

# TIM ALTHOFF

Department of Computer Science  
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Stanford, CA 93405

# CURRICULUM VITAE

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**Research areas** Data science, data mining, network analysis, natural language processing, machine learning

**Education**

**Stanford University**, Stanford, CA, USA 9/2013 – present  
Ph.D. Candidate in Computer Science. Anticipated 6/2018. Thesis: *Online traces of real-world behaviors & well-being*. M.S. in Computer Science (8/2015)  
*Advisor*: Prof. Jure Leskovec  
*Thesis committee*: Jure Leskovec, Eric Horvitz, Dan Jurafsky, Scott Delp, Trevor Hastie

**University of California, Berkeley** Berkeley, CA, USA 8/2011 – 5/2012  
Visiting Graduate Student. *Advisor*: Prof. Trevor Darrell

**University of Kaiserslautern**, Kaiserslautern, Germany 10/2010 – 7/2013  
M.S. in Computer Science. Minor in Cognitive Psychology  
Thesis: *Analysis and Forecasting of Trending Topics in Online Media*  
*Advisor*: Prof. Andreas Dengel

**University of Kaiserslautern**, Kaiserslautern, Germany 10/2007 – 9/2010  
B.S. in Computer Science. Minor in Mathematics  
Thesis: *Scalable Clustering for Hierarchical Content-based Browsing of Large-scale Image Collections*  
*Advisor*: Prof. Thomas Breuel

## **Publications** Articles under submission

- [26] Modeling Periodic and Interdependent Action Sequences  
Takeshi Kurashima, **Tim Althoff**, Jure Leskovec  
Under submission.
- [25] Modeling Cycles in Time Series Data Using Cyclic Hidden Markov Models  
Emma Pierson, **Tim Althoff**, Jure Leskovec  
Under submission.
- [24] I'll be back: On the Multiple Lives of Users of an Activity Tracking Application  
Zhiyuan Lin, **Tim Althoff**, Jure Leskovec  
Under submission.

## Articles in peer-reviewed journals

- [23] Psychomotor Function Measured via Online Activity Predicts Motor Vehicle Fatality Risk  
**Tim Althoff**, Eric Horvitz, Ryen W. White  
*NPJ Digital Medicine (accepted)* – 2017
- [22] Population-scale Pervasive Health  
**Tim Althoff**  
*IEEE Pervasive Computing (accepted)* – 2017
- [21] Large-scale Physical Activity Data Reveal Worldwide Activity Inequality  
**Tim Althoff**, Rok Susic, Jennifer L. Hicks, Abby C. King, Scott L. Delp, Jure Leskovec  
*Nature* – 2017  
**Top 0.0002% Attention Score of 8M articles tracked by Altmetric; Top 0.002% among all Nature articles**

- [20] Influence of Pokémon Go on Physical Activity: Study and Implications  
**Tim Althoff**, Ryen W. White, Eric Horvitz  
*JMIR — Journal of Medical Internet Research (JMIR)*, 2016  
**#1 most tweeted JMIR article 2016; #2 Most Tweeted JMIR Article all time;**  
**Top 0.001% Attention Score of 8M articles tracked by Altmetric**
- [19] Natural Language Processing for Mental Health: Large Scale Discourse Analysis of Counseling Conversations  
**Tim Althoff**, Kevin Clark, Jure Leskovec  
*TACL — Transactions of the Association for Computational Linguistics (TACL)*, 2016  
**International Medical Informatics Association Best Paper Award for best paper on clinical natural language processing in 2016**

#### Articles in peer-reviewed conference proceedings

- [18] Harnessing the Web for Population-Scale Physiological Sensing: A Case Study of Sleep and Performance  
**Tim Althoff**, Ryen W. White, Eric Horvitz, Jamie Zeitzer  
*WWW — 26th International World Wide Web Conference*, 2017
- [17] How Gamification Affects Physical Activity: Large-scale Analysis of Walking Challenges in a Mobile Application  
Ali Shameli, **Tim Althoff**, Amin Saberi, Jure Leskovec  
*WWW — 26th International World Wide Web Conference*, 2017
- [16] Online Actions with Offline Impact: How Online Social Networks Influence Online and Offline User Behavior  
**Tim Althoff**, Pranav Jindal, Jure Leskovec  
*WSDM — 10th International ACM Conference on Web Search and Data Mining*, 2017
- [15] TimeMachine: Timeline Generation for Knowledge-Base Entities  
**Tim Althoff**, Xin Luna Dong, Kevin Murphy, Safa Alai, Van Dang, Wei Zhang  
*KDD — 21st International ACM SIGKDD Conference on Knowledge Discovery and Data Mining*, 2015
- [14] Donor Retention in Online Crowdfunding Communities: A Case Study of DonorsChoose.org  
**Tim Althoff**, Jure Leskovec  
*WWW — 24th International World Wide Web Conference*, 2015
- [13] How to Ask for a Favor: A Case Study on the Success of Altruistic Requests  
**Tim Althoff**, Cristian Danescu-Niculescu-Mizil, Dan Jurafsky  
*ICWSM — 8th International AAAI Conference on Weblogs and Social Media*, 2014
- [12] Analysis and Forecasting of Trending Topics in Online Media Streams  
**Tim Althoff**, Damian Borth, Jörn Hees, Andreas Dengel  
*MM — 21st ACM International Conference on Multimedia*, 2013
- [11] Detection Bank: An Object Detection Based Video Representation for Multimedia Event Recognition  
**Tim Althoff**, Hyun Oh Song, Trevor Darrell  
*MM — 20th ACM International Conference on Multimedia*, 2012
- [10] Sparselet Models for Efficient Multiclass Object Detection  
Hyun Oh Song, Stefan Zickler, **Tim Althoff**, Ross Girshick, Mario Fritz, Christopher Geyer, Pedro Felzenszwalb, Trevor Darrell  
*ECCV — 12th European Conference on Computer Vision*, 2012

- [9] Balanced Clustering for Content-based Image Browsing  
**Tim Althoff**, Adrian Ulges, Andreas Dengel  
*GI – Gesellschaft für Informatik, Proceedings of Informatiktage 2011, Lecture Notes in Informatics - Seminars, Volume S10*, 2011

#### Articles in peer-reviewed workshop proceedings

- [8] Quantifying Dose Response Relationships Between Physical Activity and Health Using Propensity Scores  
**Tim Althoff**, Rok Susic, Jennifer L. Hicks, Abby C. King, Scott L. Delp, Jure Leskovec  
*NIPS ML4H – Neural Information Processing Systems Workshop on Machine Learning for Health (NIPS ML4H)*, 2016

#### Theses

- [7] Analysis and Forecasting of Trending Topics in Online Media  
**Tim Althoff**  
*Master's Thesis – University of Kaiserslautern, Germany*, 2013
- [6] Scalable Clustering for Hierarchical Content-based Browsing of Large-scale Image Collections  
**Tim Althoff**  
*Bachelor's Thesis – University of Kaiserslautern, Germany*, 2010

#### Technical reports

- [5] Don't Look Back: Post-hoc Category Detection via Sparse Reconstruction  
 Hyun Oh Song, Mario Fritz, **Tim Althoff**, Trevor Darrell  
*UCB/EECS – University of California, Berkeley, EECS Department, UCB/EECS-2012-16*, 2012

#### Patents

- [4] Population-Scale Monitoring of Sleep and Performance via Everyday Interactions  
**Tim Althoff**, Eric Horvitz, Ryen White  
*Patent US 15/623,101 (pending)*, 2016
- [3] Providing User-Interactive Graphical Timelines  
**Tim Althoff**, Xin Luna Dong, Kevin Murphy, Safa Alai, Van Dang, Wei Zhang, Evgeniy Gabrilovich  
*Patent US 20160313876 A1*, 2014
- [2] Adaptive Music and Video Recommendations  
**Tim Althoff**, David Ross, Huazhong Ning, Mohamad Tarifi, Wes Cheng  
*Patent US 20150220525 A1*, 2013
- [1] Automatic Music Video Generation Based on Structured Information  
**Tim Althoff**, David Ross, Douglas Eck, Hrishikesh Aradhya  
*Patent GP-17534-00-US / GGLEP383US*, 2012

<b>Professional experience</b>	<b>Microsoft Research</b> , Redmond, WA, USA <i>Research Intern</i> with Eric Horvitz and Ryen White	6/2016 – 9/2016
	<b>Google</b> , Mountain View, CA, USA <i>Research Intern</i> with Kevin Murphy, Xin Luna Dong and Evgeniy Gabrilovich	6/2014 – 9/2014
	<b>Google</b> , Mountain View, CA, USA <i>Research Intern</i> with David Ross	5/2013 – 8/2013
	<b>Google</b> , Mountain View, CA, USA <i>Research Intern</i> with David Ross, Douglas Eck and Hrishikesh Aradhya	5/2012 – 8/2012

	<b>International Computer Science Institute</b> , Berkeley, CA, USA <i>Visiting Researcher</i> with Trevor Darrell	8/2011 – 5/2012
	<b>German Research Center for Artificial Intelligence</b> , Kaiserslautern, Germany <i>Research Assistant</i> with Adrian Ulges, Damian Borth and Andreas Dengel	11/2009 – 5/2011
	<b>German Research Center for Artificial Intelligence</b> , Kaiserslautern, Germany <i>Research Assistant</i> with Adrian Ulges and Thomas Breuel	5/2009 – 10/2009
<b>Awards</b>	<i>International Medical Informatics Association</i> Natural Language Processing for Mental Health: Large Scale Discourse Analysis of Counseling Conversations <b>International Medical Informatics Association Best Paper Award for best paper on clinical natural language processing in 2016</b>	8/2017
	<i>Journal of Medical Internet Research (JMIR)</i> Influence of Pokémon Go on Physical Activity: Study and Implications <b>#1 most tweeted JMIR article 2016</b> (within only three weeks) <b>#2 Most Tweeted JMIR Article all time</b>	1/2017
	<i>9th ACM International Conference on Web-Search and Data Mining (WSDM'16)</i> <b>Outstanding Reviewer Award</b>	2/2016
	<i>Digital Ecologies Research Partnership</i> <b>Fellow</b>	5/2014
	<i>Kreissparkassen Foundation Germany</i> <b>Outstanding Master's Thesis Award:</b> University-wide award across all disciplines	4/2014
	<i>Computer Science Department, University of Kaiserslautern</i> <b>Best M.S. degree in Computer Science program (first of class)</b>	7/2013
	<i>Computer Science Department, University of Kaiserslautern</i> <b>Dean's award for the best B.S. degree in Computer Science program (first of class)</b>	12/2010
<b>Grants &amp; Fellowships</b>	German Academic Exchange Service Travel Grant for GAIN 2017 (US\$450)	5/2017
	SIGIR Travel Grant for WSDM 2017 (US\$350)	2/2017
	NSF Travel Grant for EMNLP 2016 (US\$1000)	11/2016
	Facebook Graduate Fellowship Finalist (US\$500)	2/2016
	Stanford Graduate Fellowship, SAP Fellow (tuition + US\$41,700 p.a.)	9/2015 – 8/2018
	Facebook Graduate Fellowship Finalist (US\$500)	2/2015
	Stanford School of Engineering Fellowship (tuition + US\$39,400 p.a.)	9/2013 – 6/2014
	UC San Diego Jacobs Fellowship (US\$55,463 p.a.; declined)	3/2013
	PiCloud Academic Research Program Grant (US\$500)	1/2013
	Travel Grant for Large Scale Multimedia Search workshop at IPAM UCLA (US\$1000)	1/2012
	Fulbright scholarship (US\$21,500; declined)	8/2011 – 5/2012
	UC Berkeley scholarship from German Academic Exchange Service (€26,775)	8/2011 – 5/2012
	German National Merit Foundation Scholarship (awarded to top-ranked 0.25% of students nationwide; i.a. €3,600 p.a.)	7/2009 – 7/2013
<b>Advising &amp; mentoring</b>	Hamed Nilforoshan, B.S. student, Columbia University (CSLI internship)	6/2017 – present
	Reid Pryzant, Ph.D. student, Stanford University (rotation project)	3/2017 – present
	Mitchell Gordon, Ph.D. student, Stanford University (rotation project)	3/2017 – present
	Zhiyan Jerry Lin, Ph.D. student, Stanford University (rotation project)	1/2017 – present
	Emma Pierson, Ph.D. student, Stanford University (rotation project)	11/2016 – present

	Boris Ivanovic, M.S. student, Stanford University (research assistant)	9/2016 – present
	Chaitanya Asawa, B.S. student, Stanford University (senior project)	9/2016 – 4/2017
	Takeshi Kurashima, Stanford University (visiting researcher from NTT, Japan)	6/2016 – 4/2017
	Ali Shameli, Ph.D. student, Stanford University (rotation project)	6/2016 – 10/2016
	Pranav Jindal, M.S. student, Stanford University (research assistant)	9/2015 – 6/2016
	Kevin Clark, Ph.D. student, Stanford University (rotation project)	3/2015 – 5/2016
<b>Teaching experience</b>	Guest lecture, Stanford: <i>From Languages to Information (CS124)</i>	3/2017
	Lecture, Recruit Holdings of Japan at Stanford	3/2017
	Guest lecture, Friedrich-Alexander-Universität Erlangen-Nürnberg	12/2016
	Guest lecture, Stanford: <i>From Languages to Information (CS124)</i>	3/2016
	Guest lecture, Stanford: <i>Mining Massive Datasets (CS246)</i>	3/2016
	Head teaching assistant, Stanford: <i>Mining of Massive Data Sets (CS246)</i> ~300 students total; i.a. leading team of 12 TAs	Winter 2015
	Teaching assistant, Stanford: <i>Social &amp; Inform. Network Analysis (CS224W)</i> ~250 students total; i.a. supervision of 12 project teams	Fall 2015
	Instructor, Google: <i>Introduction to Yo-Yoing</i>	Summer 2013
<b>Invited talks</b>	e-WEAR Student Society Annual Symposium, Stanford University, CA, USA	9/2017
	Hack-a-thought summit, Harvard Club of NYC, NY, USA	7/2017
	Center for the Study of Language and Information (CSLI), Stanford University, CA, USA	6/2017
	Manber Lab, Psychiatry Department, Stanford University, CA, USA	5/2017
	Mobilize Center Seminar, Stanford University, CA, USA	1/2017
	Max Planck Institute for Software Systems, Saarbrücken, Germany	12/2016
	DFKI Deep Learning Competence Center, Kaiserslautern, Germany	12/2016
	adidas, Herzogenaurach, Germany	12/2016
	Microsoft Health Intelligence Group, Redmond, WA, USA	6/2016
	Workshop on Wearable Devices & the 24-hour Activity Cycle, Stanford University, CA	4/2016
	Mobilize Center Seminar, Stanford University, CA, USA	10/2015
	Intelligent Systems Lab, University of Amsterdam, Netherlands	1/2013
	Multimedia Computing Group, Delft University of Technology, Netherlands	1/2013
	GI Informatiktage 2011, Bonn, Germany	3/2011
<b>Academic community service</b>	<b>Co-organizer:</b> <a href="#">Workshop on Machine Learning for Health</a> , held at the <i>Conference on Neural Information Processing Systems (NIPS)</i> , 2017 <a href="#">Workshop on Observational Studies Through Social Media</a> , held at the <i>International AAAI Conference on Web and Social Media (ICWSM)</i> , 2017 <a href="#">Stanford Sports Analytics Club</a> , organized guest speaker event, 2016	
	<b>Program committee member:</b> <i>WSDM</i> – ACM International Conference on Web Search and Data Mining, 2016, 2017, 2018 <i>KDD</i> – ACM SIGKDD Conference on Knowledge Discovery and Data Mining, 2015, 2016, 2017 <i>WWW</i> – International World Wide Web Conference, 2015, 2016; Session Chair (Computational Health), 2017; 2018 <i>ICWSM</i> – International AAAI Conference on Web and Social Media, 2016, 2017 <i>EMNLP</i> – International ACL Conference on Empirical Methods in Natural Language Processing, 2017 <i>MM</i> – ACM International Conference on Multimedia, 2014, 2015 <i>NIPS ML4Health</i> – International Workshop on Machine Learning for Health, 2016 <i>SocialNLP</i> – International Workshop on Natural Language Processing for Social Media, 2016 <i>HealthRecSys</i> – International Workshop on Health Recommender Systems at ACM RecSys, 2017 <i>EuroSymposium</i> – European Symposium Series on Societal Challenges in Computational Social Science, 2017 <i>HICSS</i> – Hawaii International Conference on System Sciences, 2017	
	<b>Journal reviewer:</b>	

*JMIR — Journal of Medical Internet Research*, 2016, 2017  
*JMIR Mental Health — Journal of Medical Internet Research Mental Health*, 2017  
*JMIR Serious Games — Journal of Medical Internet Research Serious Games*, 2017  
*IJHG — International Journal of Health Geographics*, 2017  
*G4H — Games for Health*, 2017  
*TIST — ACM Transactions on Intelligent Systems and Technology*, 2016  
*TKDE — IEEE Transactions on Knowledge and Data Engineering*, 2016  
*CYB — IEEE Transactions on Cybernetics*, 2014  
*IJPRAI — International Journal of Pattern Recognition and Artificial Intelligence*, 2014

**Skills**      **Languages:** English (fluent), German (native)

**Referees**      Jure Leskovec, Associate Professor, Computer Science Department, Stanford  
 Eric Horvitz, Technical Fellow & Managing Director, Microsoft Research  
 Dan Jurafsky, Professor, Departments of Linguistics & Computer Science, Stanford  
 Scott Delp, Professor, Depts. of Bioeng., Mechanical Eng. & Orthopaedic Surgery, Stanford

**Selected press coverage**

<b>New York Times</b> on <i>Jakarta, the City Where Nobody Wants to Walk</i>	8/2017
<b>NIH Office of Behavioral and Social Sciences Research</b> on <i>Research Spotlights</i>	8/2017
<b>American Council on Science and Health</b> on <i>Activity Inequality: What Does That Mean?</i>	8/2017
<b>CNN</b> on <i>Why are these countries the most obese? Walking is just one reason</i>	7/2017
<b>The Washington Post</b> on <i>Americans take fewer steps than people in China and the U.K., new study reveals</i>	7/2017
<b>CBS</b> on <i>Daily step counts: Which countries are most active - and which are least?</i>	7/2017
<b>BBC</b> on <i>Do you live in the world's laziest country?</i>	7/2017
<b>TIME</b> on <i>How Step Count Data Can Predict Obesity</i>	7/2017
<b>WIRED</b> on <i>The problem with fitness studies based on activity apps</i>	7/2017
<b>Huffington Post</b> on <i>How Smartphone Data Can Make Healthcare Smarter</i>	7/2017
<b>USA Today</b> on <i>The U.S. is one of the world's laziest countries — and it's making us fat</i>	7/2017
<b>arsTechnica</b> on <i>Physical activity inequality can explain obesity differences</i>	7/2017
<b>Health.com</b> on <i>The Surprising Number of Steps Americans Really Take Each Day</i>	7/2017
<b>The Telegraph</b> on <i>Revealed: the world's 'laziest' countries (and the UK does better than you might think)</i>	7/2017
<b>Stanford Medicine News</b> on <i>Counting steps via smartphones leads to clues about obesity trends</i>	7/2017
<b>Süddeutsche Zeitung</b> on <i>Frauen legen weniger Schritte zurück</i>	7/2017
<b>SPIEGEL</b> on <i>Wo viel gegangen wird, gibt's weniger Dicke</i>	7/2017
<b>NIH</b> on <i>NIH-funded team uses smartphone data in global study of physical activity</i>	7/2017
<b>Stanford News</b> on <i>Stanford researchers find intriguing clues about obesity by counting steps via smartphones</i>	7/2017
<b>BBC News (TV)</b> on <i>Click (covering our research on natural language processing for crisis counseling and mental health)</i>	3/2017
<b>Stanford Medicine Scope</b> on <i>Social networks may boost fitness, Stanford researchers say</i>	2/2017
<b>Stanford News</b> on <i>Can joining a social network prompt us to do more exercise?</i>	1/2017
<b>Microsoft Research Blog</b> on <i>Sleep deprived? New study says your performance will suffer</i>	1/2017
<b>Stanford Medicine Scope</b> on <i>Sleep deprived suffer performance loss, according to new study</i>	1/2017
<b>Wall Street Journal</b> on <i>Want to Exercise More? Try Screen Time</i>	12/2016
<b>Forbes</b> on <i>Study Finds Pokémon GO Does Get People Moving, But Whether They'll Keep Moving Remains To Be Seen</i>	12/2016
<b>Vox</b> on <i>Did Pokémon Go get Americans to exercise? The research says yes – but not for long.</i>	12/2016
<b>Science</b> on <i>Pokémon Go could add extra years to your life</i>	10/2016
<b>BBC</b> on <i>Could playing Pokemon Go could make you live longer?</i>	10/2016

<b>CNN</b> on <i>Pokemon Go could add 2.83 million years to users' lives</i>	10/2016
<b>The Washington Post</b> on <i>The new (scientifically proven!) way to get fit: Pokémon Go, if you stick with it</i>	10/2016
<b>The Telegraph</b> on <i>Playing Pokémon Go extends life expectancy by 41 days, study says</i>	10/2016
<b>MIT Technology Review</b> on <i>Pokemon Go Increased U.S. Activity Levels by 144 Billion Steps in Just 30 Days</i>	10/2016
<b>CNBC</b> on <i>Pokémon Go could add 2.825 million years to US life expectancy</i>	10/2016
<b>Fortune Magazine</b> on <i>Playing 'Pokémon Go' Makes You Live Longer, Says Microsoft Study</i>	10/2016
<b>Reddit's front page</b> on <i>Scientific Study estimates "Pokémon Go has added a total of 144 billion steps to US physical activity"</i>	10/2016
<b>FOX/WXFB (TV)</b> on <i>Pokemon Go could help you live longer</i>	10/2016
<b>CBS/WTVY (TV)</b> on <i>Pokemon Go more effective at getting Americans exercising than ordinary fitness apps</i>	10/2016
<b>ABC/ABC2 (TV)</b> on <i>Pokemon Go increases U.S. step count</i>	10/2016
<b>Stanford News</b> on <i>Stanford research could improve counseling on crisis help lines</i>	8/2016
<b>The Economist</b> on <i>We'll see you, anon: Can big databases be kept both anonymous and useful?</i>	8/2015
<b>Crowdfund Champion</b> on <i>Data Science boosts chances of raising capital</i>	5/2015
<b>Stanford News</b> on <i>Key strategies can boost donations at crowdfunding sites, Stanford experts say</i>	5/2015
<b>The Economist</b> on <i>Science on the web: Social net, working</i>	9/2014
<b>The Guardian</b> on <i>Reddit, Imgur and Twitch team up as 'Derp' for social data research</i>	8/2014
<b>Technology.org</b> on <i>Study: What Is Trending On The Internet?</i>	6/2014
<b>Huffington Post</b> on <i>Here's The Secret Formula For Getting Free Pizza, According To Science</i>	6/2014
<b>ABC News</b> on <i>How to Ask Strangers for a Free Pizza</i>	5/2014
<b>MIT Technology Review</b> on <i>Data Mining Reddit Posts Reveals How to Ask For a Favor, and Get It</i>	5/2014
<b>Slate</b> on <i>Here's the Scientific Way to Ask for Pizza, or Any Favor</i>	5/2014
<b>Gizmodo</b> on <i>Reddit Study Reveals How to Ask For Favors Online -- and Get Them</i>	5/2014
<b>International Business Times</b> on <i>Lost Your Job? Study Suggests This is Perfect Time to Ask for a Favour</i>	5/2014
<b>Business Insider</b> on <i>These 3 Traits Will Get People To Do You Favors</i>	5/2014
<b>Süddeutsche Zeitung</b> on <i>Schöner schnorren</i>	5/2014

*Last updated: September 1, 2017*