

# Curriculum Vitae

## Svitlana Volkova, PhD

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**RESEARCH INTERESTS** Natural language processing, machine learning, deep learning  
Large-scale social media analytics for forecasting social media dynamics: real-word events, influenza dynamics, language change over time, opinion and emotion dynamics, entity and event-driven connotation dynamics  
Deception detection, information biases and factuality assessment in news and social media; abusive language detection; multilingual large-scale text analytics

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**EDUCATION** **Johns Hopkins University, Center for Language and Speech Processing**  
**Ph.D.**, Computer Science 2010 – 2015  
Dissertation: Predicting Demographics and Affect in Social Networks  
Committee: Benjamin Van Durme, David Yarowsky, Philip Resnik

**Kansas State University**, Manhattan, KS USA  
**M.S.**, Computer Science 2008 – 2010  
Thesis: Entity Extraction, Animal Disease-Related Event Recognition from Web. Advisors: William H. Hsu, and Doina Caragea

**Petro Mohyla Black Sea State University**, Mykolayiv Ukraine  
**M.S. cum Laude, B.S. cum Laude**, Computer Science 2000 – 2006  
Thesis: Building a System for Testing Knowledge of Students in Engineering. Advisor: Yuriy Kondratenko

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**PROFESSIONAL EXPERIENCE** **Pacific Northwest National Laboratory**, Richland, US  
Senior Research Scientist, Data Sciences and Analytics  
National Security Directorate 10/2015 – now

- Deception detection and tracking in social and news media (PI)
- SQUINT: Streaming query user interfaces (PI)
- Deep learning of multilingual distributed representations from large streaming text data (PI)
- Forecasting the future using diverse social media sources (co-PI)
- Led tasks on forecasting influenza dynamics, language dynamics, and multilingual connotation dynamics in social media.

**Microsoft Research**, Cambridge, UK  
Research Intern (Yoram Bachrach), ML Group 06/2014 – 09/2014  
Developed a demo for inferring psycho-demographics traits from social media (AAAI'15); studied relationships between predicted online identities and affects in social networks (ACL'16).

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**Microsoft Research**, Redmond, WA USA

Research Intern (Bill Dolan, Luke Zettlemoyer), NLP Group 2012  
Developed an approach to extract domain knowledge from instructional text and learn a dialog manager over structured knowledge (ACL'13).

Research Intern (Bill Dolan), NLP Group 2011  
Worked on modeling human-computer interactions in an Xbox domain (ACL'12); managed crowdsourcing tasks on collecting multilingual grounded descriptions of Xbox avatar characters (NAACL'13).

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**TECHNICAL SKILLS AND LANGUAGES**     **Expert knowledge:** Social Media Predictive Analytics, Natural Language Processing, Text Analytics, Machine Learning, Deep Learning, Social Networks, Data Mining, Probability and Statistics, Information Retrieval, Information Extraction, Artificial Intelligence, Graphs and Optimization  
**Programming languages:** Python, Java, C#     **Databases:** SQL, MongoDB  
**ML tools:** scikit-learn, keras, tensorflow, pytorch, R, numpy, scipy, pandas  
**Languages:** English (fluent), Russian, Ukrainian (native).

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**DEMOS**     ESTEEM: A Novel Framework for Qualitatively Evaluating and Visualizing Spatiotemporal Embeddings in Social Media: <http://goo.gl/3N9Ozj>  
Contrasting Public Opinion Dynamics in Social Media during Crisis: [goo.gl/XHhXHs](http://goo.gl/XHhXHs)  
Inferring Latent User Properties from Texts in Social Media: [goo.gl/KVwTmF](http://goo.gl/KVwTmF)

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**RECENT PEER-REVIEWED PUBLICATIONS**     Papers, presentations, posters, code and data: <http://www.cs.jhu.edu/~svitlana/>

1. *Truth of Varying Shades: On Political Fact-Checking and Fake News*. H. Rashkin, E. Choi, JY Jang, Y. Choi, **S. Volkova**. EMNLP'17 (short).
2. *Using Social Media to Predict the Future: A Systematic Literature Review*. L. Phillips, C. Dowling, K. Shaffer, N. Hodas, and **S. Volkova**. arXiv:1706.06134
3. *Intrinsic and Extrinsic Evaluation of Spatiotemporal Text Representations in Twitter Streams*. L. Phillips, K. Shaffer, D. Arendt, N. Hodas, **S. Volkova**. 2nd Workshop on Representation Learning for NLP, *ACL'17*.
4. *Uncovering the Relationships Between Military Community Health and Affects Expressed in Social Media*. **S. Volkova**, L. E. Charles, J. Harrison, C. Corley. EPJ Data Science Journal, 2017.
5. *ESTEEM: A Novel Framework for Qualitatively Evaluating and Visualizing Spatiotemporal Embeddings in Social Media*. D. Arendt, **S. Volkova**. *ACL'17 (demo)*.
6. *Separating Facts from Fiction: Linguistic Models to Classify Suspicious and Trusted News Posts on Twitter*. **S. Volkova**, K. Shaffer, J. Yea Jang, N. Hodas. *ACL'17 (short)*.
7. *Multilingual Connotation Frames: A Case Study on Social Media for Targeted Sentiment Analysis and Forecast*. H. Rashkin, E. Bell, Y. Choi, **S. Volkova**. *ACL'17 (short)*.
8. *Identifying Effective Signals to Predict Deleted and Suspended Accounts on Twitter across Languages*. **S. Volkova** and E. Bell. *ICWSM'17 (14% acceptance rate)*.
9. *Measuring, Predicting and Visualizing Short-Term Change in Word*

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- Representation and Usage in VKontakte Social Network*. I. Stewart, D. Arendt, E. Bell, **S. Volkova**. *ICWSM'17 (short)*.
10. *Contrasting Public Opinion Dynamics and Emotional Response during Crisis*. **S. Volkova**, I. Chetviorkin, D. Arendt, B. Van Durme. *SocInfo'16*.
  11. *Using Social Media to Measure Wellbeing: A Large-Scale Study of Emotional Response in Academic Discourse*. **S. Volkova**, K. Han, C. Corley. *SocInfo'16*.
  12. *Understanding Roles of Social Media in Academic Engagement and Satisfaction for Graduate Students*. K. Han, **S. Volkova**, C. Corley. *CHI'16*.
  13. *Account Deletion Prediction on RuNet: A Case Study of Suspicious Twitter Accounts Active During the Russian-Ukrainian Crisis*. **S. Volkova** and E. Bell. Workshop on Computational Approaches to Deception Detection, *NAACL'16*.
  14. *Inferring Perceived Demographics from User Emotional Tone and User-Environment Emotional Contrast*. **S. Volkova**, Y. Bachrach. *ACL'16*.
  15. *Mining User Interests to Predict Perceived Psycho-Demographic Traits on Twitter*. **S. Volkova**, Y. Bachrach, B. Van Durme. *IEEE BigData'16*.
  16. *On Predicting Socio-Demographic Traits and Emotions in Social Networks and Implications to Online Self-Disclosure*. **S. Volkova**, Y. Bachrach. *Cyberpsychology, Behavior, and Social Networking*, 2015.
  17. *Studying User Income through Language, Behavior and Affect in Social Media*. D. Preotiuc-Pietro, **S. Volkova**, V. Lampos, Y. Bachrach, N. Aletras. *PLoS ONE* 10(9), 2015.
  18. *Using Emotions to Predict User Interest Areas in Online Social Networks*. Y. Lewenberg, Y. Bachrach and **S. Volkova**. *IEEE DSAA'15*.
  19. *Online Bayesian Models for Personal Analytics in Social Media*. **S. Volkova**, B. Van Durme. *AAAI'15*.
  20. *Inferring Latent User Properties from Texts Published in Social Media (Demo)*. **S. Volkova**, Y. Bachrach. *AAAI'15*.
  21. *Improving Gender Prediction of Social Media Users via Weighted Annotator Rationales*. **S. Volkova**, D. Yarowsky. *NIPS Workshop on Personalization: Methods and Applications*, 2014.
  22. *Inferring User Political Preferences from Streaming Communications*. **S. Volkova**, G. Coppersmith, B. Van Durme. *ACL'14*.
  23. *Exploring Demographic Language Variations to Improve Multilingual Sentiment Analysis in Social Media*. **S. Volkova**, T. Wilson, D. Yarowsky. *EMNLP'13*.
  24. *Lightly Supervised Learning of Procedural Dialog Systems*. **S. Volkova**, P. Choudhury, C. Quirk, B. Dolan, L. Zettlemoyer. *ACL'13*.
  25. *Exploring Sentiment in Social Media: Bootstrapping Subjectivity Clues from Multilingual Twitter Streams*. **S. Volkova**, T. Wilson, D. Yarowsky. *ACL'13*.
  26. *Learning to Relate Literal and Sentimental Descriptions of Visual Properties*. M. Yatskar, **S. Volkova**, A. Celikyilmaz, B. Dolan, L. Zettlemoyer. *NAACL'13*.
  27. *CLex: A Lexicon for Exploring Color, Concept and Emotion Associations in Language*. **S. Volkova**, B. Dolan, T. Wilson. *EACL'12*.
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**10 long and 15 short papers** published in journals of the Ukrainian National Academy of Science: <http://svolkova.weebly.com/publications.html>

<b>AWARDS AND HONORS</b>	2017	<b>ACM Future of Computing Academy</b>
	2016	<b>Author of the Year, National Security Directorate</b>
	2016	<b>Grace Hopper Speaker, Artificial Intelligence Track</b>
	2010	<b>Google Anita Borg Memorial Scholarship Award</b>
	2008	<b>Fulbright Graduate Student Scholarship Award</b>
<b>PATENTS</b>	<i>Classification of Social Media Postings as Trusted News or as Types of Suspicious News.</i> <b>S. Volkova</b> , K. Shaffer. US Provisional Patent.	
	<i>Methods to Determine Likelihood of Social Media Account Deletion.</i> E. Bell, <b>S. Volkova</b> . US Provisional Patent.	
	<i>Crowdsourced, Grounded Language for Intent Modeling in Conversational Interfaces.</i> C. Brockett, P. Choudhury, B. Dolan, Y. C. Ju, P. Pantel, N. Mallory, <b>S. Volkova</b> . US20130262114 A1.	
<b>PROFESSIONAL SERVICE</b>	Vice-Chair of the ACM Future of Computing Academy	
	Social Media Area Chair at ACL 2017	
	Co-organizer of the Workshop on NLP and Computational Social Science at WebSci'16, EMNLP'16 and ACL 2017	
	Co-organizer of the Women in Machine Learning Workshop in 2015	
	Co-chair of a Joint Workshop on Social Dynamics and Latent Attribute Prediction in Social Media at ACL 2014	
	Co-chair of the ACL Student Research Workshop in 2014	
	I have been serving on program committees since 2014 for conferences: ACL, EACL, NAACL, EMNLP, AACL, WWW; workshops: WiML, WiNLP, and *ACL, TACL and PloSOne journals	
<b>TEACHING EXPERIENCE</b>	<b>Johns Hopkins University</b> Baltimore, MD USA	09/2010 – 12/2010
	<i>TA, Computer Science Department, Machine Learning</i>	
	<b>Petro Mohyla Black Sea State University</b> , Ukraine	07/2004 – 03/2006
	<i>Lecturer, Medical Equipment and Systems Department</i>	
	Taught graduate and undergraduate courses on algorithms and programming languages, operation analysis, web-design, and physics.	
<b>INVITED TALKS TUTORIALS</b>	03/27/17 Invited Talks at Google, Amazon and Facebook	
	10/21/16 Invited Speaker at Grace Hopper Conference, AI Track	
	05/13/16 Invited Seminar at the University of Maryland Baltimore County, MD	
	02/25/16 Invited CS Seminar at the University of Washington, Seattle WA	
	02/25/16 Invited Seminar at Northwestern University, Seattle WA	
	05/31/15 NAACL Tutorial on Social Media Predictive Analytics, Denver	
	04/15/15 Microsoft Research, Natural Language Processing Group, WA	
03/17/15 Microsoft Research, Machine Learning Group, Cambridge UK		
03/16/15 Psychometrics Center, University of Cambridge, Cambridge UK		

02/18/15 CLIP Seminar and Guest Lecture, University of Maryland, MD  
01/30/15 People Pattern, Austin TX  
11/13/14 Penn Positive Psychology Center, World Well-Being Project, PA  
11/12/14 Penn Computational Linguistics Group, Philadelphia  
11/07/14 Amazon Fall 2014 Graduate Research Symposium, Seattle  
09/12/14 University of Cambridge, Computer Laboratory, Cambridge UK

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**PROFESSIONAL** ACM Future of Computing Academy  
**MEMBERSHIPS** Women in Machine Learning (WiML)  
Women in Natural Language Processing (NLP)  
Fulbright Alumni Association  
Association for Computational Linguistics (ACL)  
Association for Computing Machinery (ACM)  
ACM Women in Computing  
Association for the Advancement of Artificial Intelligence (AAAI)

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