

Svitlana Volkova, PhD

CONTACT INFORMATION Pacific Northwest National Laboratory Voice: 509 372 6585, 443 668 0013
Data Sciences and Analytics E-mail: svitlana.volkova@pnnl.gov
National Security Directorate <https://www.linkedin.com/in/svitlanavolkova>
902 Battelle Blvd, Richland, WA, USA <http://www.cs.jhu.edu/~svitlana/>

RESEARCH INTERESTS Natural language processing; machine learning; deep learning for NLP; computational social science; social media analytics: forecasting social media dynamics: real-word events, opinions and emotions, disease outbreaks, language change over time, entity and event-driven connotations; deception detection and tracking, information biases and factuality assessment; multilingual NLP.

EDUCATION **Johns Hopkins University, Center for Language and Speech Processing**
Ph.D., Computer Science 09/2010 – 10/2015
Dissertation: Predicting Demographics and Affect in Social Networks
Advisor: Benjamin Van Durme
Dissertation Committee: David Yarowsky, Philip Resnik
Kansas State University, Manhattan, KS USA
M.S., Computer Science 08/2008 – 08/2010
Thesis: Entity Extraction, Animal Disease-Related Event Recognition from Web. Advisors: William H. Hsu, Doina Caragea. GPA: 3.7
Petro Mohyla Black Sea State University, Mykolayiv Ukraine
M.S. cum Laude, B.S. cum Laude, Computer Science 09/2000 – 03/2006
Thesis: Building a System for Testing Knowledge of Students in Engineering. Advisor: Yuriy Kondratenko. GPA: 4.0

PROFESSIONAL EXPERIENCE **Pacific Northwest National Laboratory**, Richland, US
Senior Research Scientist, Data Sciences and Analytics
National Security Directorate 10/2015 – now
PI: (1) deception detection and tracking in social and news media, and (2) streaming query user interfaces. Co-PI: (1) deep learning of multilingual distributed representations from large streaming data, and (2) forecasting the future using diverse social media sources. Contributed to projects on forecasting influenza dynamics using deep learning and social media, multilingual connotation dynamics, concept drift and meaning shift over time, and account deletion prediction on Twitter.
Microsoft Research, Cambridge, UK
Research Intern (Y. Bachrach), ML and Perception Group 06/2014 – 09/2014
Developed a demo (AAAI'15) for inferring psycho-demographics profiles and affects from texts in social media. Studied correlations between predicted online identities and affects in social networks (ACL'16).
Microsoft Research, Redmond, WA USA
Research Intern (B. Dollan, L. Zettlemoyer), NLP Group 05/2012 – 08/2012
Developed an approach (ACL'13) for learning dialog systems with light supervision; implemented a system that extracts task knowledge from instructional text and learns a dialog manager over this knowledge.

Research Intern (B. Dollan), NLP Group

05/2011 – 08/2011

Worked on modeling human-computer interactions in an Xbox domain (presented at ACL'12); managed crowdsourcing of grounded multilingual subjective descriptions of the Xbox avatars (NAACL'13).

**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, R

Languages: English (fluent), Russian and Ukrainian (native).

DEMOS

ESTEEM: A Novel Framework for Qualitatively Evaluating and Visualizing Spatiotemporal Embeddings in Social Media: <http://goo.gl/3N9Ozi>

Contrasting Public Opinion Dynamics in Social Media during Crisis: goo.gl/XHhXHs

Inferring Latent User Properties from Texts in Social Media: goo.gl/KVwTmF

**RECENT
PUBLICATIONS**

Papers, presentations, posters, code and data: <http://www.cs.jhu.edu/~svitlana/>

Uncovering the Relationships Between Military Community Health and Affects Expressed in Social Media. **S. Volkova**, L. E. Charles, J. Harrison and C. Corley. EPJ Data Science Journal 2017.

ESTEEM: A Novel Framework for Qualitatively Evaluating and Visualizing Spatiotemporal Embeddings in Social Media. D. Arendt and **S. Volkova**. ACL 2017 (demo).

Separating Facts from Fiction: Linguistic Models to Classify Suspicious and Trusted News Posts on Twitter. **S. Volkova**, K. Shaffer, J. Yea Jang and N. Hodas. ACL 2017 (short).

Multilingual Connotation Frames: A Case Study on Social Media for Targeted Sentiment Analysis and Forecast. H. Rashkin, E. Bell, Y. Choi and **S. Volkova**. ACL 2017 (short).

Identifying Effective Signals to Predict Deleted and Suspended Accounts on Twitter across Languages. **S. Volkova** and E. Bell. ICWSM 2017 (14% accept).

Measuring, Predicting and Visualizing Short-Term Change in Word Representation and Usage in VKontakte Social Network. I. Stewart, D. Arendt, E. Bell and **S. Volkova**. ICWSM 2017 (short).

Understanding Social Media's Take on Climate Change through Large-Scale Analysis of Targeted Opinions and Emotions. N. Pathak, M. Henry and **S. Volkova**. AAAI Spring Symposium on AI for Social Good 2017.

Contrasting Public Opinion Dynamics and Emotional Response during Crisis. **S. Volkova**, I. Chetviorkin, D. Arendt, and B. Van Durme. SocInfo 2016.

Using Social Media to Measure Student Wellbeing: A Large-Scale Study of Emotional Response in Academic Discourse. **S. Volkova**, K. Han, and C. Corley. Social Informatics 2016.

Account Deletion Prediction on RuNet: A Case Study of Suspicious Twitter

Accounts Active During the Russian-Ukrainian Crisis. **S. Volkova** and E. Bell. NAACL 2016 Workshop on Computational Approaches to Deception Detection.

Understanding Roles of Social Media in Academic Engagement and Satisfaction for Graduate Students. K. Han, **S. Volkova**, and C. Corley. CHI 2016.

Inferring Perceived Demographics from User Emotional Tone and User-Environment Emotional Contrast. **S. Volkova** and Y. Bachrach. ACL 2016.

Mining User Interests to Predict Perceived Psycho-Demographic Traits on Twitter. **S. Volkova**, Yoram Bachrach and B. Van Durme. IEEE BigData 2016.

On Predicting Socio-Demographic Traits and Emotions in Social Networks and Implications to Online Self-Disclosure. **S. Volkova** and Y. Bachrach. Cyberpsychology, Behavior, and Social Networking, 2015.

Studying User Income through Language, Behavior and Affect in Social Media. D. Preotiuc-Pietro, **S. Volkova**, V. Lampos, Y. Bachrach and N. Aletras. PLoS ONE 10(9), 2015.

Using Emotions to Predict User Interest Areas in Online Social Networks. Y. Lewenberg, Y. Bachrach and **S. Volkova**. IEEE DSAA 2015.

Online Bayesian Models for Personal Analytics in Social Media. **S. Volkova**, B. Van Durme. AAAI 2015.

Inferring Latent User Properties from Texts Published in Social Media (Demo). **S. Volkova** and Y. Bachrach. AAAI 2015.

Improving Gender Prediction of Social Media Users via Weighted Annotator Rationales. **S. Volkova** and D. Yarowsky. NIPS Workshop on Personalization: Methods and Applications 2014.

Inferring User Political Preferences from Streaming Communications. **S. Volkova**, G. Coppersmith, and B. Van Durme. ACL 2014.

Exploring Demographic Language Variations to Improve Multilingual Sentiment Analysis in Social Media. **S. Volkova**, T. Wilson, D. Yarowsky. EMNLP 2013.

Lightly Supervised Learning of Procedural Dialog Systems. **S. Volkova**, P. Choudhury, C. Quirk. B. Dolan and L. Zettlemoyer. ACL 2013.

Exploring Sentiment in Social Media: Bootstrapping Subjectivity Clues from Multilingual Twitter Streams. **S. Volkova**, T. Wilson, D. Yarowsky. ACL 2013.

Learning to Relate Literal and Sentimental Descriptions of Visual Properties. M. Yatskar, **S. Volkova**, A. Celikyilmaz, B. Dolan, L. Zettlemoyer. NAACL 2013.

CLex: A Lexicon for Exploring Color, Concept and Emotion Associations in Language. **S. Volkova**, B. Dolan, T. Wilson. EACL 2012.

10 long and 15 short papers published in journals of the Ukrainian National Academy of Science: <http://svolkova.weebly.com/publications.html>

AWARDS AND DIPLOMAS	2016	Author of the Year, National Security Directorate
	2016	Grace Hopper Invited Speaker, Artificial Intelligence Track
	2010	Google Anita Borg Memorial Scholarship Award
	2008	Fulbright Graduate Student Scholarship Award

PATENTS	<i>Methods to Determine Likelihood of Social Media Account Deletion</i> . E. Bell and S. Volkova.	
----------------	---	--

Crowdsourced, Grounded Language for Intent Modeling in Conversational Interfaces. C. Brockett, P. Choudhury, B. Dolan, Y. C. Ju, P. Pantel, N. Mallory, and S. Volkova.

PROFESSIONAL SERVICE Social Media Area Chair at ACL 2017
Co-organizer of the Workshop on NLP and Computational Social Science at WebSci 2016, EMNLP 2016 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 2014
I serve on a Program Committee for top-tier conferences: ACL, TACL, EACL, NAACL, EMNLP, AACL, WWW, IEEE journals, *ACL workshops

TEACHING EXPERIENCE **Johns Hopkins University** Baltimore, MD USA
Teaching Assistant, Computer Science Department 09/2010 – 12/2010
Machine Learning, Prof. Mark Dredze
Petro Mohyla Black Sea State University, Mykolayiv Ukraine
Assistant, Computer Science Department 07/2004 – 03/2006
Taught graduate and undergraduate courses: algorithms and programming languages, operation analysis, web-design, and physics.

INVITED TALKS TUTORIALS 03/27/17 Invited Talks at Google, Amazon and Facebook
10/21/16 Invited Speaker at the 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
04/13/15 Pacific Northwest National Laboratory, 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

MEMBERSHIPS Women in Machine Learning (WiML), Women in NLP, Fulbright Alumni Association, Association for Computational Linguistics (ACL), IEEE and IEEE Women in Engineering, ACM and ACM Women in Computing, AACL
