Professional training

2012 **Consortium for the Science of Sociotechnical Systems (CSST) Summer Institute**, *Santa Fe, NM.*
This is a competitive program bringing together early-career scientists in computer science, sociology, information systems, and many other fields.

2005, 2009 **Preparing Future Faculty**, *University of Minnesota.*
This 6-credit sequence in college-level pedagogy includes a structured mentorship in teaching; I worked with Dr. Susan Fox at Macalester College, St. Paul, MN.

Awards & honors

2016 LANL Distinguished Performance Award; for epidemiology work

2015 Los Alamos Awards Program (LAAP); for epidemiology work

2014 Best Paper nomination, ISCRAM

2014 Honorable Mention paper, CSCW

2012 LANL Spot Award; for initiative in cleaning up abandoned bicycles

2010 Computing Innovation Fellowship; declined in order to take IBM job

2010 Honorable Mention paper, CHI

2008 Honorable Mention paper, CSCW

2005 Outstanding TA Award; one awarded by the UMN CSE department annually

2000 Phi Beta Kappa; honor society for the liberal arts and sciences

2000 Upsilon Pi Epsilon; honor society for computing and information science)

1997 National Merit Scholar

Service

Leadership roles

2014–2016	Member, LANL Data Working Group.
2012–2015	Co-Organizer, "Big Dig" big data research interest group, LANL.
2012–2015	Organizer, "Humans" research interest group, LANL.
2013	Publicity Co-Chair, CSCW.
2011	Social Media Chair, WikiSym.

Program committees

2013	Geographic Human-Computer Interaction, a workshop at CHI
2013	CSCW
2012	Human Computation Workshop (HCOMP)
2012	ICWSM
2011, 2012	CHI Works-In-Progress
2011	WikiSym

Workshop organizing

2013	Libby Hemphill, Ingrid Erickson, Jahna Otterbacher, Scott Robertson, Megan Squire, Kevin Tew, <u>Reid Priedhorsky</u>. Social media data research infrastructure. Workshop at Digital Societies and Social Technologies (successor to CSST).
2011	Phoebe Ayers, <u>Reid Priedhorsky</u>. WikiLit: Collecting the wiki and Wikipedia literature. Workshop at WikiSym.
2011	Brent Hecht, Johannes Schöning, Thomas Erickson, <u>Reid Priedhorsky</u>. Geographic human-computer interaction. Special interest group meeting at CHI.

Miscellaneous professional

2008–present	Reviewed numerous papers for various conferences (e.g., CHI, CSCW, ICWSM, NordiCHI, RecSys, SIGCSE, UIST, and WikiSym) and journals (e.g., IJGIS, KAIS, NEJM, PLOS ONE, TOCHI, TKDE, TWEB).
2008, 2009	Student volunteer for CSCW (2008) and CHI (2009) conferences.

Miscellaneous non-professional

2012–2014	Member of Los Alamos County Environmental Sustainability Board

Other experience

1997–present	**Outdoor trip leader**.
	Led or co-led 31 backpacking and canoeing trips in Arizona, Michigan, Minnesota, and Utah (7 as an official trip leader for the Macalester Outing Club). Coordinated food, equipment, cross-country transportation, participant preparedness, and other logistics. Ensured a safe and enjoyable trip while on trail.
2001–2003	**Web developer**, *University of Minnesota*, Minneapolis, MN.
	Wrote web-based software in Perl, Java, JavaScript, and SQL, including logic, user interface, and database model. Worked with team and clients to translate technical requirements into large, high-quality business applications.
1998	**Undergraduate intern**, *Los Alamos National Laboratory*, Los Alamos, NM.
	Managed hardware and software in a network of 30 UNIX workstations and helped build a 14-node Beowulf cluster. Wrote utility programs in C, Python, and bash. Supported users, answering questions and responding to system problems.

1997	**High school intern**, *Los Alamos National Laboratory*, Los Alamos, NM.
	Designed and implemented the original root-finding routines for the *GNU Scientific Library* in C.
1996–1997	**High school intern**, *Los Alamos National Laboratory*, Los Alamos, NM.
	Analyzed data using neural networks. Wrote utility programs in C and LISP.

References

Sara Del Valle, LANL (A-1): sdelvall@lanl.gov, 505-665-9286.

Alina Deshpande, LANL (B-10): deshpande_a@lanl.gov, 505-665-9143.

Tim Randles, LANL (HPC-ENV): trandles@lanl.gov, 505-667-0680

Loren Terveen, University of Minnesota: terveen@cs.umn.edu, 612-624-8310.