

TIM ALTHOFF

CURRICULUM VITAE

Department of Computer Science
Stanford University
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Research areas

Data science, social network analysis, natural language processing, and their applications to health

Education

Stanford University, Stanford, CA, USA 9/2013 – present
Ph.D. Candidate in Computer Science. Anticipated 6/2018. M.S. in Computer Science (8/2015)
Dissertation committee: Jure Leskovec, Eric Horvitz, Dan Jurafsky, Scott Delp, Trevor Hastie
University of Kaiserslautern, Kaiserslautern, Germany 10/2007 – 7/2013
M.S. in Computer Science. Minor in Cognitive Psychology
Thesis: *Analysis and Forecasting of Trending Topics in Online Media* (won university-wide award)
B.S. in Computer Science. Minor in Mathematics
Thesis: *Scalable Clustering for Hierarchical Content-based Browsing of Large-scale Image Collections*

Research experience

Stanford University, Stanford, CA, USA 9/2013 – present
Research Assistant with Jure Leskovec, Dan Jurafsky, Dan McFarland (8 publications)
Research in data science, social network analysis, natural language processing, digital health

Microsoft Research, Redmond, WA, USA 6/2016 – 9/2016
Research Intern with Eric Horvitz, Ryen White (3 publications, 1 patent pending)
Harnessed petabyte-scale search log and sensor data to model cognitive performance and sleep

Google Research, Mountain View, CA, USA 6/2014 – 9/2014
Research Intern with Kevin Murphy, Xin Luna Dong, Evgeniy Gabrilovich (1 publication, 1 patent)
Developed submodular optimization algorithm for content summarization w. provable guarantees

Google Research, Mountain View, CA, USA 5/2013 – 8/2013
Research Intern with David Ross (1 patent)
Implemented embedding-based recommendation methods for YouTube Music used in production

Google Research, Mountain View, CA, USA 5/2012 – 8/2012
Research Intern with David Ross, Douglas Eck, Hrishikesh Aradhya (1 patent)
Designed and implemented a system for automatic music video generation for YouTube Music

University of California, Berkeley, Berkeley, CA, USA 8/2011 – 5/2012
Visiting Student Researcher with Trevor Darrell (2 publications, 1 technical report)
Co-developed object detection algorithm enabling multiclass detection in real time

German Research Center for Artificial Intelligence, Kaiserslautern, Germany 11/2009 – 5/2011
Research Assistant with Adrian Ulges, Damian Borth, Andreas Dengel (1 publication, 1 thesis)
Leveraged semantic similarity to improve forecasts of trending topic popularity by 45%

German Research Center for Artificial Intelligence, Kaiserslautern, Germany 5/2009 – 10/2009
Research Assistant with Adrian Ulges, Thomas Breuel (1 publication, 1 thesis)
Reduced image clustering runtime by more than 98% through novel, hierarchical approach

Publications

Articles in peer-reviewed journals

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

- [12] 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
Top 0.001% Altmetric Attention Score of 8M articles
- [11] Natural Language Processing for Mental Health: Large Scale Discourse Analysis of Counseling Conversations
Tim Althoff*, Kevin Clark*, Jure Leskovec (* equal contribution)
TACL — Transactions of the Association for Computational Linguistics (TACL), 2016

Articles in peer-reviewed conference proceedings

- [10] 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
- [9] How Gamification Affects Physical Activity: Large-scale Analysis of Walking Challenges in a Mobile Application
 Ali Shamel, **Tim Althoff**, Amin Saberi, Jure Leskovec
WWW — 26th International World Wide Web Conference, 2017
- [8] 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
- [7] TimeMachine: Timeline Generation for Knowledge-Base Entities
Tim Althoff, Xin Luna Dong, Kevin Murphy, Safa Alai, Van Dang, Wei Zhang
KDD — 21st International ACM Conference on Knowledge Discovery and Data Mining, 2015
- [6] Donor Retention in Online Crowdfunding Communities: A Case Study of DonorsChoose.org
Tim Althoff, Jure Leskovec
WWW — 24th International World Wide Web Conference, 2015
- [5] 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
- [4] 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
- [3] 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
- [2] 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
- [1] Balanced Clustering for Content-based Image Browsing
Tim Althoff, Adrian Ulges, Andreas Dengel
GI — Informatiktage 2011, Gesellschaft für Informatik, 2011

Articles in peer-reviewed workshop proceedings

- [1] 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 — NIPS Workshop on Machine Learning for Health, 2016

Patents

- [4] Population-Scale Monitoring of Sleep and Performance via Everyday Interactions (2016)
Tim Althoff, Eric Horvitz, Ryen White (pending)
- [3] Providing User-Interactive Graphical Timelines (2014)
Tim Althoff, Xin Luna Dong, Kevin Murphy, Safa Alai, Van Dang, Wei Zhang, Evgeniy Gabrilovich

- [2] Adaptive Music and Video Recommendations (2013)
Tim Althoff, David Ross, Huazhong Ning, Mohamad Tarifi, Wes Cheng
- [1] Automatic Music Video Generation Based on Structured Information (2012)
Tim Althoff, David Ross, Douglas Eck, Hrishikesh Aradhya

Awards	Best Paper Award – Clinical Natural Language Processing 2016	8/2017
	For <i>Natural Language Processing for Mental Health: Large Scale Discourse Analysis of Counseling Conversations</i> by International Medical Informatics Association	
	One of five selected among all research papers published in 2016	
	#1 most tweeted JMIR article 2016; #4 most tweeted JMIR article all time	1/2017
	For <i>Influence of Pokémon Go on Physical Activity: Study and Implications</i> by Journal of Medical Internet Research (JMIR)	
	Fellow Digital Ecologies Research Partnership	5/2014
	Outstanding Master's Thesis Award (one of five awarded university-wide)	4/2014
	Top of class, M.S. degree in Computer Science program	7/2013
	Dean's award for the best B.S. degree in Computer Science program (top of class)	12/2010
Fellowships	Stanford Graduate Fellowship, SAP Fellow (tuition + US\$41,700 p.a.) (awarded to top 3% of Stanford Ph.D. students)	9/2015 – 8/2018
	Stanford School of Engineering Fellowship (tuition + US\$39,400 p.a.)	9/2013 – 6/2014
	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
Grant proposal writing	NIH P30 RFA-AG-18-007 Claude D. Pepper Older Americans Independence Centers. Submitted. Conducted and described preliminary data analyses for Co-PI Jure Leskovec	10/2017
	NIH P41 PAR-17-083 Biomedical Technology Resource Center. Submitted. Co-author and external consultant to Co-PI Jure Leskovec	9/2017
	NIH U01 RFA-OD-17-004 Leveraging New Technologies to Understand Health Behaviors. Submitted. Co-author and external consultant to Co-PI Jure Leskovec	8/2017
Advising & mentoring	Hamed Nilforoshan, B.S. student, Columbia University (undergraduate intern)	6/2017 – 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
	Pranav Jindal, M.S. student, Stanford University (research assistant)	9/2015 – 6/2016
Teaching experience	Guest lecture, Stanford: <i>From Languages to Information (CS124)</i>	3/2016 & 3/2017
	Guest lecture, Recruit Holdings of Japan at Stanford	3/2017
	Guest lecture, Friedrich-Alexander-Universität Erlangen-Nürnberg	12/2016
	Guest lecture, Stanford: <i>Mining Massive Datasets (CS246)</i>	3/2016
	Head teaching assistant, Stanford: <i>Mining Massive Data Sets (CS246; ~300 students)</i> <i>Managed team of 12 TAs; in charge of all course assignments, grading, and logistics</i>	Winter 2015
	Teaching assistant, Stanford: <i>Social & Inform. Network Analysis (CS224W; ~250 students)</i> <i>Developed assignments, supervised 12 project teams, organized poster session, office hours</i>	Fall 2015
Invited talks	e-WEAR Student Society Annual Symposium, Stanford University, CA, USA	9/2017
	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
	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
Academic community service	Outstanding Reviewer Award — <i>ACM Int'l Conference on Web-Search and Data Mining</i> , 2016	
	Co-organizer: <i>Workshop on Machine Learning for Health</i> , held at NIPS, 2017 <i>Workshop on Observational Studies Through Social Media</i> , held at ICWSM, 2017	
	Program committee member: WWW — <i>International World Wide Web Conference</i> , 2015, 2016; Session Chair, 2017; 2018 WSDM — <i>ACM International Conference on Web Search and Data Mining</i> , 2016, 2017, 2018 KDD — <i>ACM SIGKDD Conference on Knowledge Discovery and Data Mining</i> , 2015, 2016, 2017 ICWSM — <i>International AAAI Conference on Web and Social Media</i> , 2016, 2017 EMNLP — <i>International ACL Conference on Empirical Methods in Natural Language Processing</i> , 2017 MM — <i>ACM International Conference on Multimedia</i> , 2014, 2015 SocialNLP — <i>International Workshop on Natural Language Processing for Social Media</i> , 2016, 2017 EuroSymposium — <i>European Symposium on Societal Challenges in Computational Social Science</i> , 2017 HealthRecSys — <i>International Workshop on Health Recommender Systems at ACM RecSys</i> , 2017	
	Journal reviewer: JMIR — <i>Journal of Medical Internet Research (incl. Mental Health, Serious Games)</i> , 2016, 2017 TIST — <i>ACM Transactions on Intelligent Systems and Technology</i> , 2016 TKDE — <i>IEEE Transactions on Knowledge and Data Engineering</i> , 2016	
	Selected articles in media:	
	The Guardian on 'Paying to stay safe': why women don't walk as much as men	10/2017
	New York Times on Jakarta, the City Where Nobody Wants to Walk	8/2017
	NIH Office of Behavioral and Social Sciences Research on Research Spotlights	8/2017
	American Council on Science and Health on Activity Inequality: What Does That Mean?	8/2017
	CNN on Why are these countries the most obese? Walking is just one reason	7/2017
The Washington Post on Americans take fewer steps than people in U.K., new study reveals	7/2017	
CBS on Daily step counts: Which countries are most active - and which are least?	7/2017	
BBC on Do you live in the world's laziest country?	7/2017	
TIME on How Step Count Data Can Predict Obesity	7/2017	
WIRED on The problem with fitness studies based on activity apps	7/2017	
Huffington Post on How Smartphone Data Can Make Healthcare Smarter	7/2017	
Microsoft Research Blog on Sleep deprived? New study says your performance will suffer	1/2017	
Wall Street Journal on Want to Exercise More? Try Screen Time	12/2016	
Forbes on Study Finds Pokémon Go Does Get People Moving [...]	12/2016	
Science on Pokémon Go could add extra years to your life	10/2016	
BBC on Could playing Pokemon Go could make you live longer?	10/2016	
CNN on Pokemon Go could add 2.83 million years to users' lives	10/2016	
The Washington Post on The new [...] way to get fit: Pokémon Go, if you stick with it	10/2016	
CNBC on Pokémon Go could add 2.825 million years to US life expectancy	10/2016	
Fortune Magazine on Playing 'Pokémon Go' Makes You Live Longer, Says Microsoft Study	10/2016	
Reddit's front page on Pokémon Go has added [...] 144 billion steps to US physical activity	10/2016	
The Economist on Science on the web: Social net, working	9/2014	
Huffington Post on Here's The Secret Formula For Getting Free Pizza, According To Science	6/2014	
ABC News on How to Ask Strangers for a Free Pizza	5/2014	
MIT Technology Review on Data Mining Reddit Posts Reveals How to Ask For a Favor	5/2014	
Selected interviews in TV & radio:		
Deutschlandfunk Germany (radio) on Bewegung im Alltag - Da geht noch was!	8/2017	
ABC News Australia (radio) on Physical Activity Data Reveal Worldwide Activity Inequality	7/2017	
SiriusXM USA (radio) on Stand Up with Pete Dominick	7/2017	
BBC (TV) on Click (covering our research on NLP for crisis counseling and mental health)	3/2017	