

Northwestern University  
Department of Communication Studies

Phone: (+1) 509.572.5081  
nathante@uw.edu  
<https://teblunthuis.cc>

## ***NATHAN TEBLUNTHUIS***

Research in online organizing, peer production, machine learning applications, and collective action to inform and evaluate solutions for online communities.

### **Appointments**

#### **Northwestern University**

2021–. Postdoctoral Scholar, School of Communication

#### **University of Washington**

2015–2021. Research Assistant, Department of Communication

2019–2021. Instructor of Record, Department of Communication

2017–2019. Teaching Assistant, Department of Communication

### **Education**

#### **University of Washington**

2017–2021. PhD, Department of Communication. Committee: Benjamin Mako Hill (Chair), Aaron Shaw, David W. McDonald, Kirsten Foot. General examinations in (1) Computer Supportive Cooperative Work (2) Organizational Communication (3) Communication Theory. Dissertation title: “Ecology of Online Communities.”

2015–2017. MA, Department of Communication. Committee: Benjamin Mako Hill (Chair), W. Lance Bennett.

#### **Whitworth University**

2008–2012. Bachelors of Science in *Mathematics*.

2008–2012. Bachelors of Science in *Computer Science*.

### **Industrial Experience**

2019 *Wikimedia Foundation*, Research Intern: Scoring Team. San Francisco, California, United States. Lead original research project investigating algorithmic bias and flagging systems in online platform governance.

2018 *Wikimedia Foundation*, Data Analyst Consultant: Growth Team. San Francisco, California, United States. Designed reading time metrics for Wikipedia and lead original research project published in OpenSym 2019.

2012–2014. *Microsoft Corporation*, Software Development Engineer: Bing Multimedia UX. Bellevue, Washington. Built distributed back-end systems to drive multimedia engagement features on Bing.com. Trained search recommendation algorithms.

2008–2010. *Pacific Northwest National Laboratory*, Technical Intern: Nuclear waste vitrification. Richland, Washington. Developed method for measuring sample volume and expansion during melting in high-temperature furnace.

## Publications **Articles in Peer Reviewed Journals and Conference Proceedings**

- TeBlunthuis, Nathan, Benjamin Mako Hill. 2021 “Identifying Competitive and Mutualistic Relationships Between Online Communities.” In *International AAAI Conference on Web and Social Media (ICWSM 2022)* (Forthcoming) <https://arxiv.org/abs/2107.06970>
- TeBlunthuis, Nathan, Charles Kiene, Isabella Brown, Nicole McGinnis, Laura (Alia) Levi, and Benjamin Mako Hill. 2022. “No Community Can Do Everything: Why People Participate in Similar Online Communities.” In *Proceedings of the ACM: Human-Computer Interaction (CSCW)*.
- TeBlunthuis, Nathan. 2021 “Measuring Wikipedia Article Quality in One Dimension.” In *Proceedings of the 17th International Symposium on Open Collaboration (OpenSym '21)*. Online: ACM Press. <https://doi.org/10.1145/3479986.3479991>.
- TeBlunthuis, Nathan, Benjamin Mako Hill, and Aaron Halfaker. 2021 “Effects of algorithmic flagging on fairness: Quasi-experimental evidence from Wikipedia.” In *Proceedings of the ACM: Human-Computer Interaction (CSCW)*. 56:1-56:27. <https://doi.org/10.1145/3449130>
- Narayan, Sneha, Nathan TeBlunthuis, Wm Salt Hale, Benjamin Mako Hill, and Aaron Shaw. 2019. “All Talk: How Increasing Interpersonal Communication on Wikis May Not Enhance Productivity.” In *Proceedings of the ACM: Human-Computer Interaction (CSCW)*: 101:1-101:19. <https://doi.org/10.1145/3359203>.
- TeBlunthuis, Nathan, Tilman Bayer, and Olga Vasileva. 2019. “Dwelling on Wikipedia: Investigating Time Spent by Global encyclopedia Readers.” In *Proceedings of the 15th International Symposium on Open Collaboration (OpenSym '19)*. Skövde, Sweden: ACM Press. <https://doi.org/10.1145/3306446.3340829>.
- TeBlunthuis, Nathan, Aaron Shaw, and Benjamin Mako Hill. 2018. “Revisiting ‘The Rise and Decline’ in a Population of Peer Production Projects.” In *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems (CHI '18)*. New York, New York: ACM Press. <https://doi.org/10.1145/3173574.3173929>.
- Weninger, Tim, Marina Danilevsky, Fabio Fumarola, Joshua Hailpern, Jiawei Han, Thomas J Johntson, Surya Kallumadi, Hyungsul Kim, Zhijin Li, David McCloskey, Yizhou Sun, Nathan E TeGrotenhuis, Chi Wang, Xiao Yu. 2011. “Winacs: Construction and analysis of web-based computer science information networks.” In *Proceedings of the 2011 ACM SIGMOD International Conference on Management of data (SIGMOD '11)*, 1255-1258. Athens, Greece: ACM Press. <https://doi.org/10.1145/1989323.1989469>
- Hrma, Pavel, José Marcial, Kevin J Swearingen, Samuel H Henager, Michael J Schweiger, Nathan E TeGrotenhuis. 2010. “Conversion of batch to molten glass, II: Dissolution of quartz particles.” *Journal of Non-Crystalline Solids* 357 (3): 820-828. <https://doi.org/10.1016/j.jnoncrysol.2010.11.096>
- Schweiger, Michael J, Pavel Hrma, Carissa J Humrickhouse, José Marcial, Brian J Riley, Nathan E TeGrotenhuis. 2010. “Cluster Formation of Silica Particles in Glass Batches During Melting.” *Journal of Non-Crystalline Solids* 356 (25): 1359-1367 <https://doi.org/10.1016/j.jnoncrysol.2010.04.009>

Hrma, Pavel, Michael J Schweiger, Carissa J Humrickhouse, J Adam Moody, Rachel M Tate, Timothy T Rainsdon, Nathan E Tegrotenhuis, Benjamin M Arrigoni, Jose Marcial, Carmen P Rodriguez, Benjamin H Tincher. 2010. "Effect of Glass-Batch Makeup on the Melting Process." *Ceramics-Silikaty* 54 (3): 193-211. [http://www.ceramics-silikaty.cz/2010/pdf/2010\\_03\\_193.pdf](http://www.ceramics-silikaty.cz/2010/pdf/2010_03_193.pdf)

### Other Scholarly Publications

[Book chapter] TeBlunthuis, Nathan. 2022 "Big Data" In Andrea Ceron (Ed.), *Encyclopedia of Technology & Politics*. Northhampton, Massachusetts: Edward Elgar Publishing. (in press)

[Poster and Extended Abstract] TeBlunthuis, Nathan, Aaron Shaw, and Benjamin Mako Hill. 2017. "Density Dependence Without Resource Partitioning: Population Ecology on Change.org." *Companion of the 2017 ACM Conference on Computer Supported Cooperative Work and Social Computing (CSCW'17 Companion)*, 323–326. New York, New York: ACM Press. <https://doi.org/10.1145/3022198.3026358w>.

[Book review] TeBlunthuis, Nathante. 2018. "Helen Margetts, Peter John, Scott A Hale, Taha Yasseri, Political Turbulence: How Social Media Shape Collective Action." *Journal of Information Technology & Politics* 15 (1): 1–2. <https://doi.org/10.1080/19331681.2017.1337603>

### Working Papers

Kiene, Charles, Nathan TeBlunthuis, and Benjamin Mako Hill. "Why These Rules?: Measuring How Adaptation and Leadership Styles Shapes Online Community Governance ."

TeBlunthuis, Nathan. "Dynamics of Ecological Adaptation in Online Communities" Foote, Jeremy, Nathan TeBlunthuis, Benjamin Mako Hill, and Aaron Shaw. "How Individual Behaviors Drive Inequality in Online Community Sizes."

TeBlunthuis, Nathan, Aaron Shaw, and Benjamin Mako Hill. "Ecological Dynamics in Online Collective Action."

### Presentations Refereed Paper Presentations (Non-Archival)

Presenting authors are marked a "\*" in the list below. Because conference or workshops norms about submission vary, some papers appear more than once.

TeBlunthuis\* Nathan. "Measuring Wikipedia Article Quality in One Dimension" Wiki Workshop held at The Web Conference 2022, Lyon, France. (Remote presentation), Apr 25th, 2022.

TeBlunthuis\* Nathan. "Ecology of Online Organizations" Organizational Communication Mini-Conference (OCMC 2021), Lawrence, KS. (Remote presentation), Oct 23rd, 2021.

TeBlunthuis\* Nathan., Benjamin Mako Hill. "A Community Ecology Approach for Identifying Competitive and Mutualistic Relationships Between Online Communities" Computational Methods Division, Annual Conference of the International Communication Association (ICA 2021), Cambridge, MA, (Remote presentation), May 27th, 2021.

- TeBlunthuis\* Nathan., Aaron Halfaker, Benjamin Mako Hill. “Algorithmic flags and Identity-Based Signals in Online Community Moderation” Session on Social media 2, International Conference on Computational Social Science (IC2S2 2020), Cambridge, MA, (Remote presentation), July 19, 2020.
- TeBlunthuis\* Nathan., Aaron Shaw, Benjamin Mako Hill. “The Population Ecology of Online Collective Action.” Session on Culture and fairness, International Conference on Computational Social Science (IC2S2 2020), Cambridge, MA, (Remote presentation), July 19, 2020.
- TeBlunthuis\* Nathan., Aaron Shaw, Benjamin Mako Hill. “The Population Ecology of Online Collective Action.” Session on Collective Action, ACM Conference on Collective Intelligence (CI 2020), Boston, MA, (Remote presentation), June 18, 2020.
- Narayan, Sneha, Nathan TeBlunthuis\*, Wm Salt Hale, Benjamin Mako Hill, and Aaron Shaw. “More Connected But Not More Productive: Analyzing Support for Interpersonal Communication in Wikis.” Session on Computational Approaches to Health Communication. Computational Methods, Annual Conference of the International Communication Association (ICA 2019), Washington, DC, May 27, 2019.
- Foote, Jeremy D\*, Benjamin Mako Hill, and Nathan TeBlunthuis. “An Agent-Based Model of Online Community Joining.” Organizational Communication Mini-Conference (OCMC). New Brunswick, NJ, October 5, 2018.
- Foote, Jeremy D.\*, Benjamin Mako Hill, and Nathan TeBlunthuis. “An Agent-Based Model of Online Community Joining.” Session on Collective Behavior. International Conference on Computational Social Science (IC2S2 2018), Evanston, Illinois, July 14, 2018.
- [Poster] TeBlunthuis, Nathan. “Discovering Clusters of Opinion in Wiki Surveys with Bayesian Latent Factor Analysis” 4th Annual International Conference on Computational Social Science (IC2S2 '18). Evanston, IL, July 13, 2018
- TeBlunthuis, Nathan\*, Aaron Shaw, and Benjamin Mako Hill. “Revisiting ‘The Rise and Decline’ in a Population of Peer Production Projects.” Information Systems, Annual Conference of the International Communication Association (ICA 2018), Prague, Czechia, May 25, 2018.
- [Poster] TeBlunthuis, Nathan, Aaron Shaw, and Benjamin Mako Hill. 2017. “Density Dependence Without Resource Partitioning: Population Ecology on Change.org.” In *Companion of the 2017 ACM Conference on Computer Supported Cooperative Work and Social Computing (CSCW '17 Companion)*, 323–326. New York, New York: ACM Press. <https://doi.org/10.1145/3022198.3026358>.
- TeBlunthuis, Nathan\*, Benjamin Mako Hill and Aaron Shaw. “Density Dependence Without Resource Partitioning: A Population Ecology of Change.org.” Session on Computational Methods for Studying Political Communication, Computational Methods, Annual Conference of the International Communication Association (ICA 2017), San Diego, California, May 29, 2017.
- TeBlunthuis, Nathan\*, Benjamin Mako Hill and Aaron Shaw. “Resource Partitioning and Density Dependence on a Digital Mobilization Platform.” Internet, Politics, and Policy Conference (IPP 2016), Oxford University, Oxford, UK,

September 23, 2016.

TeBlunthuis, Nathan\*, Benjamin Mako Hill and Aaron Shaw. "Resource Partitioning and Density Dependence on a Digital Mobilization Platform." Section on Communication, Information Technology, and Media Sociology, American Sociological Association Annual Meeting (ASA 2016), Seattle, Washington, August 23, 2016.

### **Invited Presentations**

TeBlunthuis, Nathan, Benjamin Mako Hill, and Aaron Halfaker. 2021 "Effects of algorithmic flagging on fairness: Quasi-experimental evidence from Wikipedia." Wikimedia Research Showcase, Online, November 17, 2021.

TeBlunthuis, Nathan\*, Aaron Shaw, and Benjamin Mako Hill. "Revisiting 'The Rise and Decline' in a Population of Peer Production Projects." Wikimedia Research Showcase, Online, April 18, 2018.

### **Datasets**

TeBlunthuis, Nathan, 2021, "Replication Data for: Measuring Wikipedia Article Quality in One Dimension by Extending ORES with Ordinal Regression", <https://doi.org/10.7910/DVN/U5V0G1>, Harvard Dataverse

TeBlunthuis, Nathan; Hill, Benjamin Mako; Halfaker, Aaron, 2021, "Replication data for: Effects of algorithmic flagging on fairness: Quasi-experimental evidence from Wikipedia", <https://doi.org/10.7910/DVN/E0RYJ4>, Harvard Dataverse

TeBlunthuis, Nathan; Benjamin Mako Hill; Aaron Shaw, 2018, "Replication Data for Revisiting 'The Rise and Decline' in a Population of Peer Production Projects", <https://doi.org/10.7910/DVN/SG3LP1>, Harvard Dataverse

### **Theses**

TeBlunthuis, Nathan. "Ecology of Online Communities" 2021. University of Washington.

TeBlunthuis, Nathan. "Density Dependence without Resource Partitioning on an Online Petitioning Platform" 2017. University of Washington. <https://digital.lib.washington.edu:443/researchworks/handle/1773/41690>

### **Teaching Courses**

2021, Winter. Interpersonal Media: Online Communities (COM 482). UW Department of Communication's undergraduate program. (Instructor of Record)

2019, Spring. Interpersonal Media: Online Communities (COM 482). UW Department of Communication's undergraduate program. (Instructor of Record)

2019, Winter. Organizational Communication (COM 377). UW Department of Communication's undergraduate program. (TA)

2017, Fall. Innovation Communities (COM597B – Masters Level). UW Communication Leadership's "Masters in Communication in Communities and Networks" program. (TA)

### Guest Lectures

TeBlunthuis\* Nathan., Aaron Halfaker, Benjamin Mako Hill “Effects of Algorithmic Flagging on Fairness: Quasi-Experimental Evidence from Wikipedia.” Research Methods (CS 499), Whitworth University. Spokane, WA, November 16, 2021.

TeBlunthuis, Nathan “Ecological Perspectives on Innovation Communities.” UW Communication Leadership’s “Masters in Communication in Communities and Networks” program. Seattle, WA, May 11, 2021.

TeBlunthuis\* Nathan., Aaron Halfaker, Benjamin Mako Hill “Algorithmic flags and Identity-Based Signals in Online Community Moderation.” Introduction to Data Science (CS 251), Whitworth University. Spokane, WA, May 3, 2021.

TeBlunthuis\* Nathan., Aaron Halfaker, Benjamin Mako Hill “Algorithmic flags and Identity-Based Signals in Online Community Moderation.” Algorithms and Society (SI 431). Ann Harbor, MI, February 18, 2021.

TeBlunthuis, Nathan “Ecology of Online Communities.” UW Communication (COM 482). Seattle, WA, March 04, 2020.

TeBlunthuis, Nathan “Ecological Perspectives on Innovation Communities.” UW Communication Leadership’s “Masters in Communication in Communities and Networks” program. Seattle, WA, November 16, 2017.

### Grants & Awards

- 2019-08-15–2022-07-31. *National Science Foundation* (IIS-1908850) for “Modeling the Ecological Dynamics of Online Organizations.” Named personnel. Coauthored grant to support dissertation. (Total: \$497,724; UW: \$279,966)
- 2015–2020. *National Science Foundation* “Graduate Research Fellowship Program” (\$108,000)

### Awards

2022. *Faculty Award for Outstanding Research—Ph.D. Dissertation* from the *Department of Communication* at the *University of Washington* for “Ecology of Online Communities.”
2021. *Top Paper Award* from the *Computational Methods Division* at the *71st annual International Communication Association Conference* for “A Community Ecology Approach for Identifying Competitive and Mutualistic Relationships Between Online Communities.”

### Service Research Affiliations

- 2015–. Member, *Community Data Science Collective*.
- 2015–. Member, Design Use Build (dub), Human Computer Interaction Group, University of Washington.

### Professional Organization Membership

- 2016–. Member, *International Communication Association*. Section Membership: Computational Methods, Organizational Communication.

2017-. Member. *Association for Computing Machinery*. Section Membership: SIGCHI, CSCW.

### **Service to Profession**

#### **Reviewing**

I am also a reviewer for the following journals, conferences, and academic presses in communication and human computer interaction:

ACM Conference on Computer-supported Cooperative Work and Social Computing (CSCW), ACM Conference on Human Factors in Computing (CHI), Future Internet, International Journal of Communication (IJOC) International Communication Association Annual Meeting (ICA) National Communication Association Annual Convention (NCA) The International Symposium on Open Collaboration (OpenSym) Journal of Internet Services and Applications (JISA)

#### **Public Talks**

TeBlunthuis, Nathan, Tilman Bayer, and Olga Vasileva. "Dwelling on Wikipedia: Investigating Time Spent by Global encyclopedia Readers." Wikimania. Stockholm, Sweden, August 17 2019.

TeBlunthuis, Nathan, "Personal Story Telling and Grassroots Recruitment", Scholar's Studio, University of Washington, Seattle, Washington, February 16 2017

### **Technical Skills** **Programming Languages**

8+ years experience: Python, R, Bash

3+ years experience: C#, F#, C++

Some experience: Ruby, Java, Scala, Rust, Javascript

#### **Data Engineering**

6+ years experience: Apache Spark, Apache Arrow, SQL databases, High performance computing (Slurm, Torque)

#### **Machine learning frameworks / Probabilistic Programming Languages**

3+ years experience: Stan-MC

#### **Typesetting**

8+ years experience: L<sup>A</sup>T<sub>E</sub>X

#### **Operating Systems**

8+ years experience: Linux (primarily Debian)

3+ years experience: Windows